

AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE
TUESDAY, JULY 18, 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. WATER PLANET RESEARCH FINDINGS – SHEILDS

Water Planet Engineering recently completed research activities at IRWD's Michelson Water Recycling Plant pertaining to a new water treatment membrane. The results of this research, conducted over a 12-month period, will be presented to the Committee by Dr. Gil Hurwitz.
Recommendation: Receive and file.

ACTION

6. BAKER WATER TREATMENT PLANT RETENTION REDUCTION –
TOLAND/MORI/BURTON

Recommendation: That the Board authorize the reduction of retention from 10% to 1% of the contract amount for the Baker Water Treatment Plant, Project 05027.

ACTION (Continued)

7. OFFSITE PIPELINES FOR THE IRVINE LAKE PIPELINE NORTH
CONVERSION CONSULTANT SELECTIONS – McGEHEE/MORI/BURTON

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement, in the amount of \$152,743, with NMG Geotechnical for geotechnical services during construction; and authorize the General Manager to execute a Professional Services Agreement, in the amount of \$136,050, with Michael Baker International for engineering support services during construction for the Offsite Pipelines for the Irvine Lake Pipeline North Conversion, Project 05823.

8. IRVINE LAKE PIPELINE NORTH CONVERSION RESERVOIR
CONTRACT CHANGE ORDER – LYNCH/MOEDER/MORI/BURTON

Recommendation: That the Board approve Contract Change Order No. 8 with Pascal & Ludwig Constructors in the amount of \$314,692 for import and placement of additional structural backfill beneath the reservoir for the Irvine Lake Pipeline North Conversion Reservoir, Project 05407.

9. MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY
RECOVERY FACILITIES CHANGE ORDER NO. 56 – MALLOY/BURTON

Recommendation: That the Board approve Contract Change Order No. 56 in the amount of \$201,744.33 with Filanc/Balfour Beatty for the addition of stairs and a platform for the Regenerative Thermal Oxidizer, and programming modifications for the microturbine's Capstone Logic Controller for the Michelson Water Recycling Plant Biosolids and Energy Recovery, Project No. 04286.

10. REIMBURSEMENT AGREEMENT BETWEEN IRWD AND THE CITY OF
IRVINE FOR INSTALLATION AND ADJUSTMENT OF IRWD FACILITIES
TO GRADE – KESSLER/LEW/BURTON

Recommendation: That the Board authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for its Annual Slurry Seal and Pavement Rehabilitation Project, Bid No. 18-1292.

OTHER BUSINESS

11. 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.

July 18, 2017

Prepared by: S. Toland/R. Mori

Submitted by: K. Burton *K.B.*

Approved by: Paul Cook *P. Cook*

ENGINEERING AND OPERATIONS COMMITTEE

BAKER WATER TREATMENT PLANT RETENTION REDUCTION

SUMMARY:

The Baker Water Treatment Plant (WTP) project is nearly 100 percent complete. Staff recommends that the Board authorize the reduction of retention from 10% to 1% of the contract amount for the Baker WTP.

BACKGROUND:

The Baker WTP is a regional project that can produce up to 28 million gallons per day (43.5 cubic feet per second) of drinking water. The source water for this facility is untreated imported water from Metropolitan Water District of Southern California (MWD) and local water from Irvine Lake. Project participants include El Toro Water District, Moulton Niguel Water District, Santa Margarita Water District, Trabuco Canyon Water District, and IRWD. The Baker WTP utilizes microfiltration and ultraviolet disinfection as the primary treatment processes. The project also includes construction of Raw Water Conveyance Facilities (RWCF) that are used to pump water from Irvine Lake to the Baker WTP. These facilities provide an operational source of supply and, in the event of short-term water shortage emergencies, enhance water reliability for the project participants. Construction of both projects commenced in January 2014.

Construction Contract Retention Reduction:

PCL Construction (PCL) has completed construction of all base contract work including punchlist items, final clean-up, record drawings, and operations and maintenance manuals. The only remaining activity to be completed is the membrane system monitored test period (MTP), which is scheduled to last for 26 weeks. The purpose of the MTP is to confirm that the performance of the membrane system meets the as-bid performance criteria by the membrane system supplier. Since the MTP is included in PCL's contract, overall project Final Acceptance can only occur after completion of the MTP, which is anticipated for November 2017.

