

AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE
TUESDAY, AUGUST 15, 2017

CALL TO ORDER 7:00 a.m., IRWD's Operations Center, First Floor Committee Room,
3512 Michelson, Irvine Ranch Water District

ATTENDANCE Committee Chair: Steve LaMar _____
Committee Member: John Withers _____

<u>ALSO PRESENT</u>	Paul Cook _____	Patrick Sheilds _____	Harry Cho _____
	Kevin Burton _____	Eric Akiyoshi _____	Paul Weghorst _____
	Rich Mori _____	Scott Toland _____	Tom Roberts _____
	Kellie Lew _____	Ken Drake _____	Ken Pfister _____
	Lars Oldewage _____	Arseny Kalinsky _____	Steve Malloy _____
	Malcolm Cortez _____	Bruce Newell _____	_____

COMMUNICATIONS

1. Notes: Burton
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted.
4. Determine which items may be approved without discussion.

INFORMATION

5. UPCOMING PROJECTS STATUS REPORT – CORTEZ/AKIYOSHI/LEW/MALLOY/MORI/BURTON

Recommendation: Receive and file.

6. RESEARCH BUSINESS PLAN UPDATE – SPANGENBERG/OLDEWAGE/BURTON

Recommendation: Receive and file.

7. ENTERPRISE ASSET MANAGEMENT SOFTWARE IMPLEMENTATION UPDATE – DRAKE/MESERLIAN/SHEILDS

Recommendation: Receive and file.

INFORMATION - Continued

8. MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONSTRUCTION STATUS QUARTERLY REPORT – MALLOY/BURTON

Recommendation: Receive and file.

ACTION

9. MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CHANGE ORDER NO. 58 AND VARIANCE NO. 4 – MALLOY/BURTON

Recommendation: That the Board approve Contract Change Order No. 58 in the amount of \$182,938.94 with Filanc/Balfour Beatty for electrical and SCADA programming modifications; and authorize the General Manager to execute Variance No. 4 in the amount of \$17,950 with Ninyo and Moore to provide supplemental materials testing for the Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities, project 04286.

10. SANTIAGO HILLS II CAPITAL FACILITIES DESIGN CHANGE ORDER – MCGEHEE/MORI/BURTON

Recommendation: That the Board authorize the General Manager to accept Irvine Community Development Company's design change order with Michael Baker International in the amount of \$177,400 for the Santiago Hills II, Recycled Water Capital Improvements, project 05823.

11. TUSTIN LEGACY CAPITAL FACILITIES – RIOS/LEW/BURTON

Recommendation: That the Board authorize the General Manager to accept the City of Tustin's construction contract with KEC Engineering in the amount of \$263,804 for the Victory Road Recycled Water Improvements, project 07163; authorize the General Manager to accept the City's construction contract with USS Cal Builders, Inc. in the amount of \$332,594.28 for the Moffett Drive Bridge Domestic and Recycled Water Improvements, projects 06765 and 06766; authorize the General Manager to accept the City's construction contract with Bali Construction, Inc. in the amount of \$187,348 for the Flight Drive Recycled Water Improvements, project 07535; and authorize a budget increase for project 07163 in the amount of \$200,000, from \$162,800 to \$362,800, for the construction of recycled water pipelines within Victory Road.

ACTION - Continued

12. IRWD SECURITY GUARD SERVICES CONTRACT – ZUNIGA/RONEY

Recommendation: That the Board authorize the General Manager to enter into a contract with Securitas, Inc. for security guard and patrol services for a three-year term with an option for two one-year renewals.

OTHER BUSINESS

13. A. Directors Comments

 B. Adjourn

Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available at the entrance of the meeting room at the District's Operation's Committee Room at 3512 Michelson, Irvine, California. The Irvine Ranch Water District's Committee Room is wheelchair accessible. If you require any special disability-related accommodations (e.g., access to an amplified sound system, etc.), please contact the District Secretary at (949) 453-5312 during business hours at least seventy-two (72) hours prior to the scheduled meeting.

August 15, 2017

Prepared by: M. Cortez/E. Akiyoshi/

K. Lew/S. Malloy/R. Mori

Submitted by: K. Burton *K.P.*

Approved by: Paul Cook *P. Cook*

ENGINEERING AND OPERATIONS COMMITTEE

UPCOMING PROJECTS STATUS REPORT

SUMMARY:

A status report of Irvine Ranch Water District's Upcoming Projects is presented to the Committee for information.

BACKGROUND:

The information, which is attached as Exhibit "A", is a status report submitted quarterly to the Committee for review.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Upcoming Projects Status Report

EXHIBIT "A"

IRWD UPCOMING PROJECTS STATUS REPORT

Project Name	Start	Start	Construction	Construction
	Planning	Design	Award	Final Acceptance
Michelson Force Main Rehabilitation			Fall 2017	
Re-establish SMH on Main Street, e/o MacArthur			Fall 2017	
Rockfield Flow Control Facility		Summer 2017		
Vector Access to SMH on Berm at MWRP			Winter 2018	
UCI Cooling Tower RW Conversion Offsite Pipeline Phase 2			Summer 2017	Winter 2018
DRWF Surge Tanks				Spring 2018
Reservoir Ladder Fall Protection			Summer 2017	Fall 2017
FPS 2 Pipeline Manifold Replacement				Winter 2018
Michelson Campus Security, Phase 1 Fencing			Fall 2017	
Sewer Line Repairs and Rehabilitation			Fall 2017	
SGU Sewer Connection		Summer 2017		
Culver Drive 8-in RW Pipe Rehabilitation		Summer 2017		
Laguna Canyon Road RW Pipeline Corrosion Repair				
Turtle Ridge DW, RW Pipeline Rehabilitation			Winter 2018	
Seawatch RW Pipeline Replacement			Fall 2017	
University Drive Widening Appurtenance Relocations (RA w/ Irvine)			Summer 2017	
Santiago Dam Outlet Tower Replacement		Fall 2017		
MWRP Repairs: Act Sludge, Secondary Tanks, RAS/WAS			Fall 2017	
Wells 2, 17, & 52 Rehabilitation			Fall 2017	
PA 1, Orchard Hills Neighborhood 1 RW (RA w/ICDC)				Fall 2017
PA 1, Orchard Hills Neighborhood 3 RW (RA w/ICDC)				Fall 2017
PA 1, Orchard Hills Neighborhood 3 DW and RW (RA w/ICDC)				Fall 2017
PA 1, Orchard Hills Neighborhood 3 "F" Street RW (RA w/ICDC)				Spring 2018
PA 6, Neighborhood 3, Phase 1 RW (RA w/ICDC)				Fall 2017
PA 6, Neighborhood 4B RW (RA w/ICDC)				Fall 2017
PA 6, Neighborhood 5A RW (RA w/ICDC)				Fall 2017
Technology Drive Extension Zone B RW (RA w/ICDC)				Fall 2017
Tustin Legacy, Park Ave and Moffett DW, S, RW (RA w/Tustin)				Fall 2017
Tustin Legacy, Moffett at Peters Canyon Channel DW, RW (RA w/Tustin)				Fall 2017
Tustin Legacy, Flight Drive RW (RA w/Tustin)				Spring 2018
Tustin Legacy, Moffett Dr and Legacy DW, RW (RA w/Tustin)				Fall 2018
PA 18 South, Hidden Canyon DW RW (RA w/Toll Brothers)				Fall 2017
PA 51, Marine Way DW, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Ridge Valley, Marine to Trabuco, DW, S (RA w/Heritage Fields)				Fall 2017
PA 51, Ridge Valley, Trabuco to Irvine Blvd, DW, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, C St from Trabuco Rd to LQ St, S (RA w/Heritage Fields)				Fall 2017
PA 51, LQ St from Ridge Valley to LY St, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, LN St from C St to LY St, DW, RW (RA w/Heritage Fields)				Fall 2017
PA 51, South C St and LY St, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, LY St from LQ St to Irvine Blvd, DW S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Alton Pkwy from Technology to Muirlands, DW S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Marine Way from Barranca Pkwy to Alton Pkwy, DW S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Cadence from Bosque to Z Street, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Alton Interceptor Sewer (RA w/Heritage Fields)				Fall 2017
PA 51, Marine Way from Alton to Barranca Sewer (RA w/Heritage Fields)				Fall 2017
PA 51, Sociable from Z St to B St, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Irvine Blvd from Lambert Rd to Z St, DW, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Terrapin from Trabuco Rd to Cadence RW (RA w/Heritage Fields)				Fall 2017

IRWD UPCOMING PROJECTS STATUS REPORT

Project Name	Start	Start	Construction	Construction
	Planning	Design	Award	Final Acceptance
PA 51, Benchmark and Prospective, DW, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, GP1 St DW, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, GP2 St, DW, S, RW (RA w/Heritage Fields)				Fall 2017
PA 51, GP2 from GP-3 to Bosque (RA w/Heritage Fields)				Fall 2017
PA 51, Benchmark DW, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Cultivate Sewer (RA w/Heritage Fields)				Fall 2017
PA 51, Marine Way from SR133 to Ridge Valley, DW, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Benchmark and Modjeska DW, RW (RA w/Heritage Fields)				Fall 2017
PA 51, Magnet from Ridge Valley to Bosque RW (RA w/Heritage Fields)				Fall 2017
PA 51, Irvine Boulevard at Merit RW (RA w/Heritage Fields)				Fall 2017
PA 51, Episode from Frame to Pusan RW (RA w/Heritage Fields)				Fall 2017
PA 51, District 7, Z St and A St RW (RA w/Heritage Fields)				Fall 2017
PA 51, District 5, Irvine Blvd DW, RW Conn (RA w/Heritage Fields)				Fall 2017
PA 51, Cadence Sewer (RA w/Heritage Fields)				Summer 2018
PA 51, District 5, Chinon DW, S, RW (RA w/Heritage Fields)				Summer 2018
PA 51, Cadence South DW, S, RW (RA w/Heritage Fields)				Fall 2018
Spectrum Center Drive 36" Sewer Relocation (RA w/ICDC)				Fall 2017
Serrano Summit Phase 2 Sewer			Fall 2017	
Serrano Summit Phase 2 DW, RW			Fall 2017	
MWRP Biosolids and Energy Recovery Facilities				Fall 2018
IIC East Zone A-B BPS Upgrades			Winter 2018	
Stockdale West Integrated Water Banking Project				Summer 2017
Zone 1 Reservoir No. 2			Winter 2018	
Eastwood Pump Station: Zone A-B BPS and Zone A-C BPS			Winter 2018	
ILP North Conversion - Pipelines				Fall 2018
A-B and A-C BPS Offsite Pipelines and ILP Bottom Drains			Winter 2018	
ILP North Conversion - Reservoir				Winter 2019
Water Recycling Plant Master Plan Update	Winter 2018			
IDF Sodium Hypochlorite Storage and Feed System				Fall 2017
PDF Sodium Hypochlorite Storage and Feed System		Fall 2017		
Energy Storage Systems				Fall 2018
Syphon Reservoir Improvements		Fall 2017		
Newport Coast SLS and SFM Improvements				Fall 2018
Phase I Regional Improvement District Split Update	Spring 2018			
Phase I Groundwater Workplan Update	Winter 2018			
Update Comprehensive Non-Potable Hydraulic Model	Summer 2017			
Potable Reuse Alternatives Analysis	Summer 2017			
Update to Replacement Planning Model, Phase 1	In-Process			
	Category	Months		
	Winter	Jan. Feb. & Mar.		
	Spring	Apr. May & June		
	Summer	Jul. Aug. & Sep.		
	Fall	Oct. Nov. & Dec.		

August 15, 2017

Prepared by: C. Spangenberg/L. Oldewage

Submitted by: K. Burton *RLB*

Approved by: Paul Cook *[Signature]*

ENGINEERING AND OPERATIONS COMMITTEE

RESEARCH BUSINESS PLAN UPDATE

SUMMARY:

Staff will provide an update on the research projects in which IRWD is currently involved.

BACKGROUND:

Periodically IRWD receives requests to participate in various research projects pertaining to emerging technologies through either direct funding or dedication of in-kind staff resources. Guidelines were developed to assist staff with its evaluation and response to those requests. These guidelines were incorporated into the IRWD Research Business Plan, which also provides a tracking mechanism for the various requests and ongoing research projects and programs in which IRWD participates. The underlying purpose of the Research Business Plan is to ensure that IRWD's research resources are being prioritized and utilized effectively.

One of the components of the Research Business Plan is for staff to provide a status update on the research projects to the Engineering and Operations Committee on a quarterly basis. A status update on the current research projects is attached as Exhibit "A".

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Research Projects Summary Table

Exhibit "A"

Research Projects Summary Table

No.	Project Title	Project Description	IRWD Contact	Organizations Involved	Type of Research	IRWD Participation Resource	Start Date	Projected Completion Date	Comments/Next Steps
1	Predicting RO Removal of Toxicologically Relevant Unique Organics (WRRF-14-19)	Predict removal efficiency of compounds identified by state or federal regulatory agencies of potential public health concern by reverse osmosis (RO), and predict removal of compounds that may be precursors of disinfection byproducts (DBPs) of potential health concern using quantitative models and recommendations for future research.	Spangenberg	University of New Mexico, Dr. Kerry Howe/WateReuse Research Foundation (WRRF)	Literature review, model development and prediction	In kind service @ \$5K (staff time and travel expenses reimbursed)	Jan-16	Sep-18	A sixth progress report was received in the middle of July and staff has completed review and submitted comments to the project leader. The researchers completed data analysis on the rejection and mass transfer coefficients for 70 different neutral organic compounds through 8 different membrane products. Data analysis showed the importance of specific functional groups and their characteristics. The researchers continued evaluating trends and relationships in the data, as well as working with the modeling team to integrate the experimental and modeling components of the project. A draft table of contents for the final report was completed with the first draft report to be submitted along with the next progress report in September.
2	Ensuring Stable Microbial Water Quality in Direct Potable Reuse Distribution Systems (WRRF-14-18)	Determine if DPR presents unique risks to the stability of the DWDS microbiome due to differences in the seed organisms, the type and amount of organic carbon and nutrients and the effect of blending different water types (e.g., blending with raw waters and blending with finished waters).	Oldewage	WateReuse Research Foundation (WRRF)	Workshop, literature review, and bench- or pilot-scale testing	In kind service @ \$5K (staff time and travel expenses reimbursed)	Nov-15	Dec-17	Staff attended the expert workshop held November 10 - 11, 2015 at West Basin MWD. This project is currently idle.
3	Brine/Concentrate Recovery Technologies Assessment	Preliminary assessment of membrane brine/concentrate recovery technologies for potential application at IRWD membrane facilities.	Spangenberg	IRWD	Literature review, field inspections, meetings with vendors and public agencies, unit treatment cost gathering, and performance data.	Staff Time	May-16	Oct-17	Staff completed literature review of 20 technologies from Water Research Foundation, Water Environment Research Foundation, WateReuse Research Foundation, Bureau of Reclamation, Sandia National Laboratories, European SOL Coalition, USEPA documents and databases, met with various vendors, and reviewed performance data from LACSD, EMWD, Padre Dam Municipal Water District and Inland Empire Utilities District. Staff completed revisions and is having a membrane consultant review the report to verify the findings and recommendations made by staff. Updates to the report will be made based upon the consultants' recommendations.

August 15, 2017

Prepared by: K. Drake/ B. Meserlian

Submitted by: P. Shields

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

ENTERPRISE ASSET MANAGEMENT SOFTWARE IMPLEMENTATION UPDATE

SUMMARY:

The Enterprise Asset Management (EAM) Software Implementation Project is approaching the initial Go-Live milestone in October 2017. The design-phase tasks are complete, and the configuration / testing of the Maximo software is now underway. Staff will update the Committee on completed, pending, and future tasks, and provide an overview of design-phase findings.

BACKGROUND:

In January 2015, a phased approach was adopted for the implementation of the EAM program (shown in Table 1 below). This approach expedites the development of a maintenance platform for major IRWD facilities (e.g., treatment plants, pump stations, wells, etc.) before the focus of the program shifts to other types of District assets such as pipelines, buildings, and vehicles.

Phase 1 of the program included pre-implementation activities such as asset inventory database development, business process refinement, and asset criticality analysis. In August 2016, staff issued a Request for Proposal for software implementation services. In November 2016, the Board approved the procurement of Maximo software licenses and authorized agreements with Total Resources Management (TRM) to lead the first implementation milestone through completion (i.e., "Part 1: Work and Asset Management"). The overall goal of this milestone is to replace the District's current computerized maintenance management system (Tabware) with the new Maximo system. Part 1 was initiated in mid-December 2016, with first and second Go-Live targets set for October 2017 and March 2018, respectively.

Table 1: EAM Program Phases and Milestones

EAM Program Milestones	Target Completion	Current Status
<i>Phase 1: Pre-Implementation</i>		
Asset Identification/ Inventory	August 2016	Complete
EAM Software Selection	May 2016	Complete
Implementer Selection Process	October 2016	Complete
<i>Phase 2: Implementation</i>		
EAM Software Procurement	December 2016	Complete
Part 1: Work & Asset Management Go Live	October 2017	Pending
Part 2: Mobile Solutions & GIS	Future	-
Part 3: Info. Services, Fleet, Facility Assets	Future	-

TRM initiated the Part 1 scope with organizational research and project planning activities, followed by multiple training sessions for IRWD subject matter experts (SMEs). The SMEs were then participated in design workshops that extended through May 2017. Workshop participants were asked to design a system that would:

- Establish efficient business processes;
- Promote consistency in work and asset management practices;
- Enable a mobile solution for field work order tracking;
- Enable actionable analytics and reporting; and
- Integrate Maximo with other core systems.

The workshops allowed TRM to evaluate IRWD's businesses processes, review its asset systems, document the software requirements, and recommend corresponding solutions for the new maintenance platform. Subsequently, TRM produced 20 reports, which together formed a blueprint for IRWD's EAM Program. The reports included process flow diagrams, system architecture recommendations, testing/training plans, implementation strategies, a change management plan, and a matrix identifying over 250 implementation requirements (a set of requests, decisions, and activities for the Project).

In June 2016, the implementation process underwent a transition from "design" to "execution". The team's efforts shifted from data gathering and evaluation to software configuration, data loading, and system testing. Configuration and testing activities are scheduled to continue through September. Training sessions for staff will follow in October.

The October 2017 Go-Live milestone will mark the first time staff will utilize the new Maximo system. This will enable staff to initiate, assign, and complete work orders. Labor reporting in Maximo will be automatically transferred to Oracle time cards. A second Go-Live is scheduled for March 2018 and will include additional integration points with Oracle's purchasing / warehouse modules. This integration will support material reservations, enable work order planning/scheduling, and allow Maximo to capture the cost of goods and services on work orders. Both Go-Live targets will apply to over 28,000 assets located within vertical facilities, which include treatment plants, pump stations, lift stations, wells, reservoirs, interties, and valve stations. Horizontal and other types of assets will be incorporated into Maximo with the next milestones (Part 2 and Part 3).

FISCAL IMPACTS:

Projects 03566 and 03567 are included in the FY 2017-18 Capital Budget.

Project No.	Current Budget	Addition <Reduction>	Total Budget
03566	\$2,682,100	\$-0-	\$2,682,100
03567	\$2,682,100	\$-0-	\$2,682,100
Total	\$5,364,200	\$-0-	\$5,364,200

ENVIRONMENTAL COMPLIANCE:

This activity is not subject to the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15060 (c)(2) Preliminary Review. An activity is not subject to CEQA if the activity will not result in a direct reasonably foreseeable indirect physical change to the environment.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

None.

August 15, 2017

Prepared by: S. Malloy

Submitted by: K. Burton

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONSTRUCTION STATUS QUARTERLY REPORT

SUMMARY:

Staff will present the Construction Status Quarterly Report for the Michelson Water Recycling Plant (MWRP) Biosolids and Energy Recovery Facilities project from May 2017 through July 2017.

BACKGROUND:

Construction of the Biosolids project was awarded to Filanc/Balfour-Beatty Joint Venture (FBB) in March 2013 in the amount of \$163,465,940. The Biosolids project will provide biosolids digestion, dewatering, energy production, and on-site sludge drying. The project includes excavation for subsurface structures; installation of foundation piles; three egg-shaped methane digesters; a state-of-the-art odor control system; a biogas conditioning system and power generation using micro-turbines; a fats, oil and grease (FOG) receiving station; and new utility services. These facilities are being constructed on the land north of IRWD's existing Operations Center, maintenance shops, water quality laboratory, and warehouse.

General Project Information:

The project summary through July 31, 2017 and through Contract Change Order No. 56 is shown below.

Notice of Award	April 29, 2013
Contractual Project Completion Date	October 31, 2017
Estimated Project Completion Date	February 2019
Cumulative Time Extension through Change Order No. 56	368 Days
Percentage of Contractual Construction Time Elapsed	95%
Approximate Percentage of Total Contract Amount Invoiced	91%
 Bid Amount	 \$163,465,940
<u>Total Change Orders</u>	<u>\$ 15,815,563 (9.7%)</u>
Total Contract Amount	\$179,281,503

Construction Status:

Solids Handling Building: The building structure has been completed. Roof joints and steel roofing have been installed. Most of the decorative masonry veneer has been completed around the perimeter of the building on the lower walls. The contractor has begun installing the green architectural veneer on the upper walls. Internal piping systems for sludge processing, utility

water, roof drainage, odor control, and fire protection are being installed. Additionally, the heating, ventilation and air conditioning system and electrical equipment are being installed at various locations in the building. The heat dryer equipment tower and various components are being erected.

Major pieces of equipment installed in the Solids Handling Building include:

- Bulk Polymer Tanks;
- Sludge Screens;
- Polymer Aging Tanks;
- Thickening Centrifuges Feed Pumps;
- Thickening Centrifuges;
- Digester Feed Pumps;
- Dewatering Centrifuges;
- Centrifuge Variable Frequency Drives and Local Control Panels;
- Centrate Aeration Blowers;
- Sludge Wet Material Bins;
- Dryer Furnace, Drum, Recycle Bin, and Mixer;
- Dryer Venturi Scrubber and Condenser;
- 5-Ton and 10-Ton Bridge Cranes;
- Cake Storage Hopper; and
- Odor Control Fans.

West of the Solids Handling Building: The stormwater pumps and discharge piping are installed and the electrical work progresses. The chemical pumps under the four bulk polymer storage tanks and the access platforms/ladders are installed.

North of the Solids Handling Building: The Centrate Treatment facility structure and the interior piping and guardrail have been completed. Electrical wiring is being installed. The microturbine slab has been completed and several large pieces of electrical equipment have been installed including switchgear, transformers, secondary breakers, stand-by generator, microturbines, heat recovery units, and heat exchanger. The enclosed gas burner (flare) was placed on its concrete pad. FBB has started placing concrete for the truck scale.

East of the Solids Handling Building: The liquid chemical storage facility piping and wiring are being installed. The three odor scrubber towers and the odor scrubber piping system have been installed. FBB has installed the regenerative thermal oxidizer, chemical pumps, odor control fiberglass piping, and light poles. The digester gas holding tank was painted green.

Egg-Shaped Methane Digester Area: On the east side of the biosolids site, CB&I, the subcontractor for the egg-shaped digesters, completed the steel shells in January 2016. Parada Painting, the painting subcontractor, coated the exterior of the methane digesters and PCI applied the foam insulation. The green architectural veneer on the outside of Methane Digester No. 1 is being installed. FBB is installing the walkways from the top of the Digester Control Building to the top of the digesters.

Acid Phase Digester Area: FBB has completed the major concrete work, and Parada Painting has completed the interior coating of the acid phase digesters. FBB installed the mixers, handrail, and the inter-connecting bridges between the three acid phase digesters. Electrical work on top of the acid digesters continues.

Digester Control Building: The building structure has been completed, and electrical equipment and cable trays have been installed. FBB has installed the steel roofing and made roof penetrations for the exhaust from the boilers. Masonry veneer has been installed on the outside of the building, and masonry block for the elevator tower to the top of the egg-shaped digesters is being completed. The boilers, heat exchangers, heating water pumps, and various sludge pumps have been installed in the building. Air handling units were installed on the mezzanine level of the boiler room. FBB has installed the fire sprinkler piping in the basement of the building.

South of the Digester Control Building: The sludge holding tanks, mixers, interior protective coatings, and the interior and exterior piping for both tanks have been completed. Various pumps, valves, and piping have been installed in the basement of the Dewatering Feed Pump Station. FBB installed the railing and grating of the Dewatering Feed Pump Station stair tower. At the FOG receiving station, the FOG tanks, pumps, piping, heat exchanger and platforms/ladders have been installed.

Attached as Exhibit "A" is a powerpoint presentation describing the status of the project.

Schedule Status:

Milestone No. 1 facilities (Waste Activated Sludge and Primary Sludge Pumping and Sludge Screening Facilities) were completed in October 2016. The new SCADA programmers are fully engaged and have begun bench-testing control programs for Milestone No. 2. The start-up of facilities associated with Milestone No. 2 (Sludge Thickening) and Milestone No. 3 (FOG) are scheduled to begin in fall 2017.