With all of the base contract work complete except for the MTP, PCL requested that the retention be reduced from 10% of the contract amount to 1% of the contract amount. Staff recommends approval of the retention reduction as the 1% retention provides adequate funding to cover the remaining payments to the membrane supplier for completion of the MTP.

FISCAL IMPACTS:

Project 05027 is included in the FY 2017-18 Capital Budget. The existing budget is sufficient to fund the recommendations presented herein.

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA) and an Environmental Impact Report (EIR) was prepared in conformance with California Code of Regulations Title 14, Chapter 3, Article 7. The Final EIR was certified and adopted by the Board in April 2011. Addenda No. 1 and No. 2 to the EIR were prepared in accordance with Section 15164 of the CEQA Guidelines and were approved by the Board in February 2012, and March 2013, respectively.

RECOMMENDATION:

That the Board authorize the reduction of retention from 10% to 1% of the contract amount for the Baker Water Treatment Plant, Project 05027.

LIST OF EXHIBITS:

None.

July 18, 2017

Prepared by: J. McGehee/R. Mori

Submitted by: K. Burton *KLB*

Approved by: Paul Cook *P. Cook*

ENGINEERING AND OPERATIONS COMMITTEE

OFFSITE PIPELINES FOR THE IRVINE LAKE PIPELINE NORTH CONVERSION CONSULTANT SELECTIONS

SUMMARY:

The Offsite Pipelines for the Irvine Lake Pipeline (ILP) North Conversion Project includes the pipelines necessary to connect the recycled water system to the Zone C+ Reservoir, which is currently under construction. In preparation for the construction phase, staff solicited proposals for geotechnical and engineering support services during construction. Staff recommends that the Board:

- Authorize the General Manager to execute a Professional Services Agreement with NMG Geotechnical, in the amount of \$152,743, for geotechnical services during construction; and,
- Authorize the General Manager to execute a Professional Services Agreement with Michael Baker International (MBI), in the amount of \$136,050, for engineering support services during construction of the Offsite Pipelines for the ILP North Conversion Project.

BACKGROUND:

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.

The ILP currently extends from Irvine Lake to Rattlesnake Reservoir and serves untreated water to customers in North Tustin, Orchard Hills, and the Irvine Company agricultural users. The ILP supplements the recycled water system by delivering flow to Rattlesnake Reservoir. The ILP also serves untreated water to the Baker Raw Water Pump Station (RWPS) and feeds the Baker Water Treatment Plant via a connection to the Baker Pipeline at the site of the Baker RWPS. A location map is included as Exhibit "A".

To streamline the design and construction of the ILP North Conversion Project, staff divided the project into two components: 1) the Santiago Hills Zone C+ Reservoir and Rattlesnake Reservoir Complex Improvements Project and 2) the Offsite Pipelines for the ILP North Conversion Project. The construction of the two projects will progress simultaneously to meet the estimated project completion milestone of fall 2018. The Offsite Pipelines for the ILP North Conversion Project was advertised to a select list of 15 contractors with the bid opening scheduled for

July 27. Staff anticipates bringing a recommendation for construction award to the August 14 Board meeting.

Consultant Selections:

Geotechnical and Materials Testing Services: Staff received proposals from Converse Consultants, LGC Geotechnical, Inc., Ninyo & Moore, and NMG Geotechnical, Inc. to provide construction phase soils and materials testing. The scope of services includes field observation, soil and compaction testing, testing of proposed structural subgrade foundations, pipe bedding, and miscellaneous excavations, and materials testing services including concrete cylinders, hot mix asphalt and concrete mixes. Staff reviewed the proposals with an emphasis on identifying the firm that best demonstrated a clear understanding of the project requirements and an appropriate blend of field and office engineering staff to provide the anticipated level of services. Based on these criteria, staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement, in the amount of \$152,743, with NMG Geotechnical for construction phase geotechnical services. The geotechnical services consultant selection matrix is provided as Exhibit "B" and NMG Geotechnical's proposal is provided as Exhibit "C".

Engineering Support Services during Construction: Staff requested MBI to submit a proposal for engineering support services during construction. The proposal, which is attached as Exhibit "D", includes budget for submittals, RFIs, site visits, record drawings, and construction coordination that accurately reflects the requirements associated with the final configuration of the project. MBI is the engineer of record for the design of this project. Staff reviewed MBI's scope of work and fee and recommends that the Board authorize the General Manager to execute a Professional Services Agreement with MBI, in the amount of \$136,050, for engineering support services during construction.

FISCAL IMPACTS:

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

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 (SWRCB). 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 SWRCB 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:

This 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 execute a Professional Services Agreement, in the amount of \$152,743, with NMG Geotechnical for geotechnical services during construction; and authorize the General Manager to execute a Professional Services Agreement, in the amount of \$136,050, with Michael Baker International for engineering support services during construction for the Offsite Pipelines for the Irvine Lake Pipeline North Conversion, Project 05823.

LIST OF EXHIBITS:

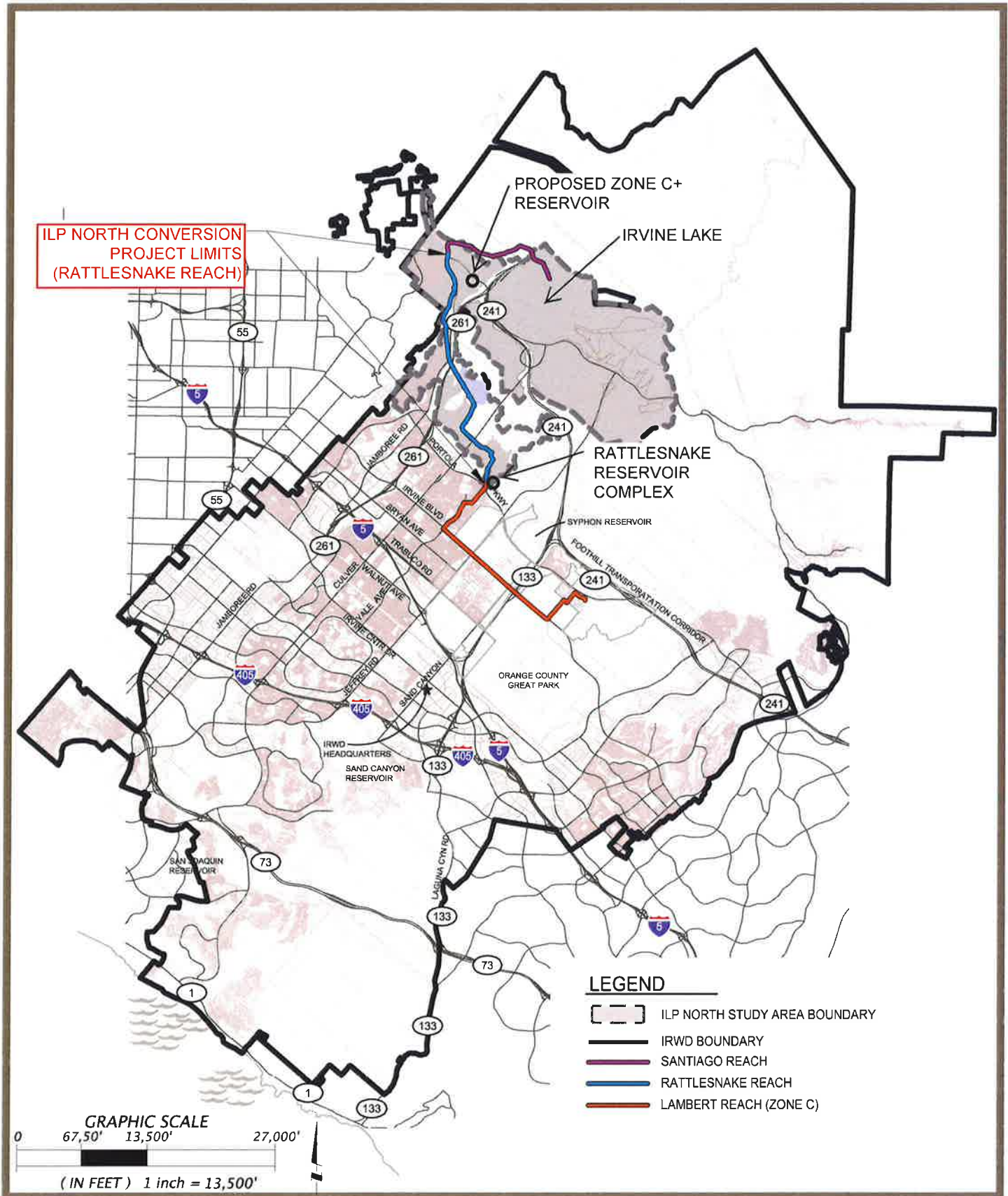
Exhibit "A" – Location Map

Exhibit "B" – Geotechnical Services Consultant Selection Matrix

Exhibit "C" – NMG Geotechnical's Proposal for Geotechnical Services During Construction

Exhibit "D" – MBI Proposal for Engineering Support Services During Construction

EXHIBIT "A"



C:\projects\2042197700\drawing\m101.dwg 4/17/2014 11:17 AM 300 Fontsize, 10



Stantec

38 TECHNOLOGY DRIVE, SUITE 100
IRVINE, CA 92618
949.923.6000 stantec.com

**ILP NORTH CONVERSION PROJECT
ZONE C+ RESERVOIR AND OFF-SITE PIPELINES
LOCATION MAP**

EXHIBIT "B"

CONSULTANT SELECTION MATRIX

Offsite Pipelines for the Irvine Lake Pipeline North Conversion Project Geotechnical Services During Construction

Item	Description	NMG Geotechnical	Ninyo & Moore	LGC Geotechnical	Converse Consultants	American Geotechnical