While the construction management team has actively encouraged FBB to update the construction schedule in a timely manner, FBB has repeatedly submitted schedules late. The February 2017 through May 2017 schedules were essentially the same with unrealistic completion dates. FBB's most recent schedule for June 2017 is more accurate and provides the following major project completion dates:

All Physical Construction Complete	March 2018
Digestion and Cake Haul-off Complete	August 2018
Microturbines On-line	November 2018
Dryer On-line	November 2018
Final Completion	February 2019

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – MWRP Biosolids and Energy Recovery Facilities Quarterly Report

EXHIBIT "A"

Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities

Construction Status Quarterly Report – August 2017
(Activities from May 2017 through July 2017)

Engineering & Operations Committee
August 15, 2017



August 2017 Quarterly Report

Key Information / Dates

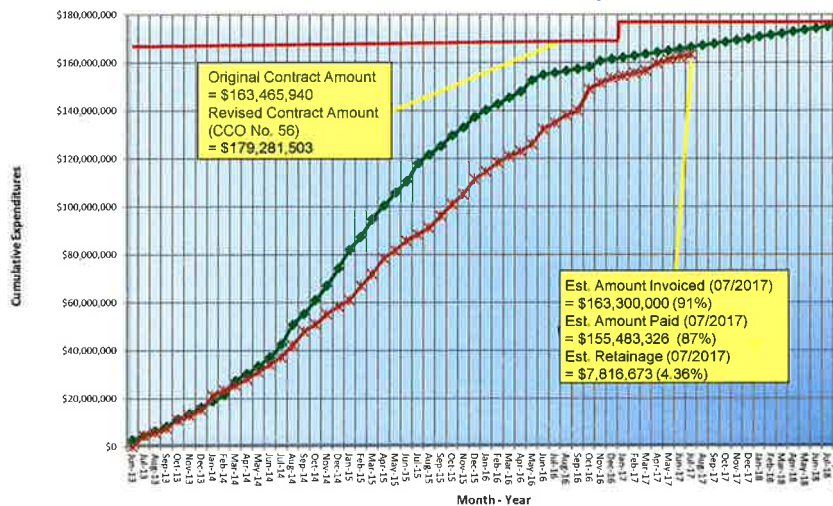
■ Contractor:	Filanc/Balfour-Beatty
■ Contract Amount:	\$163,465,940
■ Change Orders to Date (Thru CCO 56)	<u>\$ 15,815,563 (9.7%)</u>
■ Revised Contract Amount to Date:	\$179,281,503
■ Contractual Calendar Days:	1,646
■ Additional Days thru Change Orders:	368
■ Notice of Award:	April 29, 2013
■ Time Elapsed thru April 2017:	95%
■ Contractual Completion Date:	October 31, 2017

Irvine Ranch Water District



August 2017 Quarterly Report

Financial - FBB Cumulative Expenditures



Irvine Ranch Water District

3

August 2017 Quarterly Report

Financial – Consultant Construction Phase Services

Consultant	Scope	Purchase Order		Variance		Total Authorization	Total Invoice to Date	Percent of Total
		No.	Amount	Total No.	Amount			
Arcadis-US	Construction Inspection & Management	521366	\$ 2,931,368.00	1	\$ 1,345,755.00	\$ 4,277,123.00	\$ 3,614,337.55 (8/2017)	85%
Black & Veatch	Engineer of Record	514248	\$ 12,509,031.00	5	\$ 5,611,050.00	\$ 18,120,081.00	\$ 12,981,139.54 (4/2017)	72%
Borchard Surveying	Surveying	514249	\$ 206,680.00	0	\$ -	\$ 206,680.00	\$ 154,542.12 (2/2017)	75%
Dudek	Order Control	514217	\$ 94,616.00	0	\$ -	\$ 94,616.00	\$ 8,791.36 (12/2014)	9%
ET&C	SCADA Testing	513742	\$ 1,239,007.00	1	\$ 734,600.00	\$ 1,973,607.00	\$ 1,465,550.94 (08/2017)	74%
HDR	Construction Inspection	521288	\$ 2,834,476.00	2	\$ (393,997.50)	\$ 2,440,478.50	\$ 1,911,712.60 (12/2016)	78%
Nayo & Moore	Geotechnical-Concrete Testing	518585	\$ 222,730.00	3	\$ 124,245.00	\$ 346,975.00	\$ 344,975.16 (08/2017)	99%
NMG	Geotechnical-Piles and Material Testing	514251/526284	\$ 650,273.00	5	\$ 206,019.20	\$ 856,292.20	\$ 774,189.80 (12/2016)	90%
Element	Materials Testing	521515	\$ 10,000.00	0	\$ -	\$ 10,000.00	\$ 6,130.00 (4/2017)	61%
TOTAL:			\$ 20,698,181.00	17	\$ 7,627,671.70	\$ 28,325,852.70	\$ 21,261,369.07	75%

Irvine Ranch Water District

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August 2017 Quarterly Report

MILESTONE	ACTIVITY	ORIGINAL	Revised per CCO #45 6/27/2016	Per July 2017 Update
	Notice to Proceed	June 3, 2013		
1	WAS & Primary Sludge Processing	July 6, 2015	October 31, 2016	October 31, 2016
2	Sludge Thickening Facilities	August 20, 2015	February 10, 2017	April 17, 2018
3	FOG / Food Waste Receiving	September 19, 2015	April 17, 2017	March 22, 2018
	Construction Complete	New with CCO No. 45	April 28, 2017	April 17, 2018
4A	Anaerobic Digestion Equipment Installed	January 17, 2016	March 21, 2017	June 27, 2018
4B	Anaerobic Digestion Facilities Operational	January 17, 2016	August 1, 2017	August 31, 2018
5	Produce Class B Biosolids Cake	March 2, 2016	June 20, 2017	September 17, 2018
6	Microturbine Power Generation Online	June 30, 2016	August 28, 2017	December 26, 2018
7	Produce Class A Biosolids (Pellets)	August 29, 2016	September 29, 2017	January 3, 2019
Final Completion	Project Completion (including 35 weather-related allowance)	October 28, 2016	October 31, 2017	March 18, 2019

Irvine Ranch Water District

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August 2017 Quarterly Report

Entire Biosolids Site

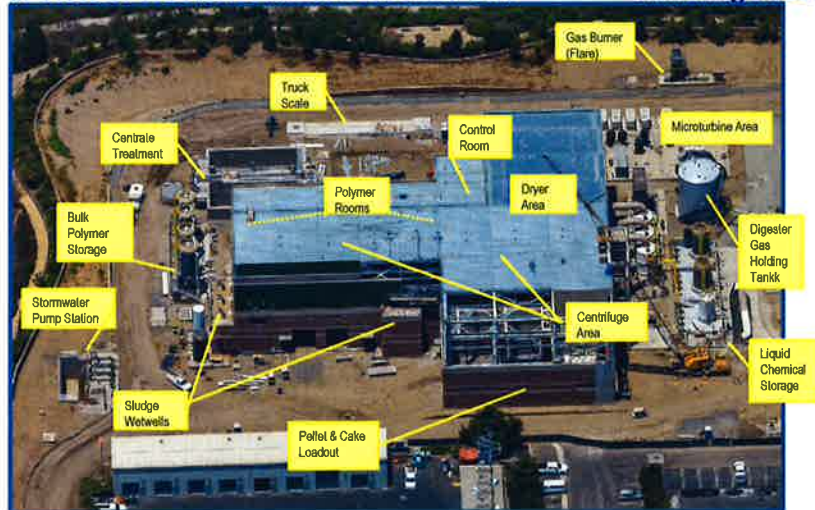


Irvine Ranch Water District

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August 2017 Quarterly Report

Aerial View of Western Half of Biosolids Site – Solids Handling Area



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August 2017 Quarterly Report

Architectural Veneer Installation - Solids Handling Building



Irvine Ranch Water District

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August 2017 Quarterly Report

Roof Installation - Solids Handling Building



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August 2017 Quarterly Report

Centrate Treatment Facility



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Pellet & Dewatered Cake Load Out Area - Solids Handling Building



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Thickening Centrifuges, Overhead Crane, & Roof Joists - Solids Handling Building



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August 2017 Quarterly Report

Digester Gas Holding Tank



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August 2017 Quarterly Report

Aerial View of Eastern Half of Biosolids Site – Digestion Area



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August 2017 Quarterly Report

Methane Digesters and Walkways



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August 2017 Quarterly Report

Architectural Veneer - Methane Digester No. 1



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August 2017 Quarterly Report

FOG Tanks, Digester Gas Pretreatment, and Sludge Holding Tanks



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August 2017 Quarterly Report

Stair Tower – Dewatering Feed Pump Station



Irvine Ranch Water District

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August 2017 Quarterly Report

Planned Activities – August 2017 to October 2017



The background image is an aerial photograph of a water treatment facility. It shows various structures, including buildings, a large circular tank, and a parking lot with several vehicles. The facility is surrounded by greenery and a road.

Continue construction at building, truck scale, SWPS and Centrale, Continue Biogas treatment, and Microturbine areas. Curb, gutter and site paving. Bench-test SCADA programs.	Continue construction at building, Digester areas, Chemicals, Odor Control, and FOG. Complete yard piping. Install new 6" gas line in Riparian View. Install two new gas meters.
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Irvine Ranch Water District

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August 15, 2017

Prepared by: S. Malloy

Submitted by: K. Burton

Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONTRACT CHANGE ORDER NO. 58 AND VARIANCE NO. 4

SUMMARY:

Filanc/Balfour-Beatty (FBB) is constructing the Michelson Water Recycling Plant (MWRP) Biosolids and Energy Recovery Facilities (Biosolids Project). Contract Change Order (CCO) No. 58 includes electrical and SCADA programming modifications. Ninyo and Moore has been providing materials testing on the Biosolids project, and Variance No. 4 is for supplemental materials testing. Staff recommends that the Board:

- Approve CCO No. 58 in the amount of \$182,938.94 with FBB, and
- Authorize the General Manager to execute Variance No. 4 in the amount of \$17,950 with Ninyo and Moore to provide supplemental materials testing for the Biosolids Project.

BACKGROUND:

Construction of the Biosolids Project was awarded to FBB in March 2013 in the amount of \$163,465,940. The Biosolids Project will provide biosolids digestion, dewatering, energy production, and on-site sludge drying. The project includes excavation for subsurface structures; installation of foundation piles; three egg-shaped digesters; a state-of-the-art odor control system; a biogas conditioning system and power generation using microturbines; a fats, oil and grease receiving station; and new utility services. These facilities are being constructed on the land north of IRWD's Operations Center, maintenance shops, water quality laboratory, and warehouse.

CCO No. 58:

Staff negotiated with FBB and agrees to the labor and material costs contained in CCO No. 58, which contains the following items:

- *Concrete Cap over Shallow Pipe Crossings in the amount of \$7,923.00* – Sludge pipes were installed shallow between the Solids Handling Building and the digester area in order to clear electrical duct banks. The area was backfilled prior to realizing that the pipes needed to be encased in concrete to protect them from traffic loads. The cost included is for the time and materials to re-excavate the pipes and place the concrete.
- *Additional Conduit and Wiring for Sludge Screen Moisture Sensors in the amount of \$8,355.32* – Review of the contract documents revealed that additional conduit and wiring are necessary to connect the sludge screen moisture sensors to the Huber Control

Panel. This item is for the labor and materials to install and wire the sensors to the control panel.

- *SCADA Programming Modifications in the amount of \$15,758.38* – Review of the project requirements resulted in several SCADA programming modifications. These modifications were required to differentiate the SCADA computers for the recycled water process from the Biosolids process. Other SCADA changes were made for better program management and better user interface. The processes involved in these changes included the thickening centrifuge, odor control, and liquid chemical process areas. This item is for labor to make the necessary programming changes.
- *Polymer Storage Power Panels Wire and Breaker Modifications in the amount of \$24,238.65* – Review of project requirements revealed that the wires and breakers for the polymer storage power panels needed to be increased. This item is for the labor and material to increase the wire and breakers for the polymer storage power panels.
- *Odor Control Starter Modifications in the amount of 41,436.09* – The two 200 horsepower odor control fans have starters that are connected to Motor Control Center 4101 (MCC-4101) in the Solids Handling Building electrical room. MCC-4101 was purchased by FBB through the local electrical distributor, One Source, and fabricated by Rockwell. Rockwell included starters for the odor control fans; however, the supplier of the odor control system, Daniel Mechanical, required additional wiring and relays in the starters that were already fabricated by Rockwell. Since MCC-4101 is now energized, this re-work will require the electrical subcontractor, Morrow-Meadows, to de-energize MCC-4101. Once Rockwell has completed the re-work, the affected section of MCC-4101 will require field certification by Underwriters Laboratories. This item is for the labor and materials to make the necessary modifications of the odor control starters in MCC-4101 and UL certification.
- *Odor Control Fan Remote Temperature Device Revisions in the amount of \$52,484.50* – Eight remote temperature devices were added to each of the two 200 horsepower fan motors. The installation requires wiring, termination of the wires in a local panel, and routing a fiber optic cable from the local panel to the SCADA system. This item is for the materials and labor to install and connect the remote temperature devices in odor control system.
- *Re-location of Digester Control Building Gas Room Local Control Panels in the amount of \$32,743.00* – The gas boosters pump biogas from the acid digesters into the methane digesters. The local control panels were relocated so that they would not encroach onto the walkway of the gas room. This item is for the labor and material to relocate the local control panels.

Staff recommends that the Board approve CCO No. 58 in the amount of \$182,939.74, which is attached as Exhibit “A”. Items that do not claim or grant additional time are considered full compensation for those items. If items require additional time, the items included in this change

order are full compensation except for time impacts. The Contractor reserves the right to claim time impacts, but the Contractor must show any time impacts to the project's critical path and how IRWD is responsible for these time impacts. Resolution of these time impacts is scheduled for a later date. CCO No. 58 does not extend any of the milestone completion dates. The construction change order summary is attached as Exhibit "B".

Variance No. 4:

Ninyo & Moore has been providing concrete sampling/testing, masonry grout sampling/testing, and welding inspection since 2013. The effort to complete these samplings and inspections was underestimated and after review of the remaining effort needed, staff requested that Ninyo & Moore submit a variance for the remaining work along with in-place density testing during paving operations, which will occur starting in fall 2017. Staff recommends that the Board approve Variance No. 4, which is attached as Exhibit "C", in the amount of \$17,950 with Ninyo & Moore.

FISCAL IMPACTS:

The MWRP Biosolids and Energy Recovery Facilities Project 04286 is included in the FY 2017-18 Capital Budget. The existing budget is sufficient to fund the change order and variance.

ENVIRONMENTAL COMPLIANCE:

The MWRP Biosolids and Energy Recovery Facilities is subject to the California Environmental Quality Act (CEQA) and in conformance with the California Code of Regulations Title 14, Chapter 3, Article 7, a Supplemental Environmental Impact Report (SEIR), SCH # 2011031091, was certified by IRWD at its October 22, 2012 meeting. The City of Irvine Planning Commission approved a conditional use permit for the IRWD Biosolids Project at its December 6, 2012 meeting.

RECOMMENDATION:

That the Board approve Contract Change Order No. 58 in the amount of \$182,938.94 with Filanc/Balfour Beatty for electrical and SCADA programming modifications; and authorize the General Manager to execute Variance No. 4 in the amount of \$17,950 with Ninyo and Moore to provide supplemental materials testing for the Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities, Project No. 04286.

LIST OF EXHIBITS:

Exhibit "A" – Contract Change Order No. 58 with FBB
Exhibit "B" – Construction Change Order Summary
Exhibit "C" – Ninyo & Moore Variance No. 4

CON EXHIBIT "A" ORDER



Irvine Ranch Water District

15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000
(949) 453-5300

C.O. No. 58
☐ Final
Project No. 04286

MWRP Biosolids and Energy Recovery Facilities

Project Title

Date: 08/09/2017

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Concrete Cap over Shallow Pipe Crossings (CR-348) PR 04286 Task 5.31	\$7,923.00	\$0.00	See Notes
2. Additional Conduit and Wiring for Sludge Screen Moisture Sensors (CR-381) PR 04286 Task 5.30	\$8,355.32	\$0.00	See Notes
3. SCADA Programming Modifications (CR-433/476/546/547/551) PR 04286 Task 5.30	\$15,758.38	\$0.00	See Notes
4. Polymer Storage Power Panels Wire and Breaker Modifications (CR-456) PR 04286 Task 5.30	\$24,238.65	\$0.00	See Notes
5. Odor Control Starter Modifications (CR-466) PR 04286 Task 5.30	\$41,436.09	\$0.00	See Notes
6. Odor Control Fan Remote Temperature Device Revisions (CR-522) PR 04286 Task 5.30	\$52,484.50	\$0.00	See Notes
7. Re-location of Digester Control Building Gas Room Local Control Panels (CR-534) PR 04286 Task 5.30	\$32,743.00	\$0.00	See Notes
Notes: 1. For all items noted above, the Contractor reserves the right to compensable and/or excusable time extensions provided that time impacts to the Project's critical path are demonstrated to be beyond the Contractor's control. 2. Contractor reserves any and all rights it has and otherwise does not waive or release any claims it may have for additional compensation related to impact, including but not limited to the cumulative effect of the number, nature, or extent of any changes or design clarifications. 3. The project completion date of October 31, 2017 per CCO No. 45 is unchanged by this Change Order.			
TOTAL	\$182,938.94	\$0.00	0

DAYS ±

1. NET AMOUNT THIS CHANGE ORDER	=	\$182,938.94	0
2. ORIGINAL CONTRACT AMOUNT	=	\$163,465,940.00	1,278
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	\$16,036,981.11	368
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	\$179,502,921.11	1,646
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	\$179,685,860.05	1,646

sNOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

We hereby agree to make the above change subject to the terms of this change order for the sum of: _____
 -----One Hundred Eighty-Two Thousand Nine Hundred Thirty-Eight and 94/100 -----Dollars

Date _____ Contractor Filanc/Balfour-Beatty By: Harry Cosmos, President

SIGNATURE	DATE	APPROVAL LEVEL REQUIRED
IRWD Engineer or Consulting Engineer	Date	Department Director Approval Required ☐
Principal Engineer	Date	Executive Director Approval Required ☐
Executive Director of Engineering & Water Quality	Date	General Manager Approval Required ☐
General Manager	Date	Board Approval Required ☒
		Purchase Order No. _____

sNOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

EXHIBIT "B"

MWRP Biosolids and Energy Recovery Facilities

PR 21146 (4286)

Construction Change Order Summary

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:	
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016	
Change Order		Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
1		Approved by Exe. Director of Engineering and Water Quality Approved on October 24, 2013				\$20,202.42	\$0.00	\$20,202.42	0.01%	\$163,486,142.42	0	0	0	1,278	10/28/2016
	1.1	Modifications to Road to Development Area - Delete AC to Triangle, add AB to Michelson (CR-004)	A	IRWD	\$ 20,202.42						0				
2		Approved by Exe. Director of Engineering and Water Quality Approved on November 13, 2013				\$12,475.08	\$20,202.42	\$32,677.50	0.02%	\$163,498,617.50	0	0	0	1,278	10/28/2016
	2.1	Street Light Conduit Modifications (CR-007)	B	IRWD	\$ 12,475.08						0				
3		Approved by Board of Directors Approved on March 10, 2014				\$745,503.00	\$32,677.50	\$778,180.50	0.48%	\$164,244,120.50	0	0	0	1,278	10/28/2016
	3.1	Bid Quantity Adjustment of Bid Item 8.6 Pre-Drill	B	FBB	\$ 745,503.00						0				
4		Approved by Exe Dir of Eng & Water Quality Approved on March 14, 2014				\$23,029.22	\$778,180.50	\$801,209.72	0.49%	\$164,267,149.72	0	0	0	1,278	10/28/2016
	4.1	Installation of Five Additional Groundwater Wells and Monitoring – (CR-006) PR 21146 (4286) Task 3505	A	IRWD	\$11,047.81						0				
	4.2	Brace Bay Modifications at the FOG Station – (CR-015) PR 21146 (4286) Task 3505	C	FBB	\$2,977.81						0				
	4.3	Grounding Extension at Nitrogen and Mineral Oil System (CR-025) PR 21146 (4286) Task 3510	C	IRWD	\$9,003.60						0				
5		Approved by Exe Dir of Eng & Water Quality Approved on March 14, 2014				\$24,851.73	\$801,209.72	\$826,061.45	0.51%	\$164,292,001.45	0	0	0	1,278	10/28/2016
	5.1	Unidentified Utility - Meter Shop Discharge (CR-008) PR 21146 (4286) Task 3505	B	IRWD	\$15,225.75						0				
	5.2	Connection Beam Modifications at Solids Handling Facility (CR-014) PR 21146 (4286) Task 3235	C	FBB	\$8,270.86						0				
	5.3	Increased Grating Thickness at Solids Handling Facility (CR-041) PR 21146 (4286) Task 3505	C	FBB	\$1,355.12						0				
6		Approved by General Manager Approved on March 20, 2014				\$31,815.00	\$826,061.45	\$857,876.45	0.52%	\$164,323,816.45	0	0	0	1,278	10/28/2016
	6.1	Additional Costs to Install Piles to the Design Tip (CR-033) PR 21146 (4286) Task 3505	B	FBB	\$31,815.00						0				
7		Approved by Exe Dir of Eng & Water Quality Approved on April 21, 2014				\$24,725.00	\$857,876.45	\$882,601.45	0.54%	\$164,348,541.45	0	0	0	1,278	10/28/2016
	7.1	Meter Shop Discharge Pipe Leak Investigation and Repair (CR-013) PR 21146 (4286) Task 3505	B	IRWD	\$2,542.00						0				
	7.2	Additional Reinforcement and Lifting Eyes for Removable Slabs at Solids Handling Building (CR-021) PR 21146 (4286) Task 3505	C	FBB	\$14,059.00						0				
	7.3	Increased Grating Thickness at Solids Handling Facility (CR-041) PR 21146 (4286) Task 3505Additional Conductance Probe Materials for Relay Level Switches for Various Sumps Located at the Microturbine Area PR 21146 (4286) Task 3510	C	FBB	\$8,124.00						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
8	Approved by General Manager Approved on April 21, 2014				(\$49,990.00)	\$882,601.45	\$832,611.45	0.51%	\$164,298,551.45	0	0	0	1,278	10/28/2016
8.1	Cost Sharing for Project Partnering (CR-002) PR 21146 (4286) Task 3235	A	IRWD	(\$14,611.00)						0				
8.2	Credit for Primavera 7.0 Project Portfolio Management Software (CR-002) PR 21146 (4286) Task 3235	A	IRWD	(\$2,700.00)						0				
8.3	Deletion of Concrete Pad near Development Area (CR-004A) PR 21146 (4286) Task 3235	A	IRWD	(\$3,865.00)						0				
8.4	Deletion of Ground Test Device (CR-034) PR 21146 (4286) Task 3210	A	IRWD	(\$15,579.00)						0				
8.5	Deletion of Existing T-4 Switchgear Level Indicating Switch (CR-035) PR 21146 (4286) Task 3210	A	IRWD	(\$9,167.00)						0				
8.6	Change to NEMA 4X Panels and Modification to NEMA 4X Bar Graph Display (CR-046) PR 21146 (4286) Task 3210	A	IRWD	(\$4,068.00)						0				
9	Approved by Exe. Director of Eng. & Water Quality Approved on May 31, 2014				\$24,840.17	\$832,611.45	\$857,451.62	0.52%	\$164,323,391.62	0	0	0	1,278	10/28/2016
9.1	Additional Circuits for Gas Monitors and Re-route of Conduits in Solids Handling Facility (CR-028) PR 21146 (4286) Task 3510	C	FBB	\$1,187.49						0				
9.2	Cantilevered Beam Support Modifications in the Solids Handling Facility (CR-049) PR 21146 (4286) Task 3505	C	FBB	\$4,605.30						0				
9.3	Additional Ethernet Switches (CR-062) PR 21146 (4286) Task 3510	C	IRWD	\$19,047.38						0				
10	Approved by Exe. Director of Eng. & Water Quality Approved on May 31, 2014				\$21,398.99	\$857,451.62	\$878,850.61	0.54%	\$164,344,790.61	0	0	0	1,278	10/28/2016
10.1	Additional Grace Ports for Various PLCs (CR-030) PR 21146 (4286) Task 3510	C	IRWD	\$8,580.62						0				
10.2	Provide H-20 Rated Hatches at WAS Pump Station and Valve Vault (CR-061) PR 21146 (4286) Task 3505	C	IRWD	\$12,818.37						0				
11	Approved by Exe. Director of Eng. & Water Quality Approved on June 4, 2014				\$24,739.76	\$878,850.61	\$903,590.37	0.55%	\$164,369,530.37	#REF!	0	#REF!	#REF!	10/28/2016
11.1	Waste Activated Sludge (WAS) Pump Station Structural Modifications (CR-023) PR 21146 (4286) Task 3505	C	IRWD	\$12,905.49						0				
11.2	Removable Slab Modifications on the Second Floor of Solids Handling Building (CR-064) PR 21146 (4286) Task 3505	C	IRWD	\$11,834.27						0				

MWRP Biosolids and Energy Recovery Facilities

PR 21146 (4286)