A	<u>TECHNICAL APPROACH</u>					
	<u>Weighted Score (Project Understanding)</u>	1	2	3	4	N/A
B	<u>SCOPE OF WORK</u>					
TASK		Fee	Fee	Fee	Fee	
1	Project Management	\$3,100	\$6,520	\$13,440	\$4,500	
2	Daily Reports	\$3,150	\$0	\$4,560	\$0	
3	Observation and Field Testing	\$103,572	\$77,000	\$140,200	\$224,800	
4	Laboratory Testing	\$15,781	\$3,370	\$28,455	\$10,825	
5	Office Support/Administration	\$5,000	\$1,304	\$6,400	\$7,500	
6	Final Report	\$4,500	\$2,164	\$12,500	\$2,000	
7	Additional On-Call Services	\$17,640	\$17,560	\$17,600	\$16,400	
	TOTAL FEE	\$152,743	\$107,918	\$223,155	\$266,025	Did Not Submit



July 6, 2017

Project No. 17062-01

To: Engineering Department
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

Attention: Mr. Richard Mori

Subject: Proposal for Geotechnical Services during Construction Phase, Offsite Pipelines for the Irvine Lake Pipeline North Conversion Project, PR 5823, IRWD Code 6470, County of Orange, California

INTRODUCTION

At your request, NMG Geotechnical, Inc. (NMG) has prepared this proposal for geotechnical services during construction of the proposed pipelines for the conversion of a portion of the ILP from untreated water (UW) to recycled water (RW). We understand that the project will consist of construction of approximately 9,800 linear feet of 42-inch welded steel pipeline, 1,250 linear feet of 20-inch PVC pipeline and 73 linear feet of 10-inch PVC pipeline within Santiago Canyon Road and Jamboree Road in east Orange. Trench repair pavement section and adjacent pavement grind and overlay are also a part of this project. Our proposal and cost estimate are based on:

- Request for proposal (RFP) dated June 6, 2017;
- Review of the project plans and accompanying project manual;
- Review of geotechnical reports associated with the project by URS and Kleinfelder;
- Discussions with representatives of IRWD; and
- Our experience on other projects with IRWD.

The plans reviewed for the preparation of this proposal included Sheets 1 through 63 of 63 sheets, titled "Construction Plans for Offsite Pipelines for the Irvine Lake Pipeline North Conversion Project," dated June 2017 and prepared by Michael Baker, International.

PROJECT UNDERSTANDING

The project includes a 42-inch inlet pipe connecting the existing Irvine Lake Pipeline (IPL) in Jamboree Road, traveling within Santiago Canyon Road to the Santiago Hills Reservoir; a 42-inch pipeline from Santiago Hills Reservoir within Santiago Canyon Road (except for a small portion along the road) to Jamboree Road and then south within Jamboree Road to tie into the IPL near the Baker Raw Water Pump Station and Peters Canyon Reservoir; and a 20-inch pipeline that connects to the second line above and travels northward within Jamboree Road to the East Santiago Canyon Road intersection. Several 10-inch laterals will be installed along the 42-inch lines described above. The pipelines will generally range from 8 to 10 feet in depth, with portions ranging up to 16 feet in depth as it approaches the street crossings or where passing below other pipelines or improvements.

Per the RFP, the geotechnical services will also include materials testing which is anticipated to include concrete placement inspection and compression testing. The concrete saddle that is required for 42-inch pipelines with less than 4 feet of cover, approximately 40 feet of pipeline within Santiago Canyon Road, will require concrete inspections and materials testing.

Trench repairs will include aggregate base section replacement (plus one inch) and asphalt replacement, per the City of Orange trench repair requirements and grind and overlay per the pavement plans. The grind and overlay will include, at minimum, full-lane width for the longitudinal trenches, multiple lanes in numerous areas and full road width for extended distances on either side of the lateral trenching.

On this project, we understand that the work on both lines within Santiago Canyon Road will be performed as night work. The night work is anticipated to have a duration of approximately six months. The work within the intersection of Santiago Canyon Road and Jamboree Road will be conducted on weekends.

The subsurface conditions are anticipated to include bedrock consisting generally of siltstone, decomposed siltstone and silty clays, artificial fills, generally sandy silt or clayey silt and alluvial soils that are generally clayey sand or silty sand. Groundwater was not encountered in borings up to 31.5 feet below existing grade. Historic groundwater levels have been 10 feet below existing ground. Perched groundwater is likely to be encountered when excavating near other buried pipelines and structures.

OUR APPROACH TO THIS PROJECT

NMG has considerable experience with IRWD inspectors on similar projects. Therefore, we have tried to take into account the typical level of geotechnical and materials testing/inspection services that may be requested by the district's assigned inspector.

We assume night work backfill operations will be carefully scheduled to avoid unnecessary technician presence during operations that only include traffic control, excavation or cleanup (i.e., no earthwork, paving, or concrete work).

Special services that may require engineering or geology input might include issues related to shoring, dewatering, potential trench instability due to adverse bedding and/or groundwater, and the potential impacts of these conditions on existing improvements.

Our cost estimate for field coverage for the anticipated inspections and testing for the subgrades, backfills and paving is based on our experience with scheduling coordination with the IRWD inspector and contractor with some adjustments to the anticipated days and hours per day provided in the RFP.

PROJECT STAFFING

The assigned field technician will tentatively be Mr. Jonathan Clark with assistance from other technicians which will likely be necessary due to the off-hours or multi-shift schedule. The engineer and project manager will be Mr. Karlos Markouizos. The project geologist will be Mr. Tom Devine, Associate Geologist. Combined, these professionals have considerable experience with IRWD inspectors and project managers on a variety of IRWD projects. They would be available for the duration of the project.

NMG provides a broad range of professional services in the disciplines of geotechnical engineering, engineering geology, soils, and materials testing. NMG was established in 1994 and currently employs over 60 people, including nine geotechnical engineers, seven engineering geologists, and more than 30 field/laboratory technicians and materials inspectors. We have provided our services for numerous IRWD projects including on-call services. With our staffing profile we have always been able to provide our services in a timely manner even on very short notice.