Construction Change Order Summary

Contractor: Filane/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
12	Approved by Board of Directors Approved on July 21, 2014				\$156,580.22	\$903,590.37	\$1,060,170.59	0.65%	\$164,526,110.59	0	0	0	1,278	10/28/2016
12.1	Final Bid Quantity Adjustment for Bid Item No. 5.2 – Undocumented Fill (suitable) – Remedial Grading – Remove and Re-compact a net increase of 8,104.7 CY from 51,700 CY to 59,804.7 CY at \$5/CY. PR 21146 (4286) Task 3505	B	N/A	\$40,523.37						0				
12.2	Final Bid Quantity Adjustment for Bid Item No. 5.5 - Undocumented Fill (not suitable) - Remedial Grading - Remove and Export Offsite, a net increase of 60 CY, from 1,800 CY to 1,860 CY at \$25 /CY. PR 21146 (4286) Task 3505	B	N/A	\$1,500.00						0				
12.3	Final Bid Quantity Adjustment for Bid Item No. 5.6 - Geotextile Fabric - Remedial Grading, a net decrease of 5,414 SF, from 181,500 SF to 176,086 SF at \$0.40/SF. PR 21146 (4286) Task 3505	B	N/A	(\$2,165.60)						0				
12.4	Final Bid Quantity Adjustment for Bid Item No. 5.6 - Geotextile Fabric - Remedial Grading, a net decrease of 5,414 SF, from 181,500 SF to 176,086 SF at \$0.40/SF. PR 21146 (4286) Task 3505	B	N/A	(\$6,523.33)						0				
12.5	Final Bid Quantity Adjustment for Bid Item No. 5.8 - Undocumented Fill - Deep Foundations – Removal, a net increase of 966 CY, from 21,650 CY to 22,616 CY at \$5.50/CY. PR 21146 (4286) Task 3505	B	N/A	\$5,313.00						0				
12.6	Final Bid Quantity Adjustment for Bid Item No. 5.9 - Alluvium - Remedial Grading - Removal and Export Offsite, a net increase of 2,076 CY, from 28,154 CY to 30,230 CY at \$35/CY. PR 21146 (4286) Task 3505	B	N/A	\$72,665.98						0				
12.7	Final Bid Quantity Adjustment for Bid Item No. 5.10 - Undocumented Fill Deep Foundations - Compaction of stockpiled materials, a net increase of 3,117 CY, from 11,400 CY to 14,517 CY at \$15/CY. PR 21146 (4286) Task 3505	B	N/A	\$46,755.00						0				
12.8	Final Bid Quantity Adjustment for Bid Item No. 5.11 - Undocumented Fill - Deep Foundations - Export excess offsite a net decrease of 2,151 CY, from 10,250 CY to 8,099 CY PR 21146 (4286) Task 3505	B	N/A	(\$30,114.00)						0				
12.9	Final Bid Quantity Adjustment for Bid Item No. 5.12 - Geotextile Fabric - Deep Foundations, a net increase of 9,218 SF, from 51,500 SF to 60,718 SF at \$0.60/SF. PR 21146 (4286) Task 3505	B	N/A	\$5,530.80						0				
12.10	Final Bid Quantity Adjustment for Bid Item No. 5.13 - Aggregate Base - Deep Foundations, a net increase of 513.2 CY, from 2,860 CY to 3,373.2CY at \$45/CY. PR 21146 (4286) Task 3505	B	N/A	\$23,095.00						0				
13	Approved by Exe. Director of Engineering & Water Quality Approved on July 10, 2014				\$10,129.18	\$1,060,170.59	\$1,070,299.77	0.65%	\$164,536,239.77	0	0	0	1,278	10/28/2016
13.1	Modifications to Switchgear 16 (CR-070) PR 21146 (4286) Task 3510	A	FBB	\$10,129.18						0				
14	Approved by General Manager Approved on June 24, 2014				\$44,543.19	\$1,070,299.77	\$1,114,842.96	0.68%	\$164,580,782.96	0	0	0	1,278	10/28/2016
14.1	Slide Gates Clarification Regarding Actuators (CR-039) PR 21146 (4286) Task 3520	A	IRWD	\$44,543.19						0				

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MWRP Biosolids and Energy Recovery Facilities

PR 21146 (4286)

Construction Change Order Summary

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
15	Approved by General Manager Approval on July 31, 2014				\$45,214.40	\$1,114,842.96	\$1,160,057.36	0.71%	\$164,625,997.36	0	0	0	1,278	10/28/2016
15.1	Provide Masonry Shelf Angle at Digester Control Building (CR-031) PR 21146 (4286) Task 3505	C	FBB	\$27,543.19						0				
15.2	Beam Size Increase for Monorail Runway in Solids Handling Building - (CR-074) PR 21146 (4286) Task 3505	C	FBB	\$1,200.47						0				
15.3	Upsize Odor Control Circulation Pump Motor Disconnects (CR-082) PR 21146 (4286) Task 3510	B	FBB	\$1,184.83						0				
15.4	Additional Deck Support for the Solids Handling Building Roof (CR-044) PR 21146 (4286) Task 3505	C	FBB	\$15,285.91						0				
16	Approved by E&O Committee Approved on August 19, 2014				\$62,037.10	\$1,160,057.36	\$1,222,094.46	0.75%	\$164,688,034.46	0	0	0	1,278	10/28/2016
16.1	Installation of Level 3 Diesel Particulate Filter (DPF) on the Standby Generator (CR-073) PR 21146 (4286) Task 3520	B	IRWD	\$62,037.10						0				
17	Approved by Board of Directors Approved on August 25, 2014				(\$106,241.99)	\$1,222,094.46	\$1,115,852.47	0.68%	\$164,581,792.47	0	0	0	1,278	10/28/2016
17.1	Modifications to Switchgear 16 (CR-070A) PR 21146 (4286) Task 3510	A	FBB	(\$106,241.99)						0				
18	Approved by Board of Directors Approved on August 25, 2014				\$108,087.55	\$1,115,852.47	\$1,223,940.02	0.75%	\$164,689,880.02	0	0	0	1,278	10/28/2016
18.1	Stormwater Drainage System Modification (CR-017) PR 21146 (4286)	A	IRWD	\$108,087.55						0				
19	Approved by Executive Director of Engineering & Water Quality Approved on September 30, 2014				\$72,572.86	\$1,223,940.02	\$1,296,512.88	0.79%	\$164,762,452.88	0	0	0	1,278	10/28/2016
19.1	Modification to Switchgear 16 (CR-070B) PR 21146 (4286) Task 3510	A	IRWD	\$1,125.75						0				
19.2	Alluvium Removal Due to 36-inch Storm Drain Installation (CR-085) PR 21146 (4286) Task 3520	B	N/A	\$14,140.00						0				
19.3	Additional Structural Support for Fats, Oils, and Grease (FOG) Grinders (CR-081) PR 21146 (4286) Task 3505	C	FBB	\$8,323.99						0				
19.4	Portable Lift Truck for 480V ABB Breakers (CR-108) PR 21146 (4286) Task 3510	A	IRWD	\$2,625.12						0				
19.5	Retaining Wall North and West of Biosolids Site (CR-010) PR 21146 (4286) Task 3505	B	IRWD	\$46,358.00						0				
20	Approved by Executive Director of Engineering & Water Quality Approved on November 19, 2014				\$54,485.63	\$1,296,512.88	\$1,350,998.51	0.83%	\$164,816,938.51	0	0	0	1,278	10/28/2016
20.1	Nitrogen Slab Modifications (CR-052) PR 21146 (4286) Task 3505	A	IRWD	\$24,855.80						0				
20.2	Additional Conduits and Circuits for the Access Control Systems for the Solids Handling Building and the Digester Control Building (CR-082) PR 21146	A	IRWD	\$3,412.13						0				
20.3	Digital Power Meters Change for SWGR-14 and SWGR-15 (CR-109) PR 21146 (4286) Task 3510	A	IRWD	\$3,863.22						0				
20.4	Truck Unloading Panel Modifications (CR-115) PR 21146 (4286) Task 3510	A	IRWD	\$12,843.50						0				
20.5	Switchgear SWGR-14 Modifications (CR-116) PR 21146 (4286) Task 3510	A	IRWD	\$9,510.98						0				
21	Approved by General Manager Approved on January 30, 2015				\$ 98,506.19	\$1,350,998.51	\$1,449,504.70	0.89%	\$164,915,444.70	0	0	0	1,278	10/28/2016
21.1	Additional Anchorage for Methane Digesters (CR-051A) PR 21146 (4286) Task 3520	B	FBB	\$92,367.44						0				
21.2	Additional Input/Outputs Review of Master I/O List (CR-136) PR 21146 (4286) Task 3510	C	FBB	\$6,138.75						0				

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MWRP Biosolids and Energy Recovery Facilities

PR 21146 (4286)

Construction Change Order Summary

Contractor: Filano/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
22	Approved by Board of Directors Approved on February 9, 2015				\$964,324.51	\$1,449,504.70	\$2,413,829.21	1.48%	\$165,879,769.21	0	0	0	1,278	10/28/2016
22.1	Electrical Conduit Overfill (CR-055) PR 21146 (4286) Task 3510	C	FBB	\$485,250.28						0				
22.2	Heat Dryer Equipment Escalation Costs (CR-057) PR 21146 (4286) Task 3520	B	FBB	\$333,477.50						0				
22.3	Glass-lining Sludge Density Meters (CR-067) PR 21146 (4286) Task 3510	A	IRWD	\$71,010.74						0				
22.4	Switchgear-16 Enclosure (CR-040) PR 21146 (4286) Task 3510	C	FBB	\$56,882.30						0				
22.5	Propane Gas Tank Foundation Demolition (CR-084) PR 21146 (4286) Task 3505	C	IRWD	\$2,004.98						0				
22.6	Credit for travel costs related to inspection of centrifuges in Germany (CR-091) PR 21146 (4286) Task 3520	A	IRWD	(\$5,573.42)						0				
22.7	Deletion of MMC Switchgear-14 Breaker (CR-092) PR 21146 (4286) Task 3510	A	IRWD	(\$5,032.00)						0				
22.8	Increase of Fiber Optic Conduit Size (CR-097) PR 21146 (4286) Task 3510	C	IRWD	\$23,269.61						0				
22.9	Overtime to perform work in the Solids Handling electrical room (CR-103) PR 21146 (4286) Task 3510	A	IRWD	\$1,384.47						0				
22.10	Credit for modification to the Uninterruptible Power System (CR-118) PR 21146 (4286) Task 3510	A	IRWD	(\$9,771.72)						0				
22.11	Addition of Low Voltage Compartment in SCE Switch "C" (CR-160) PR 21146 (4286) Task 3510	A	IRWD	\$2,156.20						0				
22.12	Addition of input/output points relating to sump pumps located at the Solids Handling Building (CR-161) PR 21146 (4286) Task 3510	A	FBB	\$9,265.57						0				
23	Approved by General Manager Approved on February 26, 2015				\$97,005.10	\$2,413,829.21	\$2,510,834.31	1.54%	\$165,976,774.31	0	0	0	1,278	10/28/2016
23.1	Additional Steel Reinforcement the Pellet Storage Silos Anchor Bolts (CR-094) PR 21146 (4286) Task 3505	B	FBB	\$5,514.57						0				
23.2	Differential Pressure Transmitter (CR-094) PR 21146 (4286) Task 3510	A	IRWD	\$2,535.33						0				
23.3	Additional Aluminum Trench Grating in Digester Control Building (CR-107) PR 21146 (4286) Task 3520	A	IRWD	\$7,552.11						0				
23.4	Light Weight Concrete for Electrical Conduits Underneath the Solids Handling Building Electrical Room (CR-113) PR 21146 (4286) Task 3510	A	IRWD	\$30,535.94						0				
23.5	Adding Energyjets Weir Plates to Dewatering Centrifuges - (CR-124) PR 21146 (4286) Task 3520	A	IRWD	\$11,139.25						0				
23.6	Provide Angle Supports for the Removable Slabs at the Solids Handling Building - (CR-137) PR 21146 (4286) Task 3520	A	IRWD	\$20,671.61						0				
23.7	Structural Modification at Solids Handling Building - (CR-140) PR 21146 (4286) Task 3520	C	FBB	\$1,109.42						0				
23.8	Increase of Fiber Optic Conduit Size (CR-097) PR 21146 (4286) Task 3510	A	IRWD	\$5,516.45						0				
23.9	Steel Joist Framing Modifications at Digester Control Building (CR-151) PR 21146 (4286) Task 3505	C	FBB	\$2,286.29						0				
23.10	WAS Valve Vault and Piping Modifications (CR-100) PR 21146 (4286) Task 3520	A	IRWD	\$10,144.13						0				
24	Approved by General Manager Approved on March 6, 2015				\$99,122.95	\$2,510,834.31	\$2,609,957.26	1.60%	\$166,075,897.26	0	0	0	1,278	10/28/2016
24.1	Coating of WAS/Primary Sludge Pump Stations & Sludge Wetwells per RFI-0612A (CR-127) PR 21146 (4286) Task 3505	A	FBB	\$99,122.95						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
25	Approved by Board of Directors Approved on March 23, 2015				\$280,575.97	\$2,609,957.26	\$2,890,533.23	1.77%	\$166,356,473.23	0	0	0	1,278	10/28/2016
25.1	Lightning Protection for the Methane Digesters (CR-121) PR 21146 (4286) Task 3505	C	FBB	\$158,259.68						0				
25.2	Deflagration Quench Tubes outside of the Dryer Room (CR-143) PR 21146 (4286) Task 3505	B	FBB	\$122,316.29						0				
26	Approved by Exe. Dir. Of Engineering & Water Quality Approved on April 14, 2015				\$74,815.79	\$2,890,533.23	\$2,965,349.02	1.81%	\$166,431,289.02	0	0	0	1,278	10/28/2016
26.1	UPS and Power Fail Alarms per RFI 357 (CR-056) PR 21146 (4286) Task 3510	C	FBB	\$3,646.82						0				
26.2	I/O Points for Methane Digester Sump Pumps per RFI-356 (CR-077) PR 21146 (4286) Task 3510	C	FBB	\$6,489.00						0				
26.3	Loss of Power Alarms to the SCADA Network per RFI-0393B (CR-093) PR	A	FBB	\$20,297.16						0				
26.4	FOG Flushing and Rock Trap Modifications per RFI-0534 (CR-101) PR 21146	A	IRWD	\$18,093.61						0				
26.5	Install Grounding Pig Tails in Solids Handling Building Area Electrical Room per RFI 0594 (CR-105) PR 21146 (4286) Task 3510	A	IRWD	\$1,593.10						0				
26.6	Additional Pushbuttons, Light and Relays for the FOG Receiving Control Panel (CR-114) PR 21146 (4286) Task 3510	A	IRWD	\$6,892.40						0				
26.7	Changes to the HMI Enclosures at the Sludge Receiving Area (CR-133) PR 21146 (4286) Task 3510	A	IRWD	\$7,114.17						0				
26.8	Provide Storage Shelf for Keyboard and Mouse to the HMI Enclosures at the Sludge Receiving Area (CR-135) PR 21146 (4286) Task 3510	A	IRWD	\$1,163.26						0				
26.9	Dewatering Feed Pump Station Guardrail Additions (CR-142) PR 21146 (4286) Task 3520	C	FBB	\$4,204.00						0				
26.10	Additional I/O Points for PLC-4300 (CR-156) PR 21146 (4286) Task 3510	C	FBB	\$3,035.28						0				
26.11	Shoring Revision to Roof Slab of Dewatering Feed Pump Station (CR-189) PR 21146 (4286) Task 3510	B	FBB	\$1,286.99						0				
26.12	Coating of the Sludge Receiving Bins (CR-199) PR 21146 (4286) Task 3520	A	FBB	\$1,000.00						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filano/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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27	Approved by Board of Directors Approved on April 27, 2015				\$107,253.26	\$2,965,349.02	\$3,072,602.28	1.88%	\$166,538,542.28	0	0	0	1,278	10/28/2016
27.1	Modifications to Human-Machine Interface (HMI) for the Microturbine Area (CR-078) PR 21146 (4286) Task 3510	A	IRWD	\$29,744.43						0				
27.2	Modifications to the Piping and Automation Features at Fats, Oils, and Grease (FOG) Facility (CR-129) PR 21146 (4286) Task 3510	A	IRWD	\$35,771.81						0				
27.3	Structural Support to the Monorail at the Dewatering Feed Pump Station (CR-152) PR 21146 (4286) Task 3505	C	FBB	\$13,697.51						0				
27.4	Two Additional Magnetic Flowmeters at Polymer Feed System (CR-158) PR 21146 (4286) Task 3510	A	IRWD	\$9,522.81						0				
27.5	Modifications to PLCs at Sludge Receiving Area (CR-180) PR 21146 (4286) Task 3510	A	IRWD	\$18,516.70						0				
28	Approved by Exe. Dir. Of Eng. & Water Quality Approved on May 15, 2015				\$74,550.35	\$3,072,602.28	\$3,147,152.63	1.93%	\$166,613,092.63	0	0	0	1,278	10/28/2016
28.1	Decanter Control Panel Modifications (CR-215) Task 3520	C	FBB	\$22,451.01						0				
28.2	Additional Structural Support in the Solids Handling Building (CR-075) Task 3505	C	FBB	\$12,028.44						0				
28.3	Additional Sump Pump Drain Line in the Bulk Polymer Storage Area (CR-119) Task 3520	C	FBB	\$1,433.86						0				
28.4	Install Three 5-inch conduits on Southwest Side of the Biosolids Site (CR-120) Task 3510	C	FBB	\$16,033.58						0				
28.5	Provide Power to Several Instruments Located at the Solids Handling Building and Digester Control Building (CR-154) Task 3520	C	FBB	\$3,454.91						0				
28.6	Install Foam Separator Drain at Digester Control Building (CR-167) Task 3520	C	FBB	\$11,013.75						0				
28.7	Install Support for 14-inch Plug Valve at Centrate Treatment Wetwell (CR-197) Task 3520	C	FBB	\$1,715.20						0				
28.8	Trench Modifications at the Sludge Cake Load-Out Area of the Solids Handling Building (CR-123) Task 3505	C	FBB	\$6,419.60						0				
29	Approved by Board of Directors Approved on June 22, 2015				\$225,971.77	\$3,147,152.63	\$3,373,124.40	2.06%	\$166,839,064.40	0	0	0	1,278	10/28/2016
29.1	Foul Air Pipe Supports in the Solids Handling Building Basement (CR-106) PR 21146 (4286) Task 3520	C	FBB	\$119,937.87						0				
29.2	Secondary Circuit Breaker for Transformer T-14 (CR-185) PR 21146 (4286) Task 3510	A	IRWD	\$106,033.90						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filane/Balfour-Beatty
Design Engine Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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30	Approved by Board of Directors Approved on July 27, 2015				(\$47,976.59)	\$3,373,124.40	\$3,325,147.81	2.03%	\$166,791,087.81	0	0	0	1,278	10/28/2016
30.1	Credit for Changing Storm Drain line from Ductile Iron to PVC (CR-042) PR 21146 (4286) Task 3520	A	IRWD	(\$1,890.92)						0				
30.2	Installation of Additional Digester Anchorage (CR-051B) PR21146 (4286) Task 3505	B	FBB	\$118,335.54						0				
30.3	Huber Screens I/O Modifications per RFI-0391 and RFI-0525A (CR-068) PR 21146 (4286) Task 3510	A	IRWD	\$12,579.20						0				
30.4	Credit for FBB's Portion of Partnering (CR-090) PR 21146 (4286) Task	E	FBB	(\$81,948.33)						0				
30.5	Deletion of Waterstops at Methane Digester Complex (CR-102) PR 21146 (4286) Task 3505	A	IRWD	(\$2,505.79)						0				
30.6	Deletion of Bid Item No. 18.4 - Computers and Networking Hardware for the Control System (CR-138) PR 21146 (4286) Task 3510	A	IRWD	(\$200,000.00)						0				
30.7	Electrical and Gas Modifications (CR-146) PR 21146 (4286) Task 3510	C	IRWD	\$363,978.41						0				
30.8	Credit for Changing Heat Dryer Wet Material Mixer from A24 Steel to A36 Steel (CR-157) PR 21146 (4286) Task 3520	E	FBB	(\$2,392.66)						0				
30.9	Credit for Travel Cost of On-Site Inspection for Acid Phase Digester (CR-175) PR 21146 (4286) Task 3520	B	IRWD	(\$683.39)						0				
30.1	Heat Dryer I/O Modifications per RFI-0626 (CR-179) PR 21146 (4286) Task 3510	A	IRWD	\$11,191.41						0				
30.11	Decant Trough I/O Modifications per RFI-0979 (CR-202) PR 21146 (4286) Task 3510	A	IRWD	\$9,960.55						0				
30.12	Deletion of Interior Coating of Methane Digesters (CR-188) PR 21146 (4286) Task 3520	A	IRWD	(\$398,571.00)						0				
30.13	Piping Modifications and Addition of Carbon Canisters (CR-218) PR 21146 (4286) Task 3520	A	IRWD	\$88,076.01						0				
30.14	Pickling and Passivation of Sludge Mixers (CR-248) PR 21146 (4286) Task 3520	C	IRWD	\$73,997.23						0				
30.15	IRWD Costs Associated to Repairing the Pile and Installing Couplers (CR-139) PR 21146 (4286) Task 3505	E	FBB	(\$38,102.85)						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filano/Balfour-Beatty
Design Engine Black & Veatch

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31	Approved by Exe. Dir. Of Eng. & Water Quality Approved on July 28, 2015				\$74,999.74	\$3,325,147.81	\$3,400,147.55	2.08%	\$166,866,087.55	0	0	0	1,278	10/28/2016
31.1	Provide Circuit and Breaker for Standby Generator in the Microturbine Area (CR-170) PR 21146 (4286) Task 3510	C	FBB	\$4,296.86						0				
31.2	Additional Pipe Support for 14-inch Air Line at the Centrate Facility (CR-226) PR 21146 (4286) Task 3520	C	FBB	\$893.78						0				
31.3	Addition of E-stops (CR-128) PR 21146 (4286) Task 3510	A	FBB	\$57,916.71						0				
31.4	Structural Support of Jib Crane at Dewatering Feed Pump Station Stairwell (CR-243) PR 21146 (4286) Task 3520	C	FBB	\$11,892.39						0				
32	Approved by Exe. Dir. Of Eng. & Water Quality Approved on August 31, 2015				\$74,682.96	\$3,400,147.55	\$3,474,830.51	2.13%	\$166,940,770.51	0	0	0	1,278	10/28/2016
32.1	Additional Conduits and Circuits for Fire Alarm in the Solids Handling Building	A	IRWD	\$21,637.57						0				
32.2	Additional Davit Bases at Centrate Treatment Facility (CR-111) PR 21146 (4286) Task 3520	A	IRWD	\$1,809.77						0				
32.3	Additional Fire Alarm Panel in Digester Control Building (CR-169) PR 21146 (4286) Task 3510	A	IRWD	\$25,153.79						0				
32.4	Modifications to FOG Sump Pumps Controls (CR-177) PR 21146 (4286) Task 3510	A	IRWD	\$5,690.83						0				
32.5	Additional Truck Load-out Conveyor Input and Output (CR-201) PR 21146 (4286) Task 3510	A	IRWD	\$2,220.12						0				
32.6	Additional Spare Conduits in the Microturbine Area (CR-229) PR 21146 (4286) Task 3510	A	FBB	\$14,602.41						0				
32.7	Conduits for Electrical Disconnect Switch for Roll-Up Doors of the Digester Control Building (CR-230) PR 21146 (4286) Task 3510	A	IRWD	\$3,568.47						0				
33	Approved by Executive Director of Engineering & Water Quality Approved on September 30, 2015				\$58,247.75	\$3,474,830.51	\$3,533,078.26	2.16%	\$166,999,018.26	0	0	0	-	1/0/1900
33.1	Realignment of 8-inch Reclaimed Water Line at Gate 2 (CR-225) PR 21146 (4286) Task 3520	B	FBB	\$24,017.48						0				
33.2	Additional Conduits and Wires for Lighting Circuits to Minimize Voltage Drop (CR-228) PR 21146 (4286) Task 3510	C	IRWD	\$32,399.41						0				
33.3	Cable and Conduit Changes at Solids Handling Building and Dewatering Feed Pump Station (CR-231) PR 21146 (4286) Task 3510	C	IRWD	\$1,830.86						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
34	Approved by Board of Directors Approved on October 26, 2015				\$164,775.28	\$3,533,078.26	\$3,697,853.54	2.26%	\$167,163,793.54	0	0	0	1,278	10/28/2016
34.1	Credit for Third Submittal Review Through 05/31/2015 (CR-088) PR 21146 (4286) Task 1065	B	IRWD	(\$39,502.50)						0				
34.2	Credit for Overtime Inspection Hours Through 05/31/2015 (CR-089) PR 21146 (4286) Task 3520	E	FBB	(\$80,850.00)						0				
34.3	Credit for Special Inspections for Structural Anchors and Geotechnical Investigation (CR-295) PR 21146 (4286) Task 1065	A	IRWD	(\$27,500.00)						0				
34.4	Change in Knife Gate Valve Manufacturer (CR-187) PR 21146 (4286) Task 3520	E	FBB	\$275,954.90						0				
34.5	Credit for Changes in Low Voltage SWGR-14 Circuit Breaker (CR-163) PR 21146 (4286) Task 3510	A	IRWD	(\$1,978.00)						0				
34.6	Change to Addressable Smoke Detectors (CR-220) PR 21146 (4286) Task 3510	B	IRWD	\$38,650.88						0				
35	Approved by General Manager Approved on November 25, 2015				\$97,980.57	\$3,697,853.54	\$3,795,834.11	2.32%	\$167,261,774.11	0	0	0	1,278	10/28/2016
35.1	Change in Naming Convention for Storm Water Pump Station (Area 1500) SCADA Programming (CR-181) PR 21146 (4286) Task 3510	E	FBB	\$9,027.03						0				
35.2	Valve Status Override Functionality (CR-182) PR 21146 (4286) Task 3510	E	FBB	\$38,999.08						0				
35.3	Control Changes for Primary Sludge and Waste Activated Pump Stations (Area 1900) SCADA Programming (CR-184) PR 21146 (4286) Task 3510	A	IRWD	\$36,772.78						0				
35.4	Motor Protection Relay (CR-239) PR 21146 (4286) Task 3510	A	IRWD	\$13,181.68						0				
36	Approved by General Manager Approved on December 3, 2015				\$86,007.50	\$3,795,834.11	\$3,881,841.61	2.37%	\$167,347,781.61	0	0	0	1,278	10/28/2016
36.1	Light Weight Concrete for Underslab Conduits at Microturbine Area (CR-253) PR 21146 (4286) Task 3510	A	FBB	\$21,117.50						0				
36.2	Outstanding CB&I Items (CR-099A) PR 21146 (4286) Task 3520 – This change order includes: CR-098 (Guard Rail at Biogas Storage Tank); CR-099 (Tube Steel Supports); additional Off-Site Storage Costs; and credit for Use of SS 308 in Lieu of SS 316L Welds	B	FBB	\$64,890.00						0				
37	Approved by Exe. Director of Engineering and Water Quality Approved on January 21, 2016				\$47,446.49	\$3,881,841.61	\$3,929,288.10	2.40%	\$167,395,228.10	0	0	0	1,278	10/28/2016
37.1	Additional Pressure Relief Valves in the Digester Control Building Slab (CR-112) PR 21146 (4286) Task 3520	C	IRWD	\$1,065.72						0				
37.2	Change Feeder Circuit Breaker Size in MCC-4102 (CR-165) PR 21146 (4286) Task 3510	C	IRWD	\$4,157.60						0				
37.3	Change Feeder Circuit Breaker Size for the Primary Sludge Pump Variable Frequency Drive (CR-233) PR 21146 (4286) Task 3510	C	IRWD	\$2,430.59						0				
37.4	SCADA Programming Changes Due to Change to Schweitzer Power Quality	A	FBB	\$16,814.00						0				
37.5	Additional Labeling of Parallel Conduits and Cables (CR-262) PR 21146 (4286) Task 3510	A	IRWD	\$8,410.00						0				
37.6	Change in Sludge Receiving Entrance Beacon Operation CR-263) PR 21146 (4286) Task 3510	A	IRWD	\$5,382.19						0				
37.7	Anodize Aluminum Light Fixture Stanchions/Sun Shades (CR-283) PR 21146 (4286) Task 3510	A	IRWD	\$5,911.61						0				
37.8	Hot Tap 8-Inch ACP Potable Water Line (CR-311) PR 21146 (4286) Task 3520	A	FBB	\$3,274.78						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
38	Approved by General Manager Approved on February 29, 2016				\$83,345.07	\$3,929,288.10	\$4,012,633.17	2.45%	\$167,478,573.17	0	0	0	1,278	10/28/2016
38.1	Software Control Block Revision for Area 4300 – Dewatering (CR-211) PR 4286 Task 3510	C	FBB	\$18,908.76						0				
38.2	Revised Master List of SCADA Templates (CR-247) PR 4286 Task 3510	C	FBB	\$47,274.54						0				
38.3	Additional Overflow Alarms at Sludge Holding Tanks (CR-280) PR 4286 Task 3510	A	IRWD	\$9,654.54						0				
38.4	Leak Detection at Sulfuric Acid Facility (CR-290) PR 21146 (4286) Task 3510	A	IRWD	\$5,499.97						0				
38.5	Insulation for Acid Phase Gas Piping (CR-218A) PR 21146 (4286) Task 3520	A	IRWD	\$2,007.26						0				
39	Approved by General Manager Approved on March 7, 2016				\$98,006.46	\$4,012,633.17	\$4,110,639.63	2.51%	\$167,576,579.63	0	0	0	1,278	10/28/2016
39.1	SCE Installation - Final Accounting of Work Items Between Negotiated Change Order and Actual Work (CR-146E) PR 4286 Task 3510	B	FBB	\$7,809.51						0				
39.2	Installation of Southern California Gas (SCG) Boxes (CR-146F) PR 4286 Task 3510	A	FBB	\$3,479.81						0				
39.3	Schweitzer SEL-735 Power Monitors for Centrifuge Panels (CR-207) PR 4286 Task 3510	A	IRWD	\$34,274.40						0				
39.4	Hirschmann Ethernet Switches for Centrifuge Panels (CR-208) PR 4286 Task 3510	A	IRWD	\$9,569.15						0				
39.5	Addition of Sample Pump Variable Frequency Drives for Thickening Centrifuges (CR-237) PR 4286 Task 3520	E	IRWD	\$24,496.55						0				
39.6	Upgrade of Exit Signs and Ceiling Lights in the Gas Room of the Digester Control Building to NEC Class 1 Division 1 (CR-313) PR 4286 Task 352	A	IRWD	\$18,377.04						0				
40	Approved by General Manager Approved on April 20, 2016				\$97,287.05	\$4,110,639.63	\$4,207,926.68	2.57%	\$167,673,866.68	0	0	0	1,278	10/28/2016
40.1	Brace Plates in Solids Handling Building (CR-069) PR 4286 Task 3505	C	FBB	\$40,216.76						0				
40.2	Relocation of RIO-50 Panel (CR-186) PR 4286 Task 3510	B	FBB	\$4,818.64						0				
40.3	Addition of Two Doors at the bases of the stairways at Methane Digesters Nos. 1 and No. 2 (CR-232) PR 4286 Task 3505	C	FBB	\$52,251.65						0				