PROPOSAL ASSUMPTIONS

NMG is proposing to provide on-call geotechnical observation and testing services for the subject project. Based on our review of the project, our assumptions for geotechnical observation and testing services include the following:

- The 42-inch ILP line will include approximately 2,700 feet of pipeline. The majority of this pipeline will be located within Santiago Canyon Road and thus will require night work. The portion of the pipeline within the intersection of Santiago Canyon Road and Jamboree Road will be constructed on weekends. Construction will include 5 lateral lines. The depth of the trench will generally range from 8 to 10 feet with portions ranging up to 12 feet deep and the portion passing over the Baker Aqueduct shallower than the 5 feet minimum cover.
- The Zone C+ 42-inch RW line will include approximately 7,100 feet of pipeline. Approximately 2,600 feet of this pipeline will be located within Santiago Canyon Road and thus will require night work. The portion of the pipeline within the intersection of Santiago Canyon Road and Jamboree Road will be constructed on weekends. The remaining portion is within Jamboree Road and will be constructed during typical workday hours. Construction will include 5 lateral lines. The depth of the trench will generally range from 8 to 10 feet with portions ranging up to 19 feet deep to pass below existing utilities or storm drain.

- The Zone C+ 20-inch RW line will include approximately 1,350 feet of pipeline. This pipeline will be located within Jamboree Road, between Santiago Canyon Road and East Santiago Canyon Road, and will be constructed during typical workday hours. Construction will include four lateral lines. The depth of the trench will generally range from 7 to 9 feet with portions ranging up to 16 feet deep to pass below existing utilities or storm drain.
- Subgrade observation and testing is anticipated for the trench bottoms and for curb and gutter replacement.
- Materials testing services will be required for the concrete saddle over the portion of the 42-inch ILP that is less than the 5 feet of cover minimum. The concrete saddle will be necessary for approximately 40 feet of pipeline. The concrete will be required to meet a minimum compression strength of 4,000 psi. It is assumed that this will be constructed in a single pour.
- Materials testing services may be required for the butt-strap for the CCP to SML&C pipeline connections (2). Sampling of the cement grout overlaying the connection is anticipated.
- Trench repair will include replacement of aggregate base, existing section plus one inch, and 10 inches of asphalt. Based upon the anticipated days of asphalt paving presented in the RFP (25), we anticipate trench repair will be performed in 400- to 500-foot sections, for each day of paving. Requirements for our services include both temperature and density, thus, the 2 hours per day of paving presented in the RFP is likely to be at least 4 hours per day.
- Observation and testing services during de-watering and shoring, placement and removal, is anticipated for the ILP cut-in tee connections and the connection to the Zone C+ reservoir.
- Grind and overlay paving will be performed for one lane of traffic, minimum, for the entire length of the water lines, approximately 11,150 feet. According to the plans, additional grind and overlay will be required on either side of lateral lines and for additional lanes where the pipeline encroaches within adjacent lanes or close to the median or parkway curbs. Overlay will consist of AHRM (rubberized asphalt). Overlay paving will require approximately five full days of paving, two of these will be night work.
- Other additional observation and testing that is not listed in the RFP and hours adjusted by NMG include:
 - Asphalt overlay observation and testing appears to have been omitted, assuming the RFP's reference to 25 days of paving is referring to the trench repair.
 - Compaction testing services are being reduced by a total of 200 hours based on NMG's review and project understanding.
- Laboratory testing will be required for:
 - Maximum density of soil and aggregate base (15)
 - Sieve analysis of soil and aggregate base (15)

- Asphalt maximum density (16)
- Asphalt extraction and percent asphalt (16)
- Asphalt aggregate gradation (16)
- Sand equivalent for shading sand (8)
- Concrete compression sets (3)

Note: Batch plant density and bitumen content will be acceptable for smaller paving episodes.

- One final report of observation and testing will be required upon completion.
- Special services time allowances, if requested by IRWD. The special services time allowances include 15 working days, 8 hours per day for a field technician and 5 working days, 8 hours per day for a geologist/engineer.
- Observation and testing services will be conducted in conformance with IRWD standards for trench backfills, subgrades and asphalt repair. Testing for the project will be in accordance with ASTM test methods. We assume that both the City and County will defer inspection and testing roles to the District.