**MWRP Biosolids and Energy Recovery Facilities
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Design Engine Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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41	Approved By Board of Directors Approved on May 23, 2016				\$1,103,650.56	\$4,207,926.68	\$5,311,577.24	3.25%	\$168,777,517.24	0	0	0	1,278	10/28/2016
41.1	Additional SCE and SCG Modifications (CR-146A) PR 4286 Task 3510	B	FBB	\$51,238.69						0				
41.2	Additional Potholing Due to SCE and SCG Realignment (CR-146B) PR 4286 Task 3510	B	FBB	\$36,706.57						0				
41.3	Additional Cameras at the Unloading/Loading Area of the Solids Handling Facility (CR-164) PR 4286 Task 3505	A	IRWD	\$61,731.96						0				
41.4	Fire Sprinkler System Modifications – Mechanical (CR-174) PR 4286 Task 3520	B	IRWD	\$154,592.08						0				
41.5	Fire Sprinkler System Modifications – Electrical (CR-166) PR 4286 Task 3510	B	IRWD	\$13,730.06						0				
41.6	Fiber Optic System Modifications (CR-172/CR-306/CR-314) PR 4286 Task 3510	A	IRWD	\$178,879.46						0				
41.7	T-15, T-16, and T-17 Secondary Breakers (CR-185A, CR-185B, and CR-185C) PR 4286 Task 3510	A	IRWD	\$254,941.66						0				
41.8	Cable and Conduit Changes at the Sludge Receiving Area of the Solids Handling Building (CR-203) PR 4286 Task 3510	C	FBB	\$14,338.94						0				
41.9	Concrete Surface Treatment (CR-222) PR 4286 Task 3505	A	IRWD	\$68,714.34						0				
41.1	Heating Water Boiler Control Modifications (CR-246) PR 4286 Task 3510	A	IRWD	\$71,379.00						0				
41.11	SCADA Control Modifications for the Acid Phase Digesters, Methane Digesters, and Sludge Holding Tank (CR-252) PR 4286 Task 3510	A	IRWD	\$50,540.23						0				
41.12	Ambient Gas Analyzer Wiring Modification (CR-264) PR 4286 Task 3510	B	IRWD	\$19,734.51						0				
41.13	Disconnect Switches for Flow Valves in the Solids Handling Building (CR-272) PR 4286 Task 3510	C	IRWD	\$25,550.26						0				
41.14	Centrifuge Pedestal Modifications (CR-301) PR 4286 Task 3505	C	IRWD	\$30,603.14						0				
41.15	SCADA, Instrumentation, and Electrical Modifications (CR-287, CR-294, and CR-322) PR 4286 Task 3510	A	IRWD	\$70,969.66						0				
42	Approved By Board of Directors Approved on May 23, 2016				(\$199,771.09)	\$5,311,577.24	\$5,111,806.15	3.13%	\$168,577,746.15	0	0	0	1,278	10/28/2016
42.1	Value Engineering of Chemical Pump Systems (CR-054) PR 4286 Task 3520	E	FBB	(\$48,549.90)						0				
42.2	Change in Lightning Protection Installation for Egg-Shaped Digesters (CR-121A) PR 4286 Task 3510	E	FBB	(\$97,141.74)						0				
42.3	Deletion of Seal Water Stations and Seal Water Piping (CR-214) PR 4286 Task 3520	A	IRWD	(\$10,557.28)						0				
42.4	Deletion of Low Pressure Switches for Centrate Pumps (CR-257) PR 4286 Task 3510	A	IRWD	(\$1,748.17)						0				
42.5	Centrifuge Seismic Restraint Design Costs (CR-345) PR 4286 Task 1065	A	IRWD	(\$24,064.00)						0				
42.6	Credit for Overtime Inspection Hours From 6/1/2015 to Through 12/31/2015 (CR-089B) PR 4286 Task 1065	E	FBB	(\$17,710.00)						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
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Contractor: Filanco/Balfour-Beatty
Design Engine Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
43	Approved by Exe. Director of Engineering and Water Quality Approved on May 31, 2016				\$74,731.69	\$5,111,806.15	\$5,186,537.84	3.17%	\$168,652,477.84	0	0	0	1,278	10/28/2016
43.1	Combustible Gas Detection System (CR-234) PR 21146 (4286) Task 3510	E	FBB	\$18,843.39						0				
43.2	Additional Wires and Cables Between MCC-4102 and PLC-4000 (CR-278) PR 21146 (4286) Task 3510	C	FBB	\$1,775.13						0				
43.3	SCADA Programming Modifications (CR-282) PR 21146 (4286) Task 3510	E	FBB	\$49,679.02						0				
43.4	Change of Waste Gas Burner Feeder Circuit Breaker (CR-344) PR 21146 (4286) Task 3510	B	FBB	\$4,434.15						0				
44	Approved by Exe. Director of Engineering and Water Quality Approved on June 29, 2016				\$74,912.99	\$5,186,537.84	\$5,261,450.83	3.22%	\$168,727,390.83	0	0	0	1,278	10/28/2016
44.1	Electrical and Telephonic Modifications for Elevators for Solids Handling Building and Digester Control Building (CR-037A) PR 4286 Task 3510	C	FBB	\$38,882.06						0				
44.2	Odor Control Recirculation Pump Selector Switch SCADA Modifications (CR-343) PR 4286 Task 3510	A	IRWD	\$9,294.71						0				
44.3	SCADA Valve Matrix Tables Animation Clarification for Milestone 1 (CR-353) PR 4286 Task 3510	A	IRWD	\$9,195.86						0				
44.4	PLC Status Object Update (CR-234) PR 4286 Task 3510	B	FBB	\$4,783.14						0				
44.5	Elevator Safety Beam in the Digester Control Building (CR-302) PR 4286 Task 3505	C	FBB	\$3,830.95						0				
44.6	Masonry Changes to the North Retaining Wall (CR-365) PR 4286 Task 3505	B	IRWD	\$8,926.27						0				
45	Approved by Board of Directors Approved on July 25, 2016/December 20, 2016				\$9,250,000.00	\$5,261,450.83	\$14,511,450.83	8.88%	\$177,977,390.83	368	0	368	1,646	10/31/2017
45.1	Recovery Plan PR 4286 Task 3510	B	FBB	\$9,250,000.00						368				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
46	Approved by General Manager Approved on January 27, 2017				\$94,696.76	\$14,511,450.83	\$14,606,147.59	8.94%	\$178,072,087.59	0	368	368	1,646	10/31/2017
46.1	Additional Masonry Anchor in the Solids Handling Building (CR-200) PR 4286	C	IRWD	\$1,457.22						0				
46.2	Additional Auto Dialer (CR-234A) PR 4286 Task 3510	A	IRWD	\$6,081.90						0				
46.3	Grating and Handrail Modifications at Bulk Polymer Storage Platform (CR-300) PR 4286 Task 3505	A	IRWD	\$5,568.83						0				
46.4	SCADA IP Address Update (CR-309) PR 4286 Task 3510	A	IRWD	\$1,227.96						0				
46.5	Masonry Modifications at Solids Handling Building Stairwell (CR-324) PR 4286 Task 3505	C	FBB	\$5,939.45						0				
46.6	Change in Valve Operator at the Centrate Treatment Facility (CR-329) PR 4286 Task 3520	A	IRWD	\$4,824.29						0				
46.7	Boot Wash Landing Addition (CR-349) PR 4286 Task 3505	C	FBB	\$1,834.60						0				
46.8	Updating Valve Analog SCADA Template (CR-354) PR 4286 Task 3510	A	IRWD	\$692.72						0				
46.9	Additional Light Fixtures and Lamps (CR-355A) PR 4286 Task 3510	A	IRWD	\$8,508.46						0				
46.10	Addition of Rebate Angle in the FOG Unloading Sump Area (CR-363) PR 4286 Task 3505	A	IRWD	\$763.62						0				
46.11	MCC-4103 Hot Water Circulation Pump Breakers Change (CR-366) PR 4286 Task 3510	B	IRWD	\$2,316.03						0				
46.12	MCC-4100/4101 Cake Transfer Pump Breakers Change (CR-370) PR 4286 Task 3510	B	IRWD	\$23,720.61						0				
46.13	MCC-4102 Breaker Change (CR-374) PR 4286 Task 3510	B	IRWD	\$2,316.03						0				
46.14	SCADA Programming Modifications During Benchtest No. 1 for Areas 1900 and 2000 (CR-376) PR 4286 Task 3510	A	IRWD	\$24,092.32						0				
46.15	Additional Light Fixture Above Door in Digester Control Building Gas Room (CR-399) PR 4286 Task 3510	A	IRWD	\$1,478.19						0				
46.16	Change in Size of Disconnect Switches for Digested Sludge Mixers (CR-408) PR 4286 Task 3510	B	FBB	\$1,290.10						0				
46.17	Additional Thickening Feed Grinder Control Panel Circuits (CR-438) PR 4286 Task 3510	B	IRWD	\$1,286.63						0				
46.18	Thickness and Glazing Change for Windows (CR-438) PR 4286 Task 3510	C	IRWD	\$1,297.80						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

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Design Engine Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
47	Approved by General Manager Approved on February 28, 2017				\$96,414.36	\$14,606,147.59	\$14,702,561.95	8.99%	\$178,168,501.95	0	368	368	1,646	10/31/2017
47.1	Relocation of Neutralization Tank Drainage Piping PR 4286 Task 3520	B	FBB	\$2,312.08						0				
47.2	Modifications to Digester Control Building Door and Piping Due to Heating Water Expansion Tank Pad Adjustment (CR-221) PR 4286 Task 3505	C	FBB	\$5,500.74						0				
47.3	PLC-3100 Changes (CR-284) PR 4286 Task 3510	C	FBB	\$1,070.38						0				
47.4	Additional Angle Support to Acid Phase Digester Bridges (CR-298) PR 4286 Task 3505	C	FBB	\$4,986.21						0				
47.5	Additional Potable Water Gate Valves (CR-332) PR 4286 Task 3520	A	IRWD	\$3,892.44						0				
47.6	T-4 Kirk Key Interlock Installation (CR-335) PR 4286 Task 3510	B	IRWD	\$6,924.69						0				
47.7	Solids Handling Building Dumpster Room Channel Frames Modifications (CR-338) PR 4286 Task 3505	C	FBB	\$5,093.87						0				
47.8	PCS Server Configuration Clarification (CR-352) PR 4286 Task 3510	A	IRWD	\$6,824.35						0				
47.9	Additional Anchorage Support for Ledgers of the Digester Control Building Roof (CR-361) PR 4286 Task 3505	C	FBB	\$13,794.95						0				
47.10	Change of MCC-4103 Hot Water Circulation Pump Breakers (CR-366B) PR 4286 Task 3510	A	IRWD	\$1,336.13						0				
47.11	Centrate Treatment Facility Pull Boxes Duct Bank Settlement (CR-383) PR 4286 Task 3510	B	FBB	\$3,300.13						0				
47.12	Modifications to the MCC-4100/4101/4102/4103 (CR-405) PR 4286 Task 3510	B	FBB	\$7,418.52						0				
47.13	Cake Storage Hopper Modifications (CR-421) PR 4286 Task 3510	C	FBB	\$2,250.67						0				
47.14	Removing Installed Lighting in the Solids Handling Building (CR-427) PR 4286 Task 3510	A	IRWD	\$8,947.37						0				
47.15	Electrical Changes for Generator MPC (CR-430) PR 4286 Task 3510	A	IRWD	\$10,950.14						0				
47.16	Electrical Modifications to MCC-4100 and 4103 (CR-431) PR 4286 Task 3510	A	FBB	\$4,500.00						0				
47.17	Occupancy Sensors in the Solids Handling Building Shower Areas (CR-444) PR 4286 Task 3510	C	FBB	\$1,601.36						0				
47.18	Digester Gas Pre-Treatment In-Slab Conduit Size Change (CR-454) PR 4286 Task 3510	C	FBB	\$5,710.33						0				

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**MWRP Biosolids and Energy Recovery Facilities
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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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48	Approved by Board of Directors Approved on March 13, 2017				\$728,237.74	\$14,702,561.95	\$15,430,799.69	9.44%	\$178,896,739.69	0	368	368	1,646	10/31/2017
48.1	Structural Modifications of the Elevator Shafts (CR-037) PR 4286 Task 3505200) PR 4286 Task 3505	B	FBB	\$58,705.90						0				
48.2	SCADA Programming Update of Polymer Feed and Storage System (CR-148A) PR 4286 Task 3510	A	FBB	\$23,685.14						0				
48.3	Stairs and Platform at SHB Load-Out Area (CR-149) PR 4286 Task 3505	C	FBB	\$39,622.65						0				
48.4	Additional Polymer Dilution Flow Meters and Associated Conduits and Cables (CR-159B) PR 4286 Task 3510	A	IRWD	\$38,978.70						0				
48.5	Miscellaneous Andritz Items (CR-205) PR 4286 Task 3520	A	IRWD	\$41,246.71						0				
48.6	RIO-4001 Changes (CR-286) PR 4286 Task 3510	A	IRWD	\$27,889.74						0				
48.7	RIO-3102 Changes (CR-310) PR 4286 Task 3510	A	IRWD	\$18,280.62						0				
48.8	Mini Power Center - Additional Outlet and Data Locations in the SHB (CR-419) PR 4286 Task 3510	A	IRWD	\$13,261.60						0				
48.9	New Lighting in the SHB First Floor Area (CR-427A) PR 4286 Task 3510	A	IRWD	\$102,503.46						0				
48.10	Additional Conduits and Cables for Thermocouples for Several Pumps (CR-424, CR-424A through CR-424F) PR 4286 Task 3510	B	FBB	\$54,982.68						0				
48.11	Additional Wall Panel Framework at the SHB (CR-445) PR 4286 Task 3505	C	FBB	\$128,000.00						0				
48.12	Changes in Uninterruptible Power Supply Units (CR-162/CR-162A) PR 4286 Task 3510	A	IRWD	\$128,052.94						0				
48.13	Addition of Circuit Breaker at Transformer T-14 (CR-474) PR 4286 Task 3510	A	IRWD	\$53,027.60						0				
49	Approved by Board of Directors Approved on March 13, 2017				(\$47,099.20)	\$15,430,799.69	\$15,383,700.49	9.41%	\$178,849,640.49	0	368	368	1,646	10/31/2017
49.1	Related Mechanical Piping Modifications Due to Change in Chemical Pumps in CCO No. 42 (CR-054A) PR 4286 Task 3520	E	FBB	(\$23,897.73)						0				
49.2	Changing the Solids Handling Building Roofing from EPDM to PVC (CR-255) PR 4286 Task 3505	E	FBB	(\$9,000.00)						0				
49.3	Net Reduction of Scope of Work in CR-353 - SCADA Valve Matrix Tables Animation Clarifications (CR-353B/353C) PR 4286 Task 3510	A	IRWD	(\$4,429.09)						0				
49.4	Change in Starters for MCC-4100/4101 Cake Transfer Pump Breakers (CR-370A) PR 4286 Task 3510	A	IRWD	(\$4,047.43)						0				
49.5	Deletion of Insulation for the Solids Handling Building Foundation (CR-393) PR 4286 Task 3505	A	IRWD	(\$5,724.95)						0				
50	Approved by Executive Director of Engineering & Water Quality Approved on March 31, 2017				\$72,150.89	\$15,383,700.49	\$15,455,851.38	9.46%	\$178,921,791.38	0	368	368	1,646	10/31/2017
50.1	Electrical Modifications to FOG Local Control Panel 70-LCP-0710 (CR-304) PR 4286 Task 5.30	A	IRWD	\$6,614.77						0				
50.2	Condensate Modifications at Digester Gas Pre-Treatment Area (CR-312) PR 4286 Task 5.31	C	FBB	\$9,826.09						0				
50.3	Installation of Lindapters Instead of Eye Bolts (CR-413) PR 4286 Task 5.29	A	FBB	\$13,346.01						0				
50.4	T-5 Connection to Biosolids Switch-14 (CR-480) PR 4286 Task 5.30	A	IRWD	\$35,170.26						0				
50.5	Polymer Feeder Blender Skids Flow Element Grounding Conductor (CR-482) PR 4286 Task 5.30	C	IRWD	\$7,193.76						0				

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MWRP Biosolids and Energy Recovery Facilities

PR 21146 (4286)

Construction Change Order Summary

Contractor: Filanc/Balfour-Beatty

Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
51	Approved by Executive Director of Engineering & Water Quality Approved on March 31, 2017				(\$121,220.00)	\$15,455,851.38	\$15,334,631.38	9.38%	\$178,800,571.38	0	368	368	1,646	10/31/2017
51.1	Credit for Overtime Inspection Hours From 1/1/2016 to Through 12/31/2016 (CR-089C) PR 4286 Task 4.0	E	IRWD	(\$92,400.00)						0				
51.2	Credit for Overtime Inspection Hours From 1/1/2017 to Through 03/31/2017 (CR-089D) PR 4286 Task 4.0	E	IRWD	(\$28,820.00)						0				
52	Approved by General Manager Approved on April 28, 2017				\$98,342.16	\$15,334,631.38	\$15,432,973.54	9.44%	\$178,898,913.54	0	368	368	1,646	10/31/2017
52.1	Removal of Unsuitable Alluvium (CR-146H) PR 4286 Task 5.29	B	FBB	\$3,564.32						0				
52.2	Polymer Dilution Water Flowmeters (CR-159A) PR 4286 Task 5.31	A	IRWD	\$14,090.39						0				
52.3	Aluminum Handrail and Guardrail Modifications at Liquid Chemical and Polymer Areas (CR-171) PR 4286 Task 5.30	A	IRWD	\$13,765.20						0				
52.4	Modifications Due to Solids Handling Building Electrical Room Equipment Clearance Issues (CR-196) PR 4286 Task 5.30	C	FBB	\$9,382.01						0				
52.5	Data and Telephone Outlets in Solids Handling Building (CR-261) PR 4286 Task 5.30	A	IRWD	\$27,620.21						0				
52.6	HVAC Duct Modifications in Dewatering Feed Pump Station (CR-268) PR 4286 Task 5.31	C	FBB	\$16,023.50						0				
52.7	Coating of 8 Roll-up doors (CR-358) PR 4286 Task 5.29	A	IRWD	\$5,710.32						0				
52.8	Upsizing Wire Size of Dewatering Feed Pump Station Main Breaker Light Panel LP-3501 (CR-390) PR 4286 Task 5.30	A	IRWD	\$1,449.75						0				
52.9	Modifications to the Roofs of the Solids Handling Building and Digester Control Building (CR-528) PR 4286 Task 5.29	A	IRWD	\$6,736.46						0				
53	Exe. Director of Water Quality and Engineering Approved on June 5, 2017				\$42,281.96	\$15,432,973.54	\$15,475,255.50	9.47%	\$178,941,195.50	0	368	368	1,646	10/31/2017
53.1	Modifications to Regenerative Thermal Oxidizer (RTO) Drainage and Utility Water Piping (CR-267) PR 4286 Task 5.31	C	IRWD	\$33,814.80						0				
53.2	Modifications to Liquid Chemical Feed Control Panel Wiring (CR-396) per RFI-1602 PR 4286 Task 5.30	C	FBB	\$8,467.16						0				
54	Approved by General Manager Approved on June 19, 2017				\$44,210.51	\$15,475,255.50	\$15,519,466.01	9.49%	\$178,985,406.01	0	368	368	1,646	10/31/2017
54.1	Modifications to Thickening and Dewatering Platforms (CR-195) PR 4286 Task 5.29	C	FBB	\$44,210.51						0				
55	Approved by General Manager Approved on July 3, 2017				\$94,352.43	\$15,519,466.01	\$15,613,818.44	9.55%	\$179,079,758.44	0	368	368	1,646	10/31/2017
55.1	Additional Pipe Supports of 54-Inch Fiberglass Reinforced Air Duct (CR-106A) PR 4286 Task 5.29	C	FBB	\$14,211.18						0				
55.2	Natural Gas Step Down Manifolds and Gas Transition Piping (CR-146G) PR 4286 Task 5.29	B	IRWD	\$20,489.32						0				
55.3	Modifications to the West End Stair Landing of the Solids Handling Building (CR-315) PR 4286 Task 5.29	B	IRWD	\$5,622.11						0				
55.4	Regenerative Thermal Oxidizer (RTO) Pad Modifications (CR-400) PR 4286 Task 5.29	C	FBB	\$8,471.16						0				
55.5	Addition of Thin Client at the Dryer Facility (CR-485) PR 4286 Task 5.30	A	IRWD	\$36,874.10						0				
55.6	Change in Size to 2 Check Valves in the Digester Control Building (CR-514) PR 4286 Task 5.31	C	FBB	\$8,684.56						0				
56	Approved by Board Approved on July 24, 2017				\$201,744.33	\$15,613,818.44	\$15,815,562.77	9.68%	\$179,281,502.77	0	368	368	1,646	10/31/2017
56.1	Addition Of Stairs and Platform to RTO (CR-266) PR 4286 Task 5.29	A	IRWD	\$101,744.33						0				
56.2	Microturbine CLC (ESC Capstone) per RFI 1141 (CR-277) PR 4286 Task 5.30	B	FBB	\$100,000.00						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
57	Pending Approval by General Manager Pending Approval on August 5, 2017				\$98,886.90	\$15,815,562.77	\$15,914,449.67	9.74%	\$179,380,389.67	0	368	368	1,646	10/31/2017
57.1	Additional Support at Digester Control Building (CR-342) PR 04286 Task 5.29	C	IRWD	\$2,522.47						0				
57.2	Pipe and Duct Hanger Modifications (CR-362) PR 04286 Task 5.29	C	IRWD	\$4,083.12						0				
57.3	Increase Wire Size of Main Breaker PP-3501 (CR-418) PR 04286 Task 5.30	C	FBB	\$696.66						0				
57.4	Roof Vent at DCB Elevator/Stair Tower (CR-437) PR 04286 Task 5.29	B	IRWD	\$8,563.72						0				
57.5	T-14 Fixed Type Manual Operator per Submittal 16443-0016A (CR-540) PR 04286 Task 5.31	C	IRWD	\$1,945.62						0				
57.6	Area Classification at Methane Digesters to meet NFPA Table 6.2(a) - Plug Valves Limit Switches (CR-557) PR 04286 Task 5.30	C	FBB	\$64,195.15						0				
57.7	Area Classification at Methane Digesters to meet NFPA Table 6.2(a) -Sump Pump Cable Retrofit PR 04286 Task 5.30	C	FBB	\$16,880.16						0				
58	Pending Approval by Board of Directors Pending Approval on August 28, 2017				\$182,938.94	\$15,914,449.67	\$16,097,388.61	9.85%	\$179,563,328.61	0	368	368	1,646	10/31/2017
58.1	Concrete Cap over Shallow Pipe Crossings (CR-348) PR 04286 Task 5.31	B	FBB	\$7,923.00						0				
58.2	Additional Conduit and Wiring for Sludge Screen Moisture Sensors (CR-381) PR 04286 Task 5.30	C	FBB	\$8,355.32						0				
58.3	SCADA Programming Modifications (CR-433/476/546/547/551) PR 04286 Task 5.30	A	IRWD	\$15,758.38						0				
58.4	Polymer Storage Power Panels Wire and Breaker Modifications (CR-456) PR 04286 Task 5.30	C	FBB	\$24,238.65						0				
58.5	Odor Control Starter Modifications (CR-466) PR 04286 Task 5.30	B	FBB	\$41,436.09						0				
58.6	Odor Control Fan Remote Temperature Device Revisions (CR-522) PR 04286 Task 5.30	A	IRWD	\$52,484.50						0				
58.7	Re-location of Digester Control Building Gas Room Local Control Panels (CR-534) PR 04286 Task 5.30	A	FBB	\$32,743.00						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date

Category	Total Amount	% of Original Contract
A - District Convenience/Initiation - Project Related	\$ 2,043,902.33	1.25%
B - Differing Site Conditions	\$ 11,757,477.36	7.19%
C - Design Oversight	\$ 2,399,822.16	1.47%
D - District Convenience/Initiation - Non-Project Related	\$ -	0.00%
E - Contractor Convenience/Initiation	\$ (103,813.24)	-0.06%
TOTAL (A + B + C + D)	\$ 16,097,388.61	9.85%

Category	Total Amount	% of Original Contract
IRWD-Initiation/Driven	\$ 2,815,243.96	1.72%
FBB-Initiation/Driven	\$ 13,111,424.43	8.02%
Not applicable	\$ 170,720.22	0.10%
TOTAL	\$ 16,097,388.61	9.85%

EXHIBIT "C"

IRVINE RANCH WATER DISTRICT PROFESSIONAL SERVICES VARIANCE

Project Title: MWRP Biosolids & Energy Recovery Facilities_____

Project No.: 106523_____ Date: 7-24-17_____

Purchase Order No.: 518585_____ Variance No.: 4_____

Originator: ☐ IRWD ☒ ENGINEER/CONSULTANT ☐ Other (Explain)_____

Description of Variance (attach any back-up material):

Masonry Grout Sampling, and In-Place Density Testing During Paving Operations.

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor \$	Direct Costs	Subcon. \$	Total \$
Field Technician/Inspector	160	85.00	13,600			13,600
Senior Project Engineer	10	145.00	1,450			1,450
Laboratory Testing				870		870
Report Preparation	14	145.00	2,030			2,030
Total \$ =						17,950

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule

Required Approval Determination:

Total Original Contract	\$ 222,730_____	☐ Director: Cumulative total of Variances less than or equal to \$50,000.
Previous Variances	\$ 124,245_____	
This Variance	\$ 17,950_____	☐ Executive Director: Cumulative total of Variances less than or equal to \$75,000.
Total Sum of Variances	\$ 142,195_____	
New Contract Amount	\$ 364,925_____	☐ General Manager: Cumulative total of Variances less than or equal to \$100,000.
Percentage of Total Variances to Original Contract	63.8_____%	☒ Board: Cumulative total of Variances greater than \$100,000.

ENGINEER/CONSULTANT: Ninyo & Moore_____

Company Name

Andy Rodriguez 7/24/17
Project Engineer/Manager Date

Andy Rodriguez 7/24/17
Engineer's/Consultant's Management Date

IRVINE RANCH WATER DISTRICT

Mark SLM
Department Director

General Manager/Board Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

[illegible]

August 15, 2017

Prepared by: J. McGehee/R. Mori

Submitted by: K. Burton

Approved by: Paul Cook 

ENGINEERING AND OPERATIONS COMMITTEE

SANTIAGO HILLS II CAPITAL FACILITIES DESIGN CHANGE ORDER

SUMMARY:

Irvine Community Development Company (ICDC) delayed the Santiago Hills II development, which also included the construction of streets, storm drains, domestic water, sewer, and recycled water improvements. ICDC's engineer for the work, Michael Baker International (MBI), continued design of the Offsite Pipelines for the Irvine Lake Pipeline North Conversion (ILP) project after the development was canceled through a reimbursement agreement. Staff recommends that the Board authorize the General Manager to accept ICDC's design change order with MBI in the amount of \$177,400 for the Santiago Hills II, Recycled Water Capital Improvements.

BACKGROUND:

In December 2016, ICDC formally delayed the Santiago Hills II development located between State Route 241/261 and Jamboree Road at Santiago Canyon Road. Design and construction of the IRWD facilities associated with the development were originally prepared by MBI, who also incorporated the 42-inch pipelines from the Offsite Pipelines for the ILP North Conversion project. All design work was performed under the terms of the Master Reimbursement Agreement and Supplemental Reimbursement Agreement between ICDC and IRWD approved by the Board in May 1997 and August 2016, respectively.

The ILP North Conversion Project is part of the District's strategic plan to increase recycled water usage and reduce reliance on imported water supplies by converting a significant portion of the ILP from untreated water to recycled water. The conversion project will convert the Rattlesnake Reach of the ILP, which is located between Rattlesnake Reservoir and the Zone C+ reservoir, from untreated to recycled water. The conversion project includes constructing a new 2.4 million gallon buried concrete Zone C+ reservoir, various modifications at the Rattlesnake Reservoir Complex, and the offsite pipelines necessary to connect the reservoir to the ILP.

Design Change Order No. 1:

In September 2016, the Board authorized the General Manager to accept ICDC's design support services contract with MBI for the Santiago Hills II, Recycled Water Improvements project as part of the Santiago Hills II development. Due to the delay of the Santiago Hills II development, it was necessary to separate the 42-inch pipelines from the Offsite Pipelines for the ILP North Conversion project, which were initially incorporated into the development improvements contract documents, into a stand-alone set of contract documents that staff could advertise for construction. ICDC submitted design Change Order No. 1 in the amount of \$177,400 to facilitate this effort. The change order, which is attached as Exhibit "A", includes utility design modifications, preparation of traffic control plans, preparation of pavement replacement plans, additional potholing, additional drawings and specifications, and project coordination. Staff

reviewed MBI's scope of work and fee and recommends that the Board authorize the General Manager to accept ICDC's design change order with MBI in the amount of \$177,400 for the Santiago Hills II, Recycled Water Capital Improvements.

FISCAL IMPACTS:

Project 05823 is included in the FY 2017-18 Capital Budget. The existing budget is sufficient to fund the recommendations presented.

The ILP North Conversion Project, which includes the reservoir and associated off-site pipelines, is receiving grant funding from the United States Department of Bureau of Reclamation (USBR) and the State Water Resources Control Board (State Board). The USBR funding, in the amount of \$300,000, is being provided through the Drought Resiliency Grant program with 75 percent IRWD matching requirements. The State Board is providing Proposition 1 Recycled Water Program grant funds, which will contribute up to a 35 percent match on eligible construction costs up to a maximum of \$29,510,300 in project costs.

ENVIRONMENTAL COMPLIANCE:

The Offsite Pipelines for the ILP North Conversion Project is subject to the California Environmental Quality Act (CEQA) and in conformance with California Code of Regulations Title 14, Chapter 3, Article 6, a Notice of Intent to adopt a Mitigated Negative Declaration was filed with the County of Orange on November 3, 2015. Pursuant to State Guideline § 15073, the Initial Study/Mitigated Negative Declaration (IS/MND) was made available for public review for a period of 30 days from November 4, 2015 through December 3, 2015. The IS/MND was adopted by IRWD Board of Directors at its January 11, 2016 meeting. A Notice of Determination was filed with the Orange County Clerk/Recorder and the CA State Clearinghouse on January 12, 2016.

RECOMMENDATION:

That the Board authorize the General Manager to accept Irvine Community Development Company's design change order with Michael Baker International in the amount of \$177,400 for the Santiago Hills II, Recycled Water Capital Improvements, project 05823.

LIST OF EXHIBITS:

Exhibit "A" – ICDC Change Order No. 1 with MBI

EXHIBIT "A"

DocuSign Envelope ID: 011828BF-80E5-47E2-967D-FCB1DDBI

CHANGE NO.: _____

DATE: 03/31/17

POTENTIAL CHANGE OF WORK ACKNOWLEDGEMENT & VALUE (FOR IRWD CAPITAL IMPROVEMENTS)

The purpose of this form is to acknowledge a change in work for the intent of reimbursement of costs. Upon acceptance a change order will be issued.

IRWD P.O. No.: _____ ICDC Original Contract #: _____
 ICDC Original SAP PO #: _____
 ICDC SAP CO PO #: 4500102164 co01 - 4500117679
 Owner: Irvine Community Development Company
 Consultant: Michael Baker International, Inc.
 Design Engineer: _____
 IRWD Mgr. Kelly Lew

Sewer

Domestic Water

Reclaim Water

Other

X

Project Description: Santiago Hills II, IRWD Recycled Waterlines Capital Facilities Final Design

PART A - POTENTIAL CHANGE OF WORK:

Plan Revision Required: ☐ YES ☐ NO

Estimated Cost: 177,400.00

Change Initiated By: _____

Work Description: See attached proposal dated 3/06/17

1. Submitted by: _____

Jamie Yoshida

In IRWD's opinion the aforementioned work
qualify as a potential change in work.

does ☐

does not ☐

2b. IRWD comments (required if representative does not concur with the potential change):

2c. Reviewed by: _____

IRWD Representative / Date

3. Received and Recorded by: _____

Owner Representative / Date

PART B - CHANGE OF WORK VALUE:

177,400.00

\$

Detailed Backup Attached ☐

1. Submitted by: _____

Jamie Yoshida / Date

2. Recommended by: _____

IRWD Representative / Date

Revised 5/8/08

CHANGE ORDER REQUEST

Request Date: March 30, 2017To: Contracts Administration Dept. (MS: T1-7-5)Requestor*: Jamie Yoshida

* Requestor = the person directing/managing the work effort.

Manager**: Jamie Yoshida

** Manager = the person with signature authority and managing budget.

Vendor Name: Michael Baker International, Inc.Project Title: Santiago Hills II, IRWD Recycled Waterlines
Capital Facilities Final Design**CHANGE ORDER INFORMATION:**Change Order Description: [Itemize what change(s) occurred.]**TASK DESCRIPTION**

- 01 Recycled Waterline Design Changes
- 02 Future Utility and Street Improvement Modifications
- 03 Preparation of Traffic Control Plans
- 04 Preparation of Pavement Plans
- 05 Additional Potholing
- 06 Easement Acquisition Assistance
- 07 Additional Meetings and Project Coordination
- 08 Drawing Submittals
- 09 Specifications
- 10 Bid Period Assistance

FEE

\$ 27,000
\$ 3,600
\$ 75,000
\$ 8,800
\$ 25,800
\$ 9,500
\$ 8,700
\$ 6,000
\$ 3,000
\$ 10,000

Why is this Change Order necessary? [Itemize where the change(s) occurred, why the change(s) occurred, and who requested the change(s).]
Work not included in original contract.

Total Change Amount: \$177,400.00

T&M

Reimbursable Amt Chg: \$0.00

Note: This amount is part of the total Change Order amount above.

CHANGES IN CONTRACT TERMS:Does this Change Order require the Contract Time to be extended? Yes (if Yes, fill in item(s) below)Contract Time Extended By: 365 Calendar Days

Note: For Construction Contracts, the new completion date shall be reflected in the Weekly Statement of Working Days.

ITEMS REQUIRED TO BE ATTACHED AS SUPPORTING DOCUMENTS TO CHANGE ORDER:

- | | | |
|---|--|---|
| ☐ Scope of Services | ☐ Price Quote (Proposal) | ☐ Backup Documentation (as applicable) |
| ☐ T&M Tickets (signed) | ☒ PCOW (as applicable) | ☐ >\$250K Memo (as applicable) |
| ☐ Engineer's Estimate (Construction Contracts Only) | ☐ Engineer's Justification Memo (Construction Contracts Only) | ☐ Contractor's Price (Construction Contracts Only) |
| ☐ Final Quantity Certification (Construction Contracts Only) | ☐ Other: | |

CODING (To be completed by Manager)

ORIGINAL CONTRACT PO NO. 4500102164
(Generated by SAP):
BUSINESS LINE (A): LD MASTER PROJECT (B): 0200
TASK (C): EG TASK ID (D): 01
POTENTIAL CONTRACT: XX POTENTIAL CONTRACT ID: 00

FUNDING SOURCE (E): 3 (IRWD)
WBS ELEMENT (A-B.C.D.E): LD - 0200 . EG . 01 . 3 (IRWD)
FUNCTIONAL AREA: OALL
COST ELEMENT or O/L ACCT: 9600180
PO DOCUMENT CODE: ZC06

Coding approved by Manager:

Signature: [Signature] / Date: 4/7/17

CODING AP SIGNATURE	DocuSigned by: <u>[Signature]</u>	/ DATE: <u>5/1/2017</u>	CHANGE ORDER PURCHASE ORDER NO. (Generated by SAP): <u>4500117679</u>
CHANGE OR (Generated by SAP): <u>09CD2522B48D4A1...CO01</u>	CHANGE ORDER FULLY EXECUTED ON:	REQUESTOR NOTIFIED ON:	

March 6, 2017

JN 151918

Mr. Jamie Yoshida
IRVINE COMPANY COMMUNITY DEVELOPMENT
550 Newport Center Drive
Newport Beach, CA 92660

Subject: Request for Amendment No.1: Santiago Hills II, IRWD 42-inch, 20-inch, 10-inch Recycled Waterlines Capital Facilities Final Design

Dear Mr. Yoshida:

Michael Baker International (MBI) respectfully requests an addendum for additional work necessary to complete design of the Santiago Hills II Recycled Waterline Capital Facilities project (aka IRWD Irvine Lake Pipeline North Conversion Project). As described below, the additional work effort is primarily due to IRWD's decision to move forward with constructing the waterlines as a stand-alone project, in response to ICDC's development plans being put on indefinite hold. The added tasks/additional effort that resulted from this change are identified and described below:

Item No. 1: Recycled Waterline Design Changes:

\$ 27,000

After submitting 90%+ design plans, MBI was notified along with IRWD that the development was being put on hold. The dual pipeline design in Santiago Canyon Road, east of Jamboree, was originally based upon a new street alignment. One of the 42-inch pipelines was designed to be within a widened section of the street and both pipelines were designed to follow the future alignment of the re-aligned street. The grade of the future street was to be improved as well, with some locations raising the grade, and others dropping it. Because the pipelines will now be installed within the unimproved street and existing grade, approximately 2,700 LF of pipeline required re-alignment/re-design. Additional re-design was necessary to avoid conflicts with existing utilities such as the 54" Baker pipeline, an 18" storm drain, and existing power poles. One of the ongoing issues with the re-design has been coordinating the design of the tie-in at the new IRWD Zone C+ reservoir with Kleinfelder.

MBI's original scope of work included coordinating the IRWD Zone C+ and ILP reservoir tie-in design with Kleinfelder, who designed IRWD's new non-potable reservoir. MBI completed its coordination with Kleinfelder, and completed the tie-in design. This design was based on the assumption that the street widening project would be completed prior to or at the same time the tie-in would be constructed. Now that the Santiago Canyon Road (east) street widening project is no longer moving forward, the point of connection to the reservoir inlet/outlet lines was no longer a viable point of connection because of a conflict with an existing power pole and requires further coordination with Kleinfelder to determine an acceptable point of connection.

Item No. 2: Future Utility and Street Improvement Modifications:**\$ 3,600**

At IRWD's request, MBI removed future utilities depicted on all drawing plan views, but showed those future utilities in the profile views that would have an impact on the profile. At IRWD's request, MBI also removed the plan view future street improvements, such as future curb and gutter, center medians, and centerline. These alterations to the plan affected all 12 plan and profile sheets.

Item No. 3: Preparation of Traffic Control Plans:**\$ 75,000**

Traffic control plans for the 42-inch parallel pipelines in Santiago Canyon Road (east) and Jamboree Road and for the 20-inch pipeline on Jamboree Road were originally to be prepared under the SH II development street improvement plans contract. Now that the waterline project is proceeding independent of the development, stand-alone traffic control plans are required for construction. MBI proposes to utilize Traffic Control Engineering, Inc. (TCE) to prepare the additional traffic control plans. TCE will prepare concept plans for preliminary approval by the City, and final plans based on comments from the City. TCE estimates a total of 25 drawings will be required for the project. One reason for the number of drawings is that the speed limits along Jamboree and Santiago Canyon Roads require a significant length of taper. In addition, this task includes preparation of traffic control cross sections (requested by City of Orange) to assist in discussions with the City. This task also includes preparation of specifications, cost estimates, and coordination with City of Orange to facilitate acquisition of required City approvals. Budget is also included in this task for MBI's Project Manager to coordinate with TCE and the City of Orange.

Item No. 4: Preparation of Pavement Plans:**\$ 8,800**

Preparation of pavement plans was not included in MBI's original scope of work. The City of Orange requires a pavement plan be included with the stand-alone recycled waterline plan set, once the development plans were put on hold. Four drawings were prepared for City approval that show limits of pavement overlay, and slurry seal. It is anticipated the City will also have new requirements for the project (i.e. different from requirements when the project was being constructed as part of development improvements) when it comes to pavement replacement. These requirements will need to be addressed in the final pavement plans and specifications.

Item No. 5: Additional Potholing:**\$ 25,800**

MBI originally estimated that forty (40) potholes would be necessary to complete the design of the dual 42-inch, 20-inch, and 10-inch pipelines. MBI sub-contracted with Boudreau Pipelines to complete the work. During design it was determined that the original pothole estimate would be enough to fulfill the design needs of the dual 42-inch and 20-inch pipelines, but not the 10-inch pipeline. Based on coordination with IRWD, MBI estimates that an additional seventeen (17) potholes will be required to complete design of the 10-inch pipeline.

As development of the plans progressed MBI's potholing sub-consultant Boudreau was only able to complete 26 of the potholes for the dual 42-inch and 20-inch pipelines. MBI regularly attempted to contact Boudreau to complete the work, but due to untimely performance, MBI ended its contract with Boudreau, leaving a total of 14 potholes yet to be completed within MBI's original budget.

Due to changes in the alignment to the 42-inch pipelines, and because the Baker Pipeline is no longer being relocated, two additional potholes were identified in Santiago Canyon Road (east) in order to locate the Baker pipeline and a 48-inch waterline. Therefore, this task provides a budget for an additional 19 potholes, and coordinating the completion of the remaining 14 potholes from the original scope of work. MBI proposes to utilize C-Below to perform all of the remaining pothole work. This task also includes coordination with the sub-consultant, processing the pothole data, and revising the pipeline design due to any conflicts. MBI assumes that survey will not be provided to establish pothole locations and elevations under this task.

Item No. 6: Easement Acquisition Assistance:

\$ 9,500

Assistance with easement acquisition was not included in MBI's original scope of work for the recycled waterline project. ICDC requested MBI support acquisition of an easement from OC Parks, which has included meeting attendance, preparation of a legal description and exhibit, and processing of the easement with OC Parks.

Item No. 7: Additional Meetings and Project Coordination:

\$ 8,700

MBI's original scope of work included budget for attending four (4) meetings, preparing exhibits, and overall project coordination. This budget was also based upon a project duration of 3 months. To date, seven (7) meetings have been attended by the Engineer, and it is anticipated an additional meeting will be required for completion of final design. In addition, due to the longer project duration, additional project management and coordination has been required. An additional 60 hours of the Engineer's time is estimated to have been required due to the extended duration of the project.

Item No. 8: Drawing Submittals:

\$ 6,000

MBI's original scope of work included budget for three (3) drawing submittals at 60%, 90%, and final completion. MBI completed these submittals prior to the project becoming stand-alone. Once the pipeline project became stand-alone MBI revised the plans based on IRWD's direction and delivered a 4th submittal to IRWD on December 27, 2016. Following that submittal MBI attended a progress meeting with the City of Orange and discussed revisions that the City would require on the stand-alone plan set. Those revisions along with comments received from IRWD were combined in a 5th submittal to the City and IRWD on February 27, 2017. MBI estimates that one (1) additional submittal will be required to finalize the design. Therefore, budget for three (3) additional submittals will be required for the re-design of the recycled water pipelines.

Item No. 9: Specifications:

\$ 3,000

Specifications for this project were originally prepared utilizing ICDC's front-end documents, with IRWD technical specifications attached. Once the project became an IRWD stand-alone bid set, MBI was required to prepare specifications (i.e. Project Manual) per IRWD requirements. This has required an additional effort by the Engineer.

Item No. 10: Bid Period Assistance:

\$10,000

During the bidding period, Michael Baker will provide IRWD with assistance on an as-requested basis. It is assumed that tasks may include: responding to bidders questions; attending a pre-bid meeting; reviewing the bids, and assistance in preparation of bid addenda.

A table summarizing the proposed fee's is included below;

TASK	DESCRIPTION	FEE
01	Recycled Waterline Design Changes	\$ 27,000
02	Future Utility and Street Improvement Modifications	\$ 3,600
03	Preparation of Traffic Control Plans	\$ 75,000
04	Preparation of Pavement Plans	\$ 8,800
05	Additional Potholing	\$ 25,800
06	Easement Acquisition Assistance	\$ 9,500
07	Additional Meetings and Project Coordination	\$ 8,700
08	Drawing Submittals	\$ 6,000
09	Specifications	\$ 3,000
10	Bid Period Assistance	\$ 10,000
	Total Professional Fee	\$ 177,400

We appreciate the opportunity to be of continued service to ICDC. Should you have any questions or require additional information, please do not hesitate to contact me at (949) 855-3616, or clmiller@mbakerintl.com.

Sincerely,



Cindy L. Miller, P.E.
Vice President
Water/Wastewater Engineering

August 15, 2017

Prepared by: B. Rios/K. Lew

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

TUSTIN LEGACY CAPITAL FACILITIES

SUMMARY:

The City of Tustin (City) is proceeding with construction of Victory Road, Moffett Drive Bridge and Flight Drive in the Tustin Legacy development, which includes the construction of streets, storm drains, domestic water, sewer, and recycled water improvements. As part of the project, the City will construct IRWD capital domestic and recycled facilities under an existing Reimbursement Agreement. Staff recommends that the Board:

- Authorize the General Manager to accept the City's construction contract with KEC Engineering in the amount of \$263,804 for the Victory Road Recycled Water Improvements;
- Authorize the General Manager to accept the City's construction contract with USS Cal Builders, Inc. in the amount of \$332,594.28 for the Moffett Drive Bridge Domestic and Recycled Water Improvements;
- Authorize the General Manager to accept the City's construction contract with Bali Construction, Inc. in the amount of \$187,348 for the Flight Drive Recycled Water Improvements; and
- Authorize a budget increase for Project 07163 in the amount of \$200,000, from \$162,800 to \$362,800, for the construction of recycled water pipelines within Victory Road.

BACKGROUND:

The City of Tustin is moving forward with construction of Victory Road, Moffett Drive Bridge and Flight Drive in the Tustin Legacy development. The Tustin Legacy development is bound by Edinger Avenue to the northeast, Red Hill Avenue to the northwest, Barranca Parkway to the southwest, and Jamboree Road to the southeast. The Project Location Map is shown as Exhibit "A". The Victory Road improvements include installation of approximately 1,100 feet of 8-inch diameter recycled water pipeline. The Moffett Drive Bridge improvements include installation of approximately 265 feet of 12-inch diameter domestic pipeline and 270 feet of 16-inch diameter recycled water pipeline. The Flight Drive improvements include installation of approximately 1,300 feet of 6-inch recycled water pipeline. As part of this development, the City will construct IRWD's domestic and recycled water capital improvements. The required IRWD capital facilities are documented in the Tustin Legacy Sub-Area Master Plan Update as prepared by Michael Baker International dated March 2017.

The design and construction of the IRWD capital facilities for the Tustin Legacy development will be performed under the terms of an existing Reimbursement Agreement between IRWD and the City.

Victory Road Recycled Water Improvements:

The Victory Road Recycled Water Improvements consist of installing approximately 1,100 feet of 8-inch diameter recycled water pipeline within Victory Road from Armstrong Avenue to Red Hill Avenue. The City retained Hunsaker and Associates to prepare the Victory Road Recycled Water Improvement plans. The City received bids from two contractors for the construction of IRWD capital facilities. KEC Engineering was the lowest bidder for the overall project. A subsequent Change Order No. 3, included as a part of the construction concurrence package, was processed to correct the IRWD capital facility quantities from the bid set to the approved set. KEC's initial bid for the IRWD portion of the work was in the amount of \$619,714.00, and Change Order No. 3 corrected the amount to \$263,804.00, as shown in Exhibit "B". Staff has reviewed the construction bids and concurs with awarding the contract to KEC. In addition, the City has received consultant proposals for geotechnical observation and testing, and construction support services. Staff has reviewed the consultant proposals and found the amounts to be acceptable. Proposals for field archeological and paleontological monitoring were not necessary because those costs were included as a part of the previously approved improvements. Construction surveying services will be provided under a separate service agreement between IRWD and an on-call consultant. A summary of the Victory Road Improvement costs is shown below:

Design (Hunsaker)	\$ 10,298.00
Construction (KEC)	\$ 619,714.00
Change Order No. 3	\$ <355,910.00>
Geotechnical Services (NMG Geotechnical)	\$ 31,062.00
Construction Support (Hunsaker)	\$ 12,000.00
City of Tustin Administration Fee (4%)	<u>\$ 10,552.00</u>
	\$ 327,716.00

Moffett Drive Bridge Domestic and Recycled Water Improvements:

The Moffett Drive Bridge Improvements include installation of approximately 265 feet of 12-inch diameter domestic water pipeline and 270 feet of 16-inch diameter recycled water pipeline. The City retained Michael Baker International to prepare the Moffett Drive Bridge Domestic and Recycled Water Improvement plans and it received bids from seven contractors. USS Cal Builders, Inc. was the lowest bidder for the overall project. Its bid for the IRWD portion of the work was in the amount of \$332,594.28, the fifth lowest bid, as shown in Exhibit "C". Bids for IRWD's portion of the work ranged from \$245,400 to \$556,700. Staff has reviewed the construction bids and concurs with awarding the contract to USS Cal Builders, Inc. In addition, the City has received consultant proposals for geotechnical observation and testing, and construction support services. Staff has reviewed the consultant proposals and found the amounts to be acceptable. Proposals for field archeological and paleontological monitoring were not necessary because those costs were included as a part of the previously approved improvements and separate service agreement. Construction surveying services will be provided under a separate service agreement between IRWD and an on-call consultant. A summary of the Moffett Drive Bridge Improvement costs is shown below:

Design/Const. Support (Michael Baker, Intl.)	\$ 18,900.00
Construction (USS Cal Builders)	\$332,594.28
Geotechnical Services (NMG Geotechnical)	\$ 10,500.00
City of Tustin Administration Fee (4%)	<u>\$ 13,303.77</u>
	\$375,298.05

Flight Drive Recycled Water Improvements:

The Flight Drive Recycled Water Improvements include installation of approximately 1,300 feet of 6-inch diameter recycled water pipeline. The City retained Michael Baker International to prepare the Flight Drive Recycled Water Improvement plans and it received bids from three contractors. Bali Construction, Inc. was the lowest bidder for the overall project and its bid for the IRWD portion of the work was in the amount of \$187,348.00, as shown in Exhibit "D". Staff has reviewed the construction bids and concurs with awarding the contract to Bali Construction, Inc. In addition, the City has received consultant proposals for geotechnical observation and testing, and construction support services. Staff has reviewed the consultant proposals and found the amounts to be acceptable. Proposals for field archeological and paleontological monitoring were not necessary because those costs were included as a part of the previously approved improvements and separate service agreement. Construction surveying services will be provided under a separate service agreement between IRWD and an on-call consultant. A summary of the Flight Drive Improvement costs is shown below:

Design/Const. Support (Michael Baker, Intl.)	\$ 17,400.00
Construction (Bali Construction, Inc.)	\$187,348.00
Geotechnical Services (NMG Geotechnical)	\$ 40,000.00 (est.)
City of Tustin Administration Fee (4%)	<u>\$ 7,494.00</u>
	\$252,242.00 (est.)

FISCAL IMPACTS:

Projects 06765, 06766 and 07535 are included in the FY 2017-18 Capital Budget and have adequate budget. Project 07163 is included in the FY 2017-18 Capital Budget and requires a budget increase as shown in the table below.

Project No.	Current Budget	Addition <Reduction>	Total Budget
07163	\$ 162,800	\$ 200,000	\$ 362,800

ENVIRONMENTAL COMPLIANCE:

This project is subject to CEQA and is in conformance with the California Code of Regulations Title 14, Chapter 3, Article 7. A Joint Environmental Impact Statement/Environmental Impact Report was certified by the City of Tustin and the Department of the Navy on January 3, 2000 (SCH 1982040906).

RECOMMENDATION:

That the Board authorize the General Manager to accept the City of Tustin's construction contract with KEC Engineering in the amount of \$263,804 for the Victory Road Recycled Water Improvements, project 07163; authorize the General Manager to accept the City's construction contract with USS Cal Builders, Inc. in the amount of \$332,594.28 for the Moffett Drive Bridge Domestic and Recycled Water Improvements, projects 06765 and 06766; authorize the General Manager to accept the City's construction contract with Bali Construction, Inc. in the amount of \$187,348 for the Flight Drive Recycled Water Improvements, project 07535; and authorize a budget increase for project 07163 in the amount of \$200,000, from \$162,800 to \$362,800, for the construction of recycled water pipelines within Victory Road.

LIST OF EXHIBITS:

- Exhibit "A" – Location Map
- Exhibit "B" – Bid Summary, Victory Road Recycled Water Improvements
- Exhibit "C" – Bid Summary, Moffett Drive Bridge Domestic and Recycled Water Improvements
- Exhibit "D" – Bid Summary, Flight Drive Recycled Water Improvements

EXHIBIT "A"

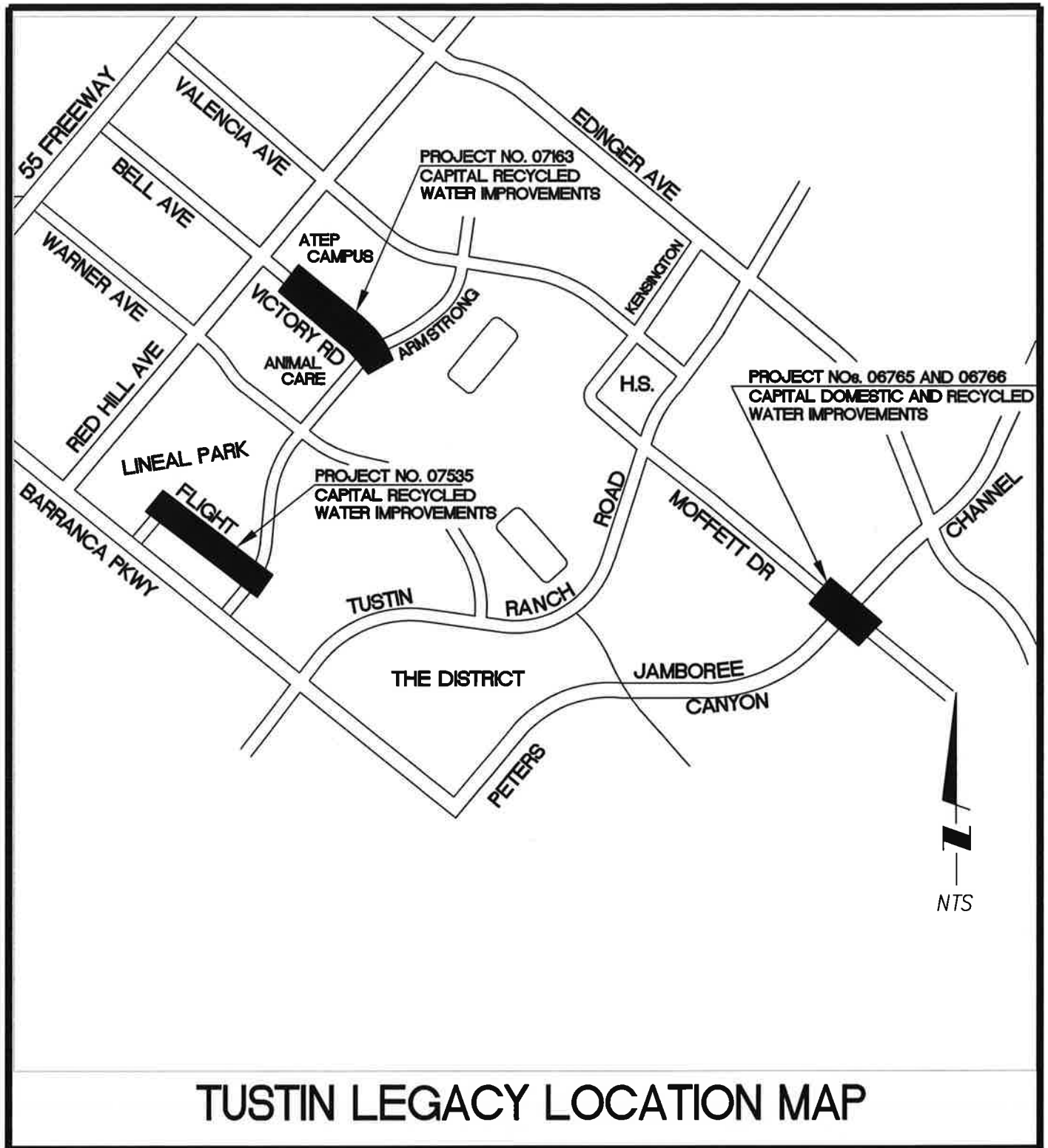


EXHIBIT "A"

EXHIBIT "B"

VICTORY ROAD EXTENSION ROADWAY CONTRUCTION PROJECT									
CIP NO. 70221									
BID OPENING : 10.00 A.M., SEPTEMBER 13, 2016									
				KEC Engineering		Sukut Construction, LLC		AMPCO Contracting, Inc.	
				200 N. Sherman Ave.		4010 W. Chandler Ave.		1540 S. Lewis St.	
				Corona, CA 92882		Santa Ana, CA 92704		Anaheim, CA 92805	
				(951) 734-3010		(714) 540-5351		(949) 955-2255	
ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
1	Mobilization	1	LS	10,000.00	10,000.00	270,208.70	270,208.70		-
2	Construction Survey, Staking and Survey Monument Preservation	1	LS	35,000.00	35,000.00	49,000.00	49,000.00	30,000.00	30,000.00
3	Develop Construction Water	1	LS	5,000.00	5,000.00	30,000.00	30,000.00	8,000.00	8,000.00
4	SWPPP and BMPs Implementation (entire site)	1	LS	7,000.00	7,000.00	18,000.00	18,000.00	18,000.00	18,000.00
5	Water & Dust Control and Clean Up	1	LS	20,000.00	20,000.00	80,000.00	80,000.00	20,000.00	20,000.00
6	Traffic Control	1	LS	20,000.00	20,000.00	30,000.00	30,000.00	12,000.00	12,000.00
7	Management, Transportation & Disposal of Contaminated Materials Other	500	TON	71.00	35,500.00	90.00	45,000.00	245.00	122,500.00
8	Provide Legal Pollution Liability Insurance for the Next 5 Year After the Date	5	YR	2,800.00	14,000.00	2,000.00	10,000.00	5,000.00	25,000.00
	Total				146,500.00		532,208.70		235,500.00
	<u>Grading</u>								
9	Site Preparation, Clearing and Grubbing	1.0	LS	5,600.00	5,600.00	20,000.00	20,000.00	109,200.00	109,200.00
10	Protect Existing Monitoring Well w/ K-Rail Guard per Detail	2.0	EA	4,000.00	8,000.00	3,400.00	6,800.00	2,500.00	5,000.00
11	Relocate Existing Chain Link Fence	465	LF	7.50	3,487.50	53.00	24,645.00	12.00	5,580.00
12	Remove Existing Chain Link Fence	437	LF	5.50	2,403.50	12.00	5,244.00	3.00	1,311.00
13	Install 12" PVC Sch. 40 Pipe	25	LF	70.00	1,750.00	132.00	3,300.00		-
14	Construct 36" HDPE Pipe w/ Bedding per Detail on Sheet 3	66	LF	105.00	6,930.00	160.00	10,560.00		-
15	Construct Drain Pipe and 18" HDPE Riser per Inlet Type V Detail on Sheet 3	1	EA	1,700.00	1,700.00	3,300.00	3,300.00		-
16	Construct Drain Pipe and 48" HDPE Riser per Inlet Type V Detail on Sheet 3	2	EA	2,500.00	5,000.00	6,500.00	13,000.00		-
17	Install Concrete Collar per SPPWC Std. Plan 380-4	2	EA	900.00	1,800.00	725.00	1,450.00		-
18	Construct 18" HDPE Pipe w/ Bedding per Detail on Sheet 3	270	LF	65.00	17,550.00	75.00	20,250.00	95.00	25,650.00
19	Remove Existing Gas Line	752	LF	40.00	30,080.00	7.00	5,264.00	8.50	6,392.00
20	Remove Existing Miscellaneous Storm Drain Pipe and Appurtenances	199	LF	85.00	16,915.00	47.00	9,353.00	10.50	2,089.50
21	Remove Existing 8" ACP FW Waterline	566	LF	30.00	16,980.00	55.00	31,130.00	3.80	2,150.80
22	Remove Existing Waterline	1,257	LF	25.00	31,425.00	6.50	8,170.50	3.80	4,776.60
23	Remove Existing Electrical Line	1,124	LF	28.00	31,472.00	6.50	7,306.00	3.80	4,271.20
24	Remove Existing Concrete Tarmac	23,538	SF	2.70	63,552.60	1.00	23,538.00	2.25	52,960.50
25	Remove Existing Sewer	902	LF	30.00	27,060.00	27.00	24,354.00	3.50	3,157.00
26	Remove Existing Oil Line	431	LF	30.00	12,930.00	26.00	11,206.00	5.00	2,155.00
27	Unclassified Excavation	18,770	CY	1.20	22,524.00	3.00	56,310.00	2.35	44,109.50
28	Unsuitable Material Removal and Re-Compaction	39,400	CY	2.50	98,500.00	1.60	63,040.00	3.98	156,812.00
29	Export	13,640	CY	7.10	96,844.00	7.00	95,480.00	13.80	188,232.00
30	Wet Material Special Handling, Excavation and Re-Compaction Premium	500	CY	5.00	2,500.00	6.00	3,000.00	10.00	5,000.00
31	Stabilization of Over-Wet Removal Bottom	6,000	SF	5.20	31,200.00	4.60	27,600.00	3.25	19,500.00
	Total for Grading				499,532.60		386,001.50		517,256.10
	<u>Storm Drain Improvements</u>								
32	Construct Manhole Per SPPWC Std. Plan 321-2	4	EA	6,800.00	27,200.00	6,200.00	24,800.00	8,680.00	34,720.00
33	Construct Manhole Per SPPWC Std. Plan 320-2	3	EA	7,500.00	22,500.00	6,500.00	19,500.00	6,720.00	20,160.00
34	Construct Manhole Per SPPWC Std. Plan 322-2	1	EA	14,000.00	14,000.00	8,600.00	8,600.00	13,664.00	13,664.00

VICTORY ROAD EXTENSION ROADWAY CONTRUCTION PROJECT									
CIP NO. 70221									
BID OPENING : 10.00 A.M., SEPTEMBER 13, 2016									
				KEC Engineering		Sukut Construction, LLC		AMPCO Contracting, Inc.	
				200 N. Sherman Ave.		4010 W. Chandler Ave.		1540 S. Lewis St.	
				Corona, CA 92882		Santa Ana, CA 92704		Anaheim, CA 92805	
				(951) 734-3010		(714) 540-5351		(949) 955-2255	
ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
35	Construct Junction Structure per SPPWC Std. Plan 331-3	1	EA	1,550.00	1,550.00	1,800.00	1,800.00	14,112.00	14,112.00
36	Install 24" RCP (see profile for D-Load) with Gasketed Joints	897	LF	120.00	107,640.00	136.00	121,992.00	149.00	133,653.00
37	Construct 24" CCFRPM with Vitton Type "F" Gasket , Bentonite Slurry	179	LF	385.00	68,915.00	500.00	89,500.00	473.00	84,667.00
38	Install 36" RCP (see profile for D-Load) with Gasketed Joints	72	LF	250.00	18,000.00	200.00	14,400.00	289.00	20,808.00
39	Install 48" RCP (see profile for D-Load) with Gasketed Joints	101	LF	295.00	29,795.00	255.00	25,755.00	-	-
40	Install 54" RCP (see profile for D-Load) with Gasketed Joints	517	LF	274.00	141,658.00	290.00	149,930.00	-	-
41	Construct 60" CCFRPM with Vitton Type "F" Gasket , Bentonite Slurry	291	LF	920.00	267,720.00	950.00	276,450.00	-	-
42	Construct Brick and Mortar Plug	5	EA	510.00	2,550.00	700.00	3,500.00	-	-
43	Remove Plug and Join Existing	1	EA	950.00	950.00	700.00	700.00	-	-
44	Construct Concrete Collar per OCPW Std. Plan 380-4, Bentonite Slurry	1	EA	5,000.00	5,000.00	1,400.00	1,400.00	-	-
45	Construct Catch Basin – Inlet Type OL per City of Tustin Std. No. 302,	3	EA	20,600.00	61,800.00	11,000.00	33,000.00	-	-
46	Construct Catch Basin – Inlet Type OL per City of Tustin Std. No. 302	6	EA	12,500.00	75,000.00	7,800.00	46,800.00	-	-
47	Install Vegetated Bio-Filtration Device – Modular Wetland System or Equal,	3	EA	60,000.00	180,000.00	39,500.00	118,500.00	-	-
48	Install Vegetated Bio-Filtration Device – Modular Wetland System or Equal	6	EA	40,000.00	240,000.00	31,800.00	190,800.00	-	-
Total for Storm Drain Improvements					1,264,278.00		1,127,427.00		321,784.00
<u>Street Improvements</u>									
49	Construct 0.20" Asphalt Rubber Hot Mix Surface Course (ARHM-GG-C-PG 64)	1,098	TON	88.00	96,624.00	90.00	98,820.00	99.00	108,702.00
50	Construct 0.50" Asphalt Concrete Base Course (Type III, BW-PG 64-10, 3/4")	2,860	TON	74.00	211,640.00	70.00	200,200.00	71.70	205,062.00
51	Construct 1.15' Untreated Base	8,820	TON	16.50	145,530.00	13.00	114,660.00	12.60	111,132.00
52	Construct 8" Curb and Gutter, Type "A-2" per City of Tustin Std. No. 201	3,450	LF	25.50	87,975.00	26.00	89,700.00	15.20	52,440.00
53	Construct Local Depression per City of Tustin Std. No. 304	9	EA	750.00	6,750.00	825.00	7,425.00	1,500.00	13,500.00
54	Construct Sidewalk Access Ramp per City of Tustin Std. No. 211	4	EA	4,000.00	16,000.00	3,800.00	15,200.00	6,650.00	26,600.00
55	Construct Driveway Access per City of Tustin Std. No. 210	3	EA	11,200.00	33,600.00	10,800.00	32,400.00	20,450.00	61,350.00
56	Saw-cut Existing Pavement	364	SF	4.30	1,565.20	2.25	819.00	5.00	1,820.00
57	Cold Mill 0.2' Min. Existing Pavement & Construct 0.2' Min. AC Overlay	1,818	SF	3.00	5,454.00	1.00	1,818.00	3.75	6,817.50
58	Remove Existing Pavement	2,751	SF	2.50	6,877.50	1.00	2,751.00	0.80	2,200.80
59	Construct Full Depth A. C.	390	TON	83.00	32,370.00	56.00	21,840.00	57.68	22,495.20
60	Construct Concrete Sidewalk, 4" Thick per City of Tustin Std. No. 202	28,569	SF	4.00	114,276.00	3.40	97,134.60	11.00	314,269.00
61	Install United Stormwater Wing Gate	9	EA	2,000.00	18,000.00	1,800.00	16,200.00	-	-
62	Const. Driveway Access per City of Tustin Std. No. 209	1	EA	4,300.00	4,300.00	5,300.00	5,300.00	6,000.00	6,000.00
63	Subgrade Preparation and Fine Grade Street	126,100	SF	0.26	32,786.00	0.30	37,830.00	0.46	58,006.00
64	Subgrade Preparation and Fine Grade Curb and Gutter	3,564	SF	1.50	5,346.00	0.55	1,960.20	14.73	52,497.72
65	Subgrade Preparation and Fine Grade Sidewalk and Parkway	28,570	SF	0.46	13,142.20	0.80	22,856.00	0.46	13,142.20
<u>Signing & Striping Red Hill Avenue</u>									
66	Paint 4" White Lane Skip Stripe	3,530	LF	0.30	1,059.00	0.30	1,059.00	0.58	2,047.40
67	Paint 4" Double Yellow Median Stripe	1,420	LF	1.15	1,633.00	1.10	1,563.00	1.90	2,698.00
68	Paint 8" White Channelizing Lane Line Stripe	850	LF	0.50	425.00	0.44	374.00	0.98	833.00
69	Paint Detail 40 per Sheet 10 Detail "B"	380	LF	0.35	133.00	0.30	114.00	1.73	657.40

VICTORY ROAD EXTENSION ROADWAY CONTRUCTION PROJECT									
CIP NO. 70221									
BID OPENING : 10.00 A.M., SEPTEMBER 13, 2016									
				KEC Engineering		Sukut Construction, LLC		AMPCO Contracting, Inc.	
				200 N. Sherman Ave.,		4010 W. Chandler Ave.,		1540 S. Lewis St.	
				Corona, CA 92882		Santa Ana, CA 92704		Anaheim, CA 92805	
				(951) 734-3010		(714) 540-5351		(949) 955-2255	
ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
70	Paint Type IV Arrow	8	EA	33.00	264.00	31.00	248.00	74.75	598.00
71	Paint Symbol - "Signal"	6	EA	65.50	393.00	62.00	372.00	143.75	862.50
72	Paint Symbol - "Ahead"	6	EA	65.50	393.00	62.00	372.00	143.75	862.50
73	Paint 12" Crosswalk or Limit Line per Sheet 10 Detail "A"	455	LF	3.50	1,592.50	3.20	1,456.00	3.45	1,569.75
74	Paint White Lane Line per Sheet 10 Detail "E"	400	LF	0.40	160.00	0.40	160.00	0.69	276.00
75	4" White Lane Line - Detail 27B	143	LF	0.25	35.75	0.25	35.75	1.15	164.45
76	Remove Conflicting Striping or Markings	2,812	LF	1.75	4,921.00	1.75	4,921.00	2.13	5,989.56
77	Install Sign	3	EA	467.00	1,401.00	445.00	1,335.00	258.75	776.25
78	Remove and Salvage Existing Sign	1	EA	50.00	50.00	50.00	50.00	34.50	34.50
<u>Signing & Striping Victory Road & Bell Avenue</u>									
79	Paint 4" Double Yellow Centerline Stripe - Detail 22	395	LF	0.75	296.25	0.70	276.50	0.98	387.10
80	Paint 4" Double Yellow Median Stripe - Detail 29	1,420	LF	1.10	1,562.00	1.10	1,562.00	1.90	2,698.00
81	Paint 8" White Channelizing Lane Line Stripe - Detail 38	1,400	EA	0.46	644.00	0.45	630.00	0.98	1,372.00
82	Paint Pavement Marking - Type IV Arrow	2	EA	33.00	66.00	31.00	62.00	74.75	149.50
83	Paint Pavement Marking - "Signal"	1	EA	65.50	65.50	62.00	62.00	143.75	143.75
84	Paint Pavement Marking - "Ahead"	1	EA	65.50	65.50	62.00	62.00	143.75	143.75
85	Remove Conflicting Striping	356	LF	4.67	1,662.52	4.50	1,602.00	2.13	758.28
86	Install Sign	18	EA	467.00	8,406.00	445.00	8,010.00	258.75	4,657.50
87	Install Thermoplastic 12" Solid White Limit Line or Crosswalk Marking Per	276	LF	3.50	966.00	3.50	966.00	5.18	1,429.68
88	Install Thermoplastic 4" Double Yellow Centerline Stripe - Detail 22	700	LF	1.15	805.00	1.10	770.00	1.09	763.00
89	Install Thermoplastic 4" White Lane Drop Stripe - Detail 37B	1,564	LF	0.50	782.00	0.50	782.00	1.09	1,704.76
90	Install Thermoplastic 8" White Lane Drop Stripe - Detail 37B	915	LF	0.50	457.50	0.50	457.50	1.09	997.35
91	Install Thermoplastic Bike Lane Stripe per Sheet 10 Detail "C"	3,340	LF	1.50	5,010.00	1.40	4,676.00	2.24	7,481.60
92	Install Thermoplastic 6" White Bike Lane Intersection Stripe - Detail 39A	2,000	LF	0.25	500.00	0.25	500.00	0.98	1,960.00
93	Install Thermoplastic Pavement Markings - Type IV Arrow	14	EA	45.15	632.10	43.00	602.00	86.25	1,207.50
94	Install Thermoplastic Pavement Marking - Type VII Arrow	3	EA	87.00	261.00	83.00	249.00	97.75	293.25
95	Install Thermoplastic Pavement Marking - "Signal"	4	EA	107.00	428.00	100.00	400.00	287.50	1,150.00
96	Install Thermoplastic Pavement Marking - "Ahead"	4	EA	107.00	428.00	100.00	400.00	287.50	1,150.00
97	Install Thermoplastic Bike Lane Legend per Sheet 10, Detail "C"	8	EA	91.50	732.00	88.00	704.00	97.75	782.00
98	Install Thermoplastic White Lead Line per Sheet 10, Detail "E"	250	LF	1.30	325.00	1.30	325.00	0.75	187.50
99	Paint White 8" White Lane and Chevron Stripe (without RPM's)	546	LF	0.85	464.10	1.00	546.00	0.86	469.56
<u>Signing & Striping Armstrong Avenue</u>									
100	Remove Conflicting Striping	1,541	LF	2.30	3,544.30	2.25	3,467.25	2.13	3,282.33
101	Install Sign	4	EA	467.00	1,868.00	445.00	1,780.00	258.75	1,035.00
102	Install Thermoplastic 12" Solid White Limit Line Sheet 10 Detail "A"	206	LF	3.50	721.00	3.50	721.00	3.45	710.70
103	Install Thermoplastic 4" White Lane Line Skip Stripe - Detail 9	400	LF	0.30	120.00	0.25	100.00	0.75	300.00
104	Install Thermoplastic 4" Double Yellow Centerline Stripe - Detail 22	400	LF	0.75	300.00	0.70	280.00	1.09	436.00
105	Install Thermoplastic 4" Double Yellow Median Stripe - Detail 29	240	LF	1.75	420.00	1.75	420.00	2.24	537.60

VICTORY ROAD EXTENSION ROADWAY CONTRUCTION PROJECT									
CIP NO. 70221									
BID OPENING : 10.00 A.M., SEPTEMBER 13, 2016									
				KEC Engineering		Sukut Construction, LLC		AMPCO Contracting, Inc.	
				200 N. Sherman Ave.		4010 W. Chandler Ave.		1540 S. Lewis St.	
				Corona, CA 92682		Santa Ana, CA 92704		Anaheim, CA 92805	
				(951) 734-3010		(714) 540-5351		(949) 955-2255	
ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
106	Install Thermoplastic 8" White Channelizing Lane Line Stripe - Detail 38	400	LF	1.00	400.00	1.00	400.00	0.98	392.00
107	Install Thermoplastic 6" White Bike Lane Intersection Stripe - Detail 39A	400	LF	0.25	100.00	0.25	100.00	0.98	392.00
108	Install Thermoplastic Pavement Marking - Type IV Arrow	4	EA	45.15	180.60	43.00	172.00	86.25	345.00
109	Install Thermoplastic Pavement Marking - "Signal"	4	EA	107.00	428.00	100.00	400.00	287.50	1,150.00
110	Install Thermoplastic Pavement Marking - "Ahead"	4	EA	107.00	428.00	100.00	400.00	287.50	1,150.00
111	Install Thermoplastic Bike Lane Legend per Sheet 10, Detail "C"	3	EA	91.50	274.50	87.00	261.00	97.75	293.25
112	Install Thermoplastic White Lead Line per Sheet 10, Detail "E"	250	LF	1.30	325.00	1.30	325.00	0.75	187.50
<u>Traffic Signalization & Street Light</u>									
113	Traffic Signal - Victory Road at Red Hill Avenue Intersection	1	LS	290,000.00	290,000.00	315,000.00	315,000.00	-	-
114	Traffic Signal - Victory Road at Armstrong Avenue Intersection	1	LS	240,000.00	240,000.00	261,000.00	261,000.00	-	-
115	Traffic Signal Interconnect	1	LS	28,000.00	28,000.00	48,000.00	48,000.00	-	-
116	Install Street Lights, Conduits and Wires	14	EA	7,000.00	98,000.00	6,000.00	84,000.00	-	-
117	Install Conduits, Hand Holes, Wire and All Necessary Appurtenances for	1	LS	37,000.00	37,000.00	53,000.00	53,000.00	-	-
118	Install Electrical Meter Pedestal for Street Light System	1	LS	16,000.00	16,000.00	4,400.00	4,400.00	-	-
Total for Street Improvements					1,587,364.02		1,576,842.80		1,113,491.19
<u>IRWD Non-Capital Improvements</u>									
<u>Domestic Water</u>									
119	Install 8" PVC, C900, DR 14	795	LF	70.00	55,650.00	40.00	31,800.00	-	-
120	Install 8" PVC, C900, DR 14 Bentonite Slurry Bedding and Backfill within	533	LF	140.00	74,620.00	145.00	77,285.00	-	-
121	Install 12" x 12" x 8" D. I. Cut-In Tee, Flanged Coupling Adapter w/ Thrust	1	EA	3,600.00	3,600.00	3,800.00	3,800.00	-	-
122	Install 12" Butterfly Valve, CL 150, Flanged, Valve Box per IRWD Std.	2	EA	3,000.00	6,000.00	3,600.00	7,200.00	-	-
123	Install 8" x 8" x 8" D. I. Tee, Flanged w/ Thrust Block per IRWD Std. Drawing	3	EA	1,250.00	3,750.00	800.00	2,400.00	-	-
124	Install 8" Butterfly Valve, CL 150, Flanged, Valve Box per IRWD Std. Drawing	5	EA	2,300.00	11,500.00	2,800.00	14,000.00	-	-
125	Install 8" D. I. FE x PO Adapter	18	EA	1,100.00	19,800.00	325.00	5,850.00	-	-
126	Install Temporary Flush-Out Assembly per IRWD Std. Drawing W-12	5	EA	1,600.00	8,000.00	2,100.00	10,500.00	-	-
127	Install 8" x 8" x 6" D. I. Tee, Flanged w/ Thrust Block per IRWD Std. Drawing	5	EA	1,250.00	6,250.00	800.00	4,000.00	-	-
128	Install Fire Hydrant w/ 6" Butterfly Valve, Condition 1, per IRWD Std. Drawing	2	EA	7,600.00	15,200.00	9,800.00	19,600.00	-	-
129	Install Fire Hydrant w/ 8" Diameter Lateral and 8" Butterfly Valve, Condition 1,	1	EA	12,400.00	12,400.00	14,000.00	14,000.00	-	-
130	Install 6" Butterfly Valve, CL 150, FE x PO, Valve Box per IRWD Std. Drawing	1	EA	1,900.00	1,900.00	2,300.00	2,300.00	-	-
131	Install 8" x 8" x 4" D. I. Tee, Flanged w/ Thrust Block per IRWD Std. Drawing	1	EA	1,250.00	1,250.00	750.00	750.00	-	-
132	Install 4" PVC, C900, DR 14	19	LF	87.00	1,653.00	86.00	1,634.00	-	-
133	Install 6" PVC, C900, DR 14	19	LF	90.00	1,710.00	88.00	1,672.00	-	-
134	Install 4" Gate Valve, CL 150, FE x PO, Valve Box per IRWD Std. Drawing W-	1	EA	1,670.00	1,670.00	1,500.00	1,500.00	-	-
<u>Recycled Water</u>									
135	Install 4" Gate Valve, CL 150, FE x PO, Valve Box per IRWD Std. Drawing W-	1	EA	1,750.00	1,750.00	1,500.00	1,500.00	-	-
136	Install 4" PVC (Purple), C900, DR 14	81	LF	77.00	6,237.00	86.00	6,966.00	-	-
137	Install Temporary Flush-Out Assembly per IRWD Std. Drawing W-12	1	EA	1,620.00	1,620.00	2,100.00	2,100.00	-	-
<u>Sanitary Sewer</u>									

VICTORY ROAD EXTENSION ROADWAY CONSTRUCTION PROJECT									
CIP NO. 70221									
BID OPENING : 10.00 A.M., SEPTEMBER 13, 2016									
				KEC Engineering		Sukut Construction, LLC		AMPCO Contracting, Inc.	
				200 N. Sherman Ave.		4010 W. Chandler Ave.		1540 S. Lewis St.	
				Corona, CA 92882		Santa Ana, CA 92704		Anaheim, CA 92805	
				(951) 734-3010		(714) 540-5351		(949) 955-2255	
ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
138	Install 8" PVC, SDR 35	154	LF	76.00	11,704.00	90.00	13,860.00	-	-
139	Install Temporary 8" Terminal Cleanout per IRWD Std. Drawing S-5	3	EA	1,100.00	3,300.00	1,900.00	5,700.00	-	-
	Total for IRWD Non-Capital Improvements				249,584.00		228,417.00		-
	<u>IRWD Capital Improvements</u>								
	<u>Recycled Water</u>								
140	Install 12" x 12" x 10" D. I. Cut-In Tee, Flanged Coupling Adapter, w/ Thrust	1	EA	3,800.00	3,800.00	3,900.00	3,900.00	-	-
141	Install 12" Butterfly Valve, CL 150, Flanged, Valve Box per IRWD Std.	2	EA	3,000.00	6,000.00	3,600.00	7,200.00	-	-
142	Install 10" PVC (Purple), C900, DR 14	508	LF	77.00	39,116.00	52.00	26,416.00	-	-
143	Install 10" PVC (Purple), C900, DR 14, Bentonite Slurry Bedding and Backfill	604	LF	210.00	126,840.00	170.00	102,680.00	-	-
144	Install 10" Butterfly Valve, CL 150, Flanged, Valve Box per IRWD Std.	4	EA	2,900.00	11,600.00	3,200.00	12,800.00	-	-
145	Install 10" x 10" x 10" D. I. Tee, Flanged w/ Thrust Block per IRWD Std.	1	EA	1,520.00	1,520.00	950.00	950.00	-	-
146	Install 8" 11.25" D. I. Bend, PO x PO, w/ Thrust Block per IRWD Std. Drawing	2	EA	1,230.00	2,460.00	500.00	1,000.00	-	-
147	Install 8" PVC (Purple), C900, DR 14	37	LF	83.00	3,071.00	90.00	3,330.00	-	-
148	Install 10" D. I. FE x PO Adapter	5	EA	1,250.00	6,250.00	275.00	1,375.00	-	-
149	Install Temporary Flush-Out Assembly per IRWD Std. Drawing W-12	3	EA	1,670.00	5,010.00	2,100.00	6,300.00	-	-
150	Install 2" Air-Vac Assembly per IRWD Std. Drawing W-11	2	EA	6,800.00	13,600.00	5,400.00	10,800.00	-	-
151	Install 10" 11.25" D. I. Bend, MJ x MJ, w/ Thrust Block per IRWD Std.	4	EA	1,500.00	6,000.00	625.00	2,500.00	-	-
152	Install 6" PVC (Purple), C900, DR 14	99	LF	67.00	6,633.00	88.00	8,712.00	-	-
153	Install 10" x 6" D. I. Eccentric Reducer (Soffit Flat), FE x PO	1	EA	1,700.00	1,700.00	550.00	550.00	-	-
154	Install 10" x 10" x 4" D. I. Tee, Flanged w/ Thrust Block per IRWD Std.	1	EA	1,500.00	1,500.00	900.00	900.00	-	-
155	Install 10" x 8" D. I. Eccentric Reducer (Soffit Flat), Flanged	1	EA	2,000.00	2,000.00	500.00	500.00	-	-
156	Install 8" D. I. FE x PO Adapter	1	EA	1,200.00	1,200.00	325.00	325.00	-	-
	<u>Sanitary Sewer</u>								
157	Construct 48" Dia. Manhole per IRWD Std. Drawing S-1	2	EA	15,200.00	30,400.00	7,400.00	14,800.00	-	-
158	Construct 48" Dia. Manhole per IRWD Std. Drawing S-1 w/ Bentonite Slurry	2	EA	17,600.00	35,200.00	13,000.00	26,000.00	-	-
159	Install 15" PVC, SDR 35, Sewer Pipe	568	LF	92.00	52,256.00	80.00	45,440.00	-	-
160	Install 15" PVC, SDR 35, Sewer Pipe w/ Bentonite Slurry Bedding and Backfill	563	LF	458.00	257,854.00	490.00	275,870.00	-	-
161	Install 12" PVC, SDR 35, Sewer Pipe	62	LF	92.00	5,704.00	88.00	5,456.00	-	-
	Total for IRWD Capital Improvements				619,714.00		557,804.00		-
	<u>Storm Drain Improvements</u>								
162	Construct Manhole per SPPWC Std. Plan 321-2, Bentonite Slurry Bedding	1	EA	17,000.00	17,000.00	7,500.00	7,500.00	-	-
163	Construct Manhole per SPPWC Std. Plan 322-2, Bentonite Slurry Bedding	1	EA	17,000.00	17,000.00	14,500.00	14,500.00	-	-
164	Construct Junction Structure per SPPWC Std. Plan 331-3, Bentonite Slurry	2	EA	2,800.00	5,600.00	1,500.00	3,000.00	-	-
165	Install 36" CCFRPM with Viton Type "F" Gasket, Bentonite Slurry Bedding	86	LF	560.00	48,160.00	675.00	58,050.00	-	-
166	Install 54" CCFRPM with Viton Type "F" Gasket, Bentonite Slurry Bedding	197	LF	770.00	151,690.00	850.00	167,450.00	-	-
	Total for Additional Storm Drain Improvements				239,450.00		250,500.00		-
	<u>IRWD Non-Capital Improvements</u>								
	<u>Domestic Water</u>								

VICTORY ROAD EXTENSION ROADWAY CONTRUCTION PROJECT									
CIP NO. 70221									
BID OPENING : 10.00 A.M., SEPTEMBER 13, 2016									
				KEC Engineering		Sukut Construction, LLC		AMPCO Contracting, Inc.	
				200 N. Sherman Ave.		4010 W. Chandler Ave.		1540 S. Lewis St.	
				Corona, CA 92882		Santa Ana, CA 92704		Anaheim, CA 92805	
				(951) 734-3010		(714) 540-5351		(949) 955-2255	
ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
167	Install Fire Hydrant w/ 6" Butterfly Valve, Condition 1, per IRWD Std. Drawing	2	EA	12,200.00	24,400.00	12,000.00	24,000.00		-
Total for Additional IRWD Non-Capital Improvements					24,400.00		24,000.00		-
GRAND TOTAL					4,667,473.62		4,771,500.00		
Contractor's Total Price Amount as shown in the Bid Document					4,667,473.62		4,771,000.00		6,572,396.29
± Correction					0.00%		0.01%		#DIV/0!

TUSTIN



BUILDING OUR FUTURE
HONORING OUR PAST

CITY OF TUSTIN PUBLIC WORKS DEPARTMENT CONTRACT CHANGE ORDER

Project: Victory Road Extension Roadway Construction Project

Project Number: 70221 Change Order Number: IRWD CAPITAL CHANGES No. 3

To (Contractor): KEC General Engineering Contractors

You are hereby directed to make the herein changes from the plans and specifications or do the following described work not included in the plans and specifications on this contract.

NOTE: THIS CHANGE ORDER IS NOT EFFECTIVE UNTIL APPROVED BY THE CITY ENGINEER.

Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time.

Change requested by: Joseph C. Blum

CHANGE IN CONTRACT ITEMS

The following changes are hereby made to the contract:

IRWD CAPITAL IMPROVEMENTS (CIP NO. 7163) IRWD CODE 6740

REVISED IMPROVEMENTS PER PLANS PREPARED BY HUNSAKER & ASSOCIATES, APPROVED MARCH 7, 2017

RECLAIMED WATER (CAPITAL IRWD)					
CONTRACT ITEM NO.	DESCRIPTION	UNIT PRICE	QUANTITY	UNIT	AMOUNT
140	Install 12" x 12" x 10" D. I. Cut-In Tee, Flanged	\$3,800.00	-1	EA	-\$3,800.00
141	Install 12" Butterfly Valve, CL 150, Flanged,	\$3,000.00	-2	EA	-\$6,000.00
142	Install 10" PVC (Purple), C900, DR 14	\$77.00	-508	LF	-\$39,116.00
143	Install 10" PVC (Purple), C900, DR 14 w/Bentonite	\$210.00	-604	LF	-\$126,840.00
144	Install 10" Butterfly Valve, CL 150, Flanged,	\$2,900.00	-4	EA	-\$11,600.00

145	Install 10" x 10" x 10" D. I. Tee, Flanged	\$1,520.00	-1	EA	-\$1,520.00
146	Install 8" 11.25° D. I. Bend, PO x PO, w/ Thrust Block	\$1,230.00	-2	EA	-\$2,460.00
147	Install 8" PVC (Purple), C900, DR 14	\$83.00	-37	LF	-\$3,071.00
148	Install 10" D. I. FE x PO Adapter	\$1,250.00	-5	EA	-\$6,250.00
149	Install Temporary Flush-Out Assembly per IRWD Std.	\$1,670.00	-3	EA	-\$5,010.00
150	Install 2" Air-Vac Assembly per IRWD Std. Drawing W	\$6,800.00	-2	EA	-\$13,600.00
151	Install 10" 11.25° D. I. Bend, MJ x MJ, w/ Thrust Block	\$1,500.00	-4	EA	-\$6,000.00
152	Install 6" PVC (Purple), C900, DR 14	\$67.00	-99	LF	-\$6,633.00
153	Install 10" x 6" D. I. Eccentric Reducer (Soffit Flat), FE	\$1,700.00	-1	EA	-\$1,700.00
154	Install 10" x 10" x 4" D. I. Tee, Flanged	\$1,500.00	-1	EA	-\$1,500.00
155	Install 10" x 8" D. I. Eccentric Reducer (Soffit Flat),	\$2,000.00	-1	EA	-\$2,000.00
156	Install 8" D. I. FE x PO Adapter	\$1,200.00	-1	EA	-\$1,200.00
SUBTOTAL					-\$238,300.00
SANITARY SEWER (CAPITAL IRWD)					
CONTRACT ITEM NO.	DESCRIPTION	UNIT PRICE	QUANTITY	UNIT	AMOUNT
157	Construct 48" Dia. Manhole per IRWD Std. Drawing S	\$15,200.00	-2	EA	-\$30,400.00
158	Construct 48" Dia. Manhole per IRWD Std. Drawing S	\$17,600.00	-2	EA	-\$35,200.00
159	Install 15" PVC, SDR 35, Sewer Pipe	\$92.00	-568	LF	-\$52,256.00
160	Install 15" PVC, SDR 35, Sewer Pipe w/ Bentonite Slu	\$458.00	-563	LF	-\$257,854.00
161	Install 12" PVC, SDR 35, Sewer Pipe	\$92.00	-62	LF	-\$5,704.00
SUBTOTAL					-\$381,414.00
TOTAL CONTRACT CHANGE					-\$619,714.00

ADDITIONAL WORK (NON-CONTRACT ITEM)**RECLAIMED WATER (CAPITAL IRWD)**

REVISED IMPROVEMENTS PER PLANS PREPARED BY HUNSAKER & ASSOCIATES, APPROVED MARCH 7, 2017

ITEM NO.	DESCRIPTION	UNIT PRICE	QUANTITY	UNIT	AMOUNT
173	Install 8" X 8" X 8" D. I. Cross, Flanged W/ Thrust Block Per IRWD Std. Drawing W-16	\$2,300.00	1	EA	\$2,300.00
174	Install 8" Butterfly Valve, CL 150, Flanged, Valve Box Per IRWD Std. Drawing W-22 (4 EA W Bentonite Slurry) Install 8" x 8" x 4" D. I. Tee, Flanged w/ Thrust Block per IRWD Std. Drawing W-16	\$2,625.00	8	EA	\$21,000.00
175	Install 8" x 8" x 4" D. I. Tee, Flanged w/ Thrust Block per IRWD Std. Drawing W-16	\$1,820.00	1	EA	\$1,820.00
176	Install 12" X 12" X 8" D. I. Cut-In Tee, Flanged Coupling Adapter, W/ Thrust Block Per IRWD Std. Drawings W-16 And W-19, W/ Bentonite Slurry	\$4,600.00	1	EA	\$4,600.00
177	Install 12" Butterfly Valve, CL 150, Flanged, Valve Box Per IRWD Std. Drawing W-22 W/ Benonlte Slurry	\$3,000.00	2	EA	\$6,000.00
178	Install 8" 11.25° D. I. Bend, MJ X MJ, W/ Thrust Block Per IRWD Std. Drawing W-16	\$1,850.00	6	EA	\$11,100.00
179	Install 8" PVC (Purple), C900, DR 14	\$92.00	512	LF	\$47,104.00
180	Install 8" PVC (Purple), C900, DR 14 W/ Bentonite Slurry BF	\$236.00	605	LF	\$142,780.00
181	Install 2" Air-Vac Assembly Per IRWD Std. Drawing W- 11 (1 Ea W Bentonlte Slurry)	\$6,800.00	2	EA	\$13,600.00
182	Install 8"x 4" D. I. Eccentric Reducer (Soffit Flat), FI	\$1,800.00	1	EA	\$1,800.00
183	Install 8"x 4" D. I. Eccentric Reducer (Soffit Flat), FE X PO	\$1,800.00	2	EA	\$3,600.00

184	Install 8" D. I. FE X PO Adapter	\$1,350.00	6	EA	\$8,100.00														
SUBTOTAL		\$263,804.00																	
TOTAL NON-CONTRACT CHANGE		\$263,804.00																	
SUMMARY OF LINE ITEM CHANGES <table><tr><td>RECLAIMED WATER (CAPITAL IRWD)</td><td>-\$238,300.00</td></tr><tr><td></td><td>\$263,804.00</td></tr><tr><td>SANITARY SEWER (CAPITAL IRWD)</td><td>-\$381,414.00</td></tr><tr><td>TOTAL</td><td>-\$355,910.00</td></tr><tr><td>TOTAL DELETED FROM CONTRACT</td><td>-\$619,714.00</td></tr><tr><td>TOTAL ADDED TO CONTRACT</td><td>\$263,804.00</td></tr><tr><td>TOTAL CHANGE:</td><td>-\$355,910.00</td></tr></table>						RECLAIMED WATER (CAPITAL IRWD)	-\$238,300.00		\$263,804.00	SANITARY SEWER (CAPITAL IRWD)	-\$381,414.00	TOTAL	-\$355,910.00	TOTAL DELETED FROM CONTRACT	-\$619,714.00	TOTAL ADDED TO CONTRACT	\$263,804.00	TOTAL CHANGE:	-\$355,910.00
RECLAIMED WATER (CAPITAL IRWD)	-\$238,300.00																		
	\$263,804.00																		
SANITARY SEWER (CAPITAL IRWD)	-\$381,414.00																		
TOTAL	-\$355,910.00																		
TOTAL DELETED FROM CONTRACT	-\$619,714.00																		
TOTAL ADDED TO CONTRACT	\$263,804.00																		
TOTAL CHANGE:	-\$355,910.00																		
Payment for elimination/additions of bid items will be reflected on the progress payments.																			

MOFFETT DRIVE EXTENSION BRIDGE AND ROADWAY CONSTRUCTION PROJECT

CIP NO. 70224

BID OPENING : 10.00 A.M., FEBRUARY 7, 2017

Page 2 of 3

				USS Cal Builders, Inc. 8051 Main St. Stanton, CA 90680 714-828-4882		SEMA Construction, Inc. 320 Goddard Wy., Suite 150 Irvine, CA 92618 949-470-0500		KEC Engineering, Inc. 200 N. Sherman Ave. Corona, CA 92882 951-734-3010		Flatiron West, Inc. 1770 La Costa Meadows Dr. San Marcos, CA 92078 760-916-9100		MCM Construction, Inc. 6413 32nd St. North Highlands, CA 95660 916-334-1221		Rayes Construction, Inc. 1383 S. Signal Dr. Pomona, CA 91766 909-622-2259		Steve P. Rados, Inc. 2002 E. McFadden Av., Suite 200 Santa Ana, CA 92705 714-835-4612	
ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
	Total for Street Improvements				\$ 493,022.96		524,326.50		442,875.50		370,519.00		437,000.00		571,058.00		552,845.00
	<u>Bridge Structure</u>																
39	Structure Excavation (Bridge)	1,150	CY	\$ 43.20	\$ 49,680.00	95.00	109,250.00	53.00	60,950.00	194.00	223,100.00	60.00	69,000.00	55.00	63,250.00	75.00	86,250.00
40	Structure Backfill (Bridge)	720	CY	\$ 110.00	\$ 79,200.00	33.00	23,760.00	104.00	74,880.00	70.00	50,400.00	145.00	104,400.00	300.00	216,000.00	185.00	133,200.00
41	24" Cast-In-Drilled-Hole Concrete Piling	5,270	LF	\$ 117.00	\$ 616,590.00	115.07	606,418.90	180.00	948,600.00	134.00	706,180.00	100.00	527,000.00	135.00	711,450.00	115.00	606,050.00
42	Pre-stressing Cast-In-Place Concrete	1	LS	\$ 60,000.00	\$ 60,000.00	59,500.00	59,500.00	98,000.00	98,000.00	72,000.00	72,000.00	55,000.00	55,000.00	69,000.00	69,000.00	63,000.00	63,000.00
43	Structural Concrete, Bridge Footing	375	CY	\$ 306.00	\$ 114,750.00	440.00	165,000.00	330.00	123,750.00	233.00	87,375.00	325.00	121,875.00	345.00	129,375.00	300.00	112,500.00
44	Structural Concrete, Bridge	880	CY	\$ 680.00	\$ 598,400.00	1,102.92	970,569.60	900.00	792,000.00	1,180.00	1,038,400.00	1,367.00	1,202,960.00	910.00	800,800.00	1,518.00	1,335,840.00
45	Structural Concrete, Bridge (Polymer Fiber)	210	CY	\$ 495.20	\$ 103,992.00	735.00	154,350.00	1,050.00	220,500.00	723.00	151,830.00	1,000.00	210,000.00	792.00	166,320.00	550.00	115,500.00
46	Structural Concrete, Approach Slab (Type EQ)	60	CY	\$ 728.26	\$ 43,695.60	785.00	47,100.00	650.00	39,000.00	900.00	54,000.00	1,000.00	60,000.00	843.00	50,580.00	750.00	45,000.00
47	Joint Seal (MR = 1 1/2")	147	LF	\$ 90.00	\$ 13,230.00	95.00	13,965.00	110.00	16,170.00	60.00	8,820.00	55.00	8,085.00	163.00	23,961.00	85.00	12,495.00
48	Precast Bat Houses	12	EA	\$ 1,100.00	\$ 13,200.00	595.00	7,140.00	1,450.00	17,400.00	452.00	5,424.00	2,000.00	24,000.00	1,550.00	18,600.00	2,000.00	24,000.00
49	Bar Reinforcing Steel (Bridge)	508,000	LB	\$ 0.77	\$ 391,160.00	0.73	370,840.00	0.95	482,600.00	0.70	355,600.00	0.75	381,000.00	0.80	406,400.00	0.78	396,240.00
50	Steel Arch	1	LS	\$ 1,650,000.00	\$ 1,650,000.00	1,582,583.05	1,582,583.05	1,930,000.00	1,930,000.00	1,686,000.00	1,686,000.00	1,600,000.00	1,600,000.00	1,779,000.00	1,779,000.00	1,750,000.00	1,750,000.00
51	Manhole Frame and Cover (24" Opening)	3	EA	\$ 1,188.00	\$ 3,564.00	800.00	2,400.00	900.00	2,700.00	1,587.00	4,761.00	1,000.00	3,000.00	1,500.00	4,500.00	1,300.00	3,900.00
52	Pedestrian Railing	390	LF	\$ 330.00	\$ 128,700.00	338.90	132,171.00	445.00	173,550.00	332.00	129,480.00	300.00	117,000.00	340.00	132,600.00	350.00	136,500.00
53	Cable Railing	118	LF	\$ 30.00	\$ 3,540.00	23.50	2,773.00	70.00	8,260.00	23.00	2,714.00	25.00	2,950.00	25.00	2,950.00	60.00	7,080.00
54	California ST-20S Bridge Rail	260	LF	\$ 510.00	\$ 132,600.00	510.00	132,600.00	885.00	230,100.00	499.00	129,740.00	480.00	124,800.00	508.00	132,080.00	775.00	201,500.00
	<u>Bridge Lighting Improvements</u>																
55	Handrail Light	36	EA	\$ 800.00	\$ 28,800.00	690.00	24,840.00	830.00	29,880.00	680.00	24,480.00	700.00	25,200.00	970.00	34,920.00	700.00	25,200.00
56	Street Light	2	EA	\$ 2,500.00	\$ 5,000.00	1,075.00	2,150.00	1,500.00	3,000.00	1,200.00	2,400.00	1,500.00	3,000.00	1,340.00	2,680.00	1,000.00	2,000.00
57	Up-light	26	EA	\$ 2,068.20	\$ 53,773.20	1,890.00	49,140.00	2,500.00	65,000.00	2,100.00	54,600.00	2,000.00	52,000.00	1,450.00	37,700.00	2,000.00	52,000.00
58	Conduit and Wiring	1	LS	\$ 95,000.00	\$ 95,000.00	38,800.00	38,800.00	45,000.00	45,000.00	37,000.00	37,000.00	40,000.00	40,000.00	22,180.00	32,180.00	40,000.00	40,000.00
	Total for Bridge				\$ 4,184,874.80		4,495,350.55		5,361,340.00		4,824,304.00		4,731,270.00		4,814,346.00		5,148,255.00
	<u>Planting & Irrigation Improvements</u>																
59	Decorative Cobble (Moffett Drive)	120	TON	\$ 594.00	\$ 71,280.00	600.00	72,000.00	600.00	72,000.00	514.00	61,680.00	550.00	66,000.00	470.00	56,400.00	615.00	73,800.00
60	6' Tall Chain Link Fence with Black Vinyl Coating (Moffett Drive)	126	LF	\$ 45.00	\$ 5,670.00	39.80	5,014.80	81.00	10,206.00	39.00	4,914.00	70.00	8,820.00	42.00	5,292.00	65.00	8,190.00
61	12' Wide Double Swing Gate (Moffett Drive)	2	EA	\$ 3,100.00	\$ 6,200.00	2,850.00	5,700.00	4,800.00	9,600.00	2,800.00	5,600.00	4,000.00	8,000.00	3,000.00	6,000.00	4,000.00	8,000.00
62	Landscape Planting (Moffett Drive)	1	LS	\$ 16,000.00	\$ 16,000.00	14,000.00	14,000.00	17,250.00	17,250.00	18,500.00	18,500.00	15,000.00	15,000.00	37,200.00	37,200.00	15,000.00	15,000.00
63	Irrigation System (Moffett Drive)	1	LS	\$ 98,816.00	\$ 98,816.00	46,000.00	46,000.00	55,250.00	55,250.00	54,000.00	54,000.00	4,000.00	4,000.00	41,370.00	41,370.00	45,000.00	45,000.00
64	Maintenance and Plant Establishment (90-Days) (Moffett Drive)	1	LS	\$ 4,104.00	\$ 4,104.00	3,880.00	3,880.00	4,700.00	4,700.00	4,500.00	4,500.00	5,000.00	5,000.00	3,860.00	3,860.00	4,000.00	4,000.00
	Total for Planting & Irrigation Improvements				\$ 202,070.00		146,594.80		169,006.00		149,194.00		106,820.00		150,122.00		153,990.00
	<u>IRWD Capital Improvements</u>																
65	Mobilization (IRWD)	1	LS	\$ 25,000.00	\$ 25,000.00	8,600.00	8,600.00	1,250.00	1,250.00	10,000.00	10,000.00	20,000.00	20,000.00	3,360.00	6,360.00	10,000.00	10,000.00
66	Develop Construction Water (IRWD)	1	LS	\$ 5,000.00	\$ 5,000.00	500.00	500.00	1,250.00	1,250.00	1,627.00	1,627.00	5,000.00	5,000.00	1,000.00	1,000.00	500.00	500.00
67	SWPPP / BMP Implementation	1	LS	\$ 5,000.00	\$ 5,000.00	1,000.00	1,000.00	1,250.00	1,250.00	689.00	689.00	5,000.00	5,000.00	3,000.00	3,000.00	500.00	500.00
68	Clearing and Grubbing (IRWD)	1	LS	\$ 3,500.00	\$ 3,500.00	200.00	200.00	1,250.00	1,250.00	2,861.00	2,861.00	5,000.00	5,000.00	2,000.00	2,000.00	500.00	500.00
	<u>Domestic Water (IRWD Capital)</u>																
69	Remove and Dispose Existing Portions of 12" Water Line	7	LF	\$ 162.00	\$ 1,134.00	290.00	2,030.00	63.00	441.00	32.00	224.00	500.00	3,500.00	320.00	2,240.00	200.00	1,400.00
70	Remove Temporary Flush-Out Assembly and Join Existing Line	1	EA	\$ 1,576.80	\$ 1,576.80	7,800.00	7,800.00	750.00	750.00	2,075.00	2,075.00	4,500.00	4,500.00	5,400.00	5,400.00	5,500.00	5,500.00
71	Remove Temporary Blow-Off and Join Existing Line	1	EA	\$ 2,126.52	\$ 2,126.52	3,900.00	3,900.00	750.00	750.00	2,075.00	2,075.00	4,500.00	4,500.00	5,400.00	5,400.00	5,500.00	5,500.00
72	Install 2" Air Vac Assembly, Case 1, per IRWD Std. W-11	1	EA	\$ 5,832.00	\$ 5,832.00	4,100.00	4,100.00	8,000.00	8,000.00	10,038.00	10,038.00	12,000.00	12,000.00	9,100.00	9,100.00	5,500.00	5,500.00

MOFFETT DRIVE EXTENSION BRIDGE AND ROADWAY CONSTRUCTION PROJECT

CIP NO. 70224

BID OPENING : 10.00 A.M., FEBRUARY 7, 2017

Page 3 of 3

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ITEM NO.	CONTRACT ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
73	Install 12" Flange Coupling Adapter per IRWD Std. W-19	2	EA	\$ 2,354.40	\$ 4,708.80	2,500.00	5,000.00	2,200.00	4,400.00	2,242.00	4,484.00	2,300.00	4,600.00	1,950.00	3,900.00	3,000.00	6,000.00
74	Install 12" CML&C Fully Welded Steel Pipe, Minimum Working Pressure 200	265	LF	\$ 171.72	\$ 45,505.80	180.00	47,700.00	115.00	30,475.00	236.00	62,540.00	300.00	79,500.00	170.00	45,050.00	100.00	26,500.00
75	Install 12" CML&C Fully Welded Steel Pipe 11.25 Degree Elbow, Minimum	2	EA	\$ 2,052.00	\$ 4,104.00	950.00	1,900.00	1,800.00	3,600.00	1,053.00	2,106.00	2,800.00	5,600.00	1,840.00	3,680.00	1,000.00	2,000.00
76	Install 12" CML&C Fully Welded Steel Pipe 22.5 Degree Elbow, Minimum	3	EA	\$ 2,133.00	\$ 6,399.00	860.00	2,580.00	2,000.00	6,000.00	1,053.00	3,159.00	2,800.00	8,400.00	1,840.00	4,920.00	1,000.00	3,000.00
77	Install Weld on Flange for CML&C Pipe	2	EA	\$ 1,252.80	\$ 2,505.60	820.00	1,640.00	950.00	1,900.00	1,413.00	2,826.00	1,200.00	2,400.00	450.00	900.00	1,000.00	2,000.00
78	Install Casing Test Station per IRWD Std. CP-3	4	EA	\$ 1,220.40	\$ 4,881.60	2,400.00	9,600.00	1,100.00	4,400.00	2,012.00	8,048.00	3,000.00	12,000.00	1,900.00	7,600.00	2,000.00	8,000.00
79	Install 20" Steel Casing for Water Pipe per IRWD Std. W-21	56	LF	\$ 186.84	\$ 10,463.04	200.00	11,200.00	200.00	11,200.00	239.00	13,384.00	500.00	28,000.00	290.00	16,240.00	150.00	8,400.00
80	Install Sliding Pipe Support per Detail on Bridge Plans	2	EA	\$ 500.00	\$ 1,000.00	1,900.00	3,800.00	1,900.00	3,800.00	2,274.00	4,548.00	2,000.00	4,000.00	1,270.00	2,540.00	1,000.00	2,000.00
81	Install Clamped Pipe Support per Detail on Bridge Plans	8	EA	\$ 700.00	\$ 5,600.00	1,700.00	13,600.00	1,350.00	10,800.00	1,229.00	9,832.00	2,000.00	16,000.00	710.00	5,680.00	500.00	4,000.00
82	Manhole Frame and Cover (30" Opening)	2	EA	\$ 1,620.00	\$ 3,240.00	830.00	1,660.00	1,450.00	2,900.00	1,740.00	3,480.00	1,000.00	2,000.00	1,180.00	2,360.00	1,500.00	3,000.00
83	Install Flexible Expansion Joint per Bridge Plans	2	EA	\$ 10,000.00	\$ 20,000.00	8,700.00	17,400.00	8,500.00	17,000.00	10,544.00	21,088.00	25,000.00	50,000.00	7,070.00	14,140.00	13,000.00	26,000.00
<u>Recycled Water (IRWD Capital)</u>																	
84	Remove Temporary Flush-Out Assembly and Join Existing Line	2	EA	\$ 2,646.00	\$ 5,292.00	7,800.00	15,600.00	1,050.00	2,100.00	2,333.00	4,666.00	4,500.00	9,000.00	5,500.00	11,000.00	5,000.00	10,000.00
85	Install 16" Flange Coupling Adapter per IRWD Std. W-19	2	EA	\$ 2,700.00	\$ 5,400.00	460.00	920.00	2,550.00	5,100.00	4,154.00	8,308.00	2,800.00	5,600.00	2,190.00	4,380.00	2,000.00	4,000.00
86	Install 3" Air Release and Vacuum Assembly per IRWD Std. W-11 and as	1	EA	\$ 16,200.00	\$ 16,200.00	8,800.00	8,800.00	16,850.00	16,850.00	14,264.00	14,264.00	16,000.00	16,000.00	11,520.00	11,520.00	7,000.00	7,000.00
87	Install 16" CML&C Fully Welded Steel Pipe, Minimum Working Pressure 200	270	LF	\$ 260.00	\$ 70,200.00	150.00	40,500.00	150.00	40,500.00	293.00	79,110.00	350.00	94,500.00	185.00	49,950.00	130.00	35,100.00
88	Install 16" CML&C Fully Welded Steel Pipe 11.25 Degree Elbow, Minimum	4	EA	\$ 2,160.00	\$ 8,640.00	1,200.00	4,800.00	2,100.00	8,400.00	1,295.00	5,180.00	4,000.00	16,000.00	1,840.00	7,360.00	1,200.00	4,800.00
89	Install 16" CML&C Fully Welded Steel Pipe 22.5 Degree Elbow, Minimum	4	EA	\$ 2,160.00	\$ 8,640.00	1,700.00	6,800.00	2,100.00	8,400.00	1,295.00	5,180.00	4,000.00	16,000.00	1,840.00	7,360.00	1,200.00	4,800.00
90	Install Weld On Flange for CML&C Pipe	2	EA	\$ 1,404.00	\$ 2,808.00	1,500.00	3,000.00	1,350.00	2,700.00	1,672.00	3,344.00	1,300.00	2,600.00	575.00	1,150.00	1,000.00	2,000.00
91	Install Casing Test Station per IRWD Std. CP-3	4	EA	\$ 2,916.00	\$ 11,664.00	2,400.00	9,600.00	1,100.00	4,400.00	1,082.00	4,328.00	3,000.00	12,000.00	1,900.00	7,600.00	2,000.00	8,000.00
92	Install 24" Steel Casing for Water Pipe per IRWD Std. W-21	56	LF	\$ 209.52	\$ 11,733.12	180.00	10,080.00	215.00	12,040.00	250.00	14,000.00	500.00	28,000.00	370.00	20,720.00	150.00	8,400.00
93	Install Sliding Pipe Support per Detail on Bridge Plans	2	EA	\$ 500.00	\$ 1,000.00	1,100.00	2,200.00	1,900.00	3,800.00	1,727.00	3,454.00	2,000.00	4,000.00	650.00	1,300.00	500.00	1,000.00
94	Install Clamped Pipe Support per Detail on Bridge Plans	8	EA	\$ 650.00	\$ 5,200.00	1,200.00	9,600.00	1,350.00	10,800.00	1,321.00	10,568.00	2,000.00	16,000.00	745.00	5,960.00	500.00	4,000.00
95	Manhole Frame and Cover (30" Opening)	2	EA	\$ 1,620.00	\$ 3,240.00	830.00	1,660.00	1,450.00	2,900.00	1,253.00	2,506.00	2,500.00	5,000.00	1,180.00	2,360.00	3,000.00	6,000.00
96	Install Flexible Expansion Joint per Bridge Plans	2	EA	\$ 12,500.00	\$ 25,000.00	7,900.00	15,800.00	11,300.00	22,600.00	13,676.00	27,352.00	30,000.00	60,000.00	9,910.00	19,820.00	15,000.00	30,000.00
Total for IRWD Capital Improvements					\$ 332,594.28		273,570.00		252,006.00		347,344.00		556,700.00		291,590.00		245,400.00
GRAND TOTAL					\$ 5,731,994.04		6,309,434.11		6,543,838.40		6,768,233.00		6,857,284.00		6,935,764.00		7,270,860.00
Contractor's Total Price Amount as shown in the Bid Document					\$ 5,674,794.00		6,309,434.11		6,543,838.40		6,768,233.00		6,857,284.00		6,935,764.00		7,270,860.00
± Correction					\$ 57,200.04		-		-		-		-		-		-

EXHIBIT "D"

Bid Tabulations

Owner: City of Tustin Project: Flight Drive Wet Utilities Public Bid Bid Date: 6-22-2017

ITEM NO.	I. IRWD CODE 6857 RECYCLED WATER CAPITAL IMPROVEMENTS	UNIT MEAS	QUAN	Bali Construction, Inc. Attn: Grant Wood Tel: 626.442.8003		W.A.Rasic Construction Co., Inc. Attn: Shane Sato Tel: 562.928.6111		Murray Company Attn: Raffie Yeremian Tel: 310.637.1500x7129	
				PRICE	AMOUNT	PRICE	AMOUNT	PRICE	AMOUNT
1.	Capital: Install 6" RW PVC Zone A (Station 10+00 to 18+75)	LS	1	157,860.00	157,860.00	157,500.00	157,500.00	170,625.00	170,625.00
2.	Capital: Install 6" RW PVC Zone A (Station 18+75 to 22+99)	LS	1	28,020.00	28,020.00	39,950.00	39,950.00	31,155.00	31,155.00
II. IRWD CODE 6857 RECYCLED NON-CAPITAL IMPROVEMENTS									
3.	Non-Capital: RW Line "B" (10+20 to 21+45.33)	LS	1	77,175.00	77,175.00	87,550.00	87,550.00	92,920.00	92,920.00
4.	Non-Capital: 2" RW Laterals at Airship @17+81.16, 17+23.66, 15+29.96, 13+18.05, 16+22.44	LS	1	25,932.00	25,932.00	50,000.00	50,000.00	32,400.00	32,400.00
II. IRWD CODE 6857 DOMESTIC NON-CAPITAL IMPROVEMENTS									
5.	Non-Capital DW Line "A" (10+00 to 18+00) w/end cap	LS	1	90,400.00	90,400.00	88,000.00	88,000.00	100,000.00	100,000.00
6.	Non-Capital DW Line "B" (all) w/tie-in at 21+11.82 and w/Line "D" end cap at 19+00	LS	1	72,602.00	72,602.00	94,000.00	94,000.00	92,430.00	92,430.00
7.	Non-Capital DW Line "C" (10+00 to 13+75) w/end cap	LS	1	97,825.00	97,825.00	101,250.00	101,250.00	101,250.00	101,250.00
III. IRWD CODE 6857 SANITARY SEWER NON-CAPITAL IMPROVEMENTS									
8.	Non-Capital SS Line "A" MH #A1 to MH #A4 (with mob)	LS	1	235,419.00	235,419.00	243,000.00	243,000.00	225,500.00	225,500.00
9.	Non-Capital SS Line "A" From MH #A4 to MH #A9	LS	1	106,506.00	106,506.00	112,100.00	112,100.00	130,500.00	130,500.00
10.	Non-Capital SS Line "A" MH #A8 to MH #A12	LS	1	68,680.00	68,680.00	69,000.00	69,000.00	60,125.00	60,125.00
11.	Non-Capital SS Line "A" From MH #A12 to MH #A15 including temporary c/o	LS	1	76,540.00	76,540.00	83,850.00	83,850.00	86,000.00	86,000.00
12.	Non-Capital SS Line "C" From MH #A4 to MH #C8 including cap after MH #C4	LS	1	171,385.00	171,385.00	187,500.00	187,500.00	190,000.00	190,000.00
13.	Non-Capital SS Line "B" From MH #A4 to MH #B2	LS	1	57,602.00	57,602.00	68,250.00	68,250.00	64,750.00	64,750.00
14.	Non-Capital SS Line "B" From MH #B2 to MH #B11	LS	1	143,994.00	143,994.00	156,250.00	156,250.00	156,250.00	156,250.00
III. STORM DRAIN IMPROVEMENTS									
15.	RG Laterals D1 and D2 with catch basins	LS	1	19,074.00	19,074.00	35,000.00	35,000.00	21,000.00	21,000.00
16.	RG Laterals A7, A7A, A7B w/plugs per drawings	LS	1	257,481.00	257,481.00	255,000.00	255,000.00	225,000.00	225,000.00
17.	RG Line A and Laterals A1-A6, A8-A10	LS	1	73,222.00	73,222.00	112,100.00	112,100.00	100,300.00	100,300.00
18.	RG Demo and Removal of Existing SD	LS	1	44,419.00	44,419.00	87,975.00	87,975.00	66,950.00	66,950.00
19.	RG Line G and Laterals A3, G1, and H1	LS	1	61,488.00	61,488.00	63,125.00	63,125.00	70,000.00	70,000.00
20.	RG Laterals E1, E2, and E2A w/plugs per drawings	LS	1	34,272.00	34,272.00	36,000.00	36,000.00	36,000.00	36,000.00
21.	RG Sediment Trap Risers	LS	1	12,606.00	12,606.00	25,000.00	25,000.00	10,500.00	10,500.00
22.	PG Storm Drain (8" pipe at Phase 2 with pipe outlet anchor)	LS	1	51,245.00	51,245.00	56,000.00	56,000.00	54,325.00	54,325.00
23.	Street SD Line C and Laterals C1 (with plug at right of way) and C4	LS	1	131,040.00	131,040.00	141,750.00	141,750.00	140,625.00	140,625.00
24.	Street SD Demo and Removal of Existing SD	LS	1	31,924.00	31,924.00	63,000.00	63,000.00	38,500.00	38,500.00
25.	Street SD Laterals C2 and C3 including catch basins, MWS, and filter box	LS	1	33,291.00	33,291.00	38,500.00	38,500.00	33,750.00	33,750.00
26.	Street SD Lateral G including catch basins, MWS, and filter box	LS	1	51,984.00	51,984.00	70,000.00	70,000.00	61,250.00	61,250.00
27.	Street SD Laterals F1 and F2 including catch basins and filter box	LS	1	42,824.00	42,824.00	50,000.00	50,000.00	62,500.00	62,500.00
IV. Adjust to Grade, Remove/Relocate Scope									
28.	Public Street Adjust Wet Utilities to Grade	LS	1	12,558.00	12,558.00	16,250.00	16,250.00	23,000.00	23,000.00
29.	Public Street Relocation, Removal, Remove and Replacement of Wet Utility Items as Noted	LS	1	46,176.00	46,176.00	54,000.00	54,000.00	60,000.00	60,000.00
V. Corrosion Mitigation and Protection									
30.	Steel Pipe	LS	1	1,500.00	1,500.00	1,750.00	1,750.00	13,000.00	13,000.00
31.	Iron Pipe	LS	1	2,500.00	2,500.00	2,550.00	2,550.00	13,000.00	13,000.00
32.	Metallic Fittings and Valves	LS	1	5,000.00	5,000.00	6,500.00	6,500.00	13,000.00	13,000.00
33.	Copper Tubing	LS	1	1,200.00	1,200.00	1,500.00	1,500.00	13,000.00	13,000.00
34.	Concrete Structures	LS	1	25,000.00	25,000.00	32,000.00	32,000.00	13,000.00	13,000.00
VI. Payment and Performance Bond									
35.	Payment and Performance Bond	LS	1	18,780.00	18,780.00	18,780.00	18,780.00	23,163.00	23,163.00
TOTAL, ALL IMPROVEMENTS.....				\$2,367,524.00		\$2,704,980.00		\$2,625,768.00	
TOTAL, CAPITAL IRWD RECYCLED IMPROVEMENTS (BLENDS IN WEIGHTED BOND COSTS).....				\$187,348.00		\$197,450.00		\$201,780.00	

August 15, 2017

Prepared by: Emilyn Zuniga

Submitted by: Jenny Roney

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

IRWD SECURITY GUARD SERVICES CONTRACT

SUMMARY:

Staff continues to implement recommendations from the Security and Vulnerability Assessment of IRWD facilities finalized in April 2015. On May 10, 2017, staff issued a Request for Proposal (RFP) for enhanced and expanded security guard and patrol services for all District facilities. Four proposals were received, and each was evaluated by staff based on experience, qualifications, key deliverables, personnel management and understanding of the scope of work. Staff recommends the Board authorize the General Manager to enter into a contract with Securitas, Inc. for security guard and patrol services for a three-year term with an option for two one-year renewals.

BACKGROUND:

On January 23, 2017, the Engineering and Operations Committee reviewed the recommendations of the April 2015 Security Assessment conducted by consultant TelSec, Inc. The report highlighted varying levels of security risks to IRWD facilities, several of which will be mitigated by retaining a security services firm. Observations and recommendations in TelSec's April 2015 Security Assessment included:

1. Security risks unique to the open campus nature of the IRWD Operations Center and Michelson Water Recycling Plant (MWRP) are due to:
 - a. A significant increase in the value of facilities, equipment and assets at the MWRP;
 - b. The encroaching urbanism surrounding the Operations Center and MWRP resulting in an increase in security breaches; and
 - c. A significant increase in traffic through the entrance/exit access points.
2. Alternatives to mitigate the identified security risks included:
 - a. Construction of a staffed, kiosk-controlled access point into and out of the Operations Center and MWRP;
 - b. Segregation of the plant operation facilities through fencing and locked gates; and/or
 - c. Locking of all entrance gates at all times.

After a preliminary review of all alternatives presented to mitigate security risks at the Operations Center and the MWRP, in January 2017 staff recommended a series of improvements including a staffed, kiosk-controlled access point into and out of these facilities (identified in the report as Alternative 2. a.). After further review and analysis, staff determined that a phased approach to security enhancement would be more effective. This approach will focus on securing the facilities through fencing and locked gates combined with enhanced security patrols. This approach also includes reconfiguring the lobby of the Operations Center to provide space for security staffing along with improved and enhanced exterior electronic surveillance equipment. This phased approach is expected to be a more effective and less intrusive method to

address the security concerns at the Operations Center and the MWRP as described in TelSec's Security Assessment. In addition, a phased approach to mitigating the security risks would also allow the District to evaluate and assess effectiveness at each phase over time with the ability to add other measures (e.g., a security kiosk on Riparian View) as needed.

Security Patrol Services:

On May 10, 2017, staff issued an RFP for enhanced and expanded security guard and patrol services for all District facilities. Proposals were received from G4S Secure Solutions, MPS Security, Cypress Private Security and Securitas, Inc. Each was evaluated by staff based on experience, qualifications, key deliverables, personnel management and understanding of the scope of work. Securitas, Inc. was determined to be the highest-rated firm, especially in the areas of length and breadth of experience providing security in the public utility sector, its staffing structure, and its ability to provide efficient and timely response and communication to the District. The evaluation matrix for the security services proposal is attached as Exhibit "A".

Securitas security patrol services include the following components:

- Level I Security Service: Daily / 24 hours per day security service that would include roving foot patrol, checking of entrance and exit points, and a roving security guard in a marked vehicle and stationed at a single post at the Operation Center and the MWRP and the San Joaquin Marsh campus;
- Level II Security Service: Daily / seven days per week, 8:00 p.m. to 8:00 a.m., security service to include a roving security guard in a marked vehicle with foot patrol as needed. Monitored facilities would include Sand Canyon Headquarters, Baker Water Treatment Plant, Los Alisos Water Recycling Plant, Irvine Desalter Plant, and the East Irvine Zone 3 facility; and
- Level III Security Service: Three times per week (totaling 12 hours) / seven days per week, 6:00 p.m. to 6:00 a.m. (including two weekdays and one weekend), security service to include a roving security guard in a marked vehicle monitoring random facilities, gates, and other entry points.

Implementation of the Securitas security patrol services is the first part of the phased security risk mitigation plan. More detailed information regarding Alternative 2. b, as well as the changes to the Operations Center lobby and the enhanced electronic surveillance equipment, will be presented to the Board at a later date.

FISCAL IMPACTS:

The total cost to provide security guard services through the first year (September 1, 2017 through June 30, 2017) is \$669,860.00. The total cost to provide security guard services for year two of three (FY 2018-19) is \$696,654.00, and for year three of three (FY 2019-20) is \$724,520.00. The Safety and Security Department will continue to utilize funds from the approved budget for these services.

ENVIRONMENTAL COMPLIANCE:

This project is not subject to the California Environmental Quality Act (CEQA).

RECOMMENDATION:

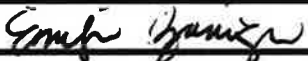
That the Board authorize the General Manager to enter into a contract with Securitas, Inc. for security guard and patrol services for a three-year term with an option for two one-year renewals.

LIST OF EXHIBITS:

Exhibit "A" – Security Services Evaluation Matrix

EXHIBIT "A"

SECURITY PATROL RFP BID SCORING MATRIX

Organization Name:	IRVINE RANCH WATER DISTRICT		
Prepared by:	EMILYN ZUNIGA	Title:	SAFETY AND SECURITY MANAGER
Signature:		Date:	7/11/2017

Description of Service:	Contracted security guard services for District facilities.					
Service Provider	Experience & Qualifications	Key Deliverables	Cost & Pricing	Completeness of response to RFP	Personnel Management	Total Points
Points Possible for Each Bid	20	20	15	25	20	100
1 Cypress Private Security	18	15	14	17	18	82.000
2 G4S Secure Solutions	17	14	13	15	17	76.000
3 MPS Security	16	13	15	16	16	76.000
4 Securitas Inc.	19	20	12	18	19	88.000

EVALUATION RATIONALE:
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