SCOPE OF SERVICES

The general scope of geotechnical services for this project is summarized below:

1. **Project Management and Review of Project Materials:** Project management, coordination for the project, as needed. This includes some budget for review of the plans, specifications, and any other pertinent readily available reports. We have budgeted a total of 20 hours for this task.
2. **Daily Field Reports:** Preparation of written field reports for field visits with an evaluation of work performed by your contractor.
3. **Observation and Field Testing:** Observation and testing during materials inspection, shading and bedding, trench backfill, subgrade preparation, aggregate base placement and asphalt paving operations.
4. **Laboratory Testing:** Laboratory testing will be performed to confirm the soil/aggregate material properties and support the compaction operations. This will include maximum density, gradations, sand equivalent, asphalt density, extraction and percent asphalt, and concrete/grout compression testing.
5. **Geologist/Engineering/Office Support Administration:** The field supervisor or engineer/geologist will review project status with the project soil technician. Other office tasks will include communications with project team (e.g., scheduling of field work), data compilation and review, and technical support. In the event of unforeseen conditions, a geotechnical engineer, engineering geologist will be available to further evaluate the

conditions and provide appropriate recommendations. Project technician and/or project geotechnical engineer will attend a total of 10 meetings over the duration of the project.

6. **Final Geotechnical Report:** A final geotechnical summary report at the completion of the project will be submitted, including density test results, map showing test locations, and descriptions of work performed.
7. **Special Services:** If requested and authorized by IRWD, the special services time allowances will be used for extra support by field technicians and geologist/engineer.

NMG QUALIFICATIONS AND SCHEDULE

NMG Geotechnical, Inc. provides a broad range of professional services in the disciplines of geotechnical engineering, engineering geology, soils, and materials testing. NMG was established in 1994 and currently employs over 60 people, including eight geotechnical engineers, seven engineering geologists, and more than 30 field/laboratory technicians and materials inspectors. NMG is based in Irvine where its soil and concrete testing laboratories are located, and primarily serves the southern California region, from San Diego to Santa Clarita, and into the Inland Empire. NMG project types vary widely from public works, institutional, to large acreage master planned communities. Public and semi-public clients include numerous water districts (Irvine Ranch, Orange County, Santa Margarita, Metropolitan, Mesa Consolidated), school districts (Capistrano Unified, Tustin Unified), transportation departments (OCTA, Caltrans), and numerous local municipalities. Private clients include large developers and the majority of major homebuilders in southern California. A significant portion of NMG's service to the private sector include the infrastructure associated with these developments, including reservoirs, bridges, streets, drainage facilities, and utilities.

Based on NMG's large and experienced staff of field technicians, the proximity of our office to the project site, and our ongoing work in the south Irvine/Tustin area, we will be able to cover and respond quickly to the project construction needs for geotechnical observation and testing. Our work will be performed in accordance with the overall project schedule and in coordination with the IRWD inspector.

COST ESTIMATE

We have analyzed the project plans and reviewed the specified hours for each area of work provided in the RFP. Please note that based on our analysis and experience on other IRWD pipeline projects, we have DEDUCTED 200 hours of field technician time for backfill compaction; we believe the remaining field time is sufficient.

We have also added 50 hours of asphalt overlay inspection time, which did not appear to be included in the RFP.

Our estimated costs are summarized in the IRWD table (attached). Our prevailing wage rates, hourly analyses of each task, and other fees are provided in more detail in the attached Table 1,

Scope of Services and Estimated Costs. Please note that NMG does not charge for overtime or extra for night or weekend work.

If you have any questions regarding this proposal, please contact our office. We appreciate this opportunity to offer our services.

Respectfully submitted,

NMG GEOTECHNICAL, INC.



Reza Saberi, GE 3071
Associate Engineer



Ted Miyake, RCE 44864
Principal Engineer

GF/TM/RS/grd

Attachments: IRWD Proposal Format Form and Company Information Form
Table 1 – Scope of Services and Estimated Costs
2013 Professional Fee Schedule

Distribution: (3) Addressee

Proposal Format and Requested Information

Construction Phase Geotechnical Services for the
Offsite Pipelines for the Irvine Lake Pipeline North Conversion Project

PR 05823

Submitted by: NMG Geotechnical, Inc.

Mr. Ted Miyake, Principal

 July 6, 2017

WORK DELINEATION AND FEE PROPOSAL

On a separate sheet, provide additional breakdown as necessary of the efforts required under each Task listed in this fee proposal.

1. **Project Management**.....Hours 20 **Total \$** 3,100

2. **Daily Reports**.....**Total \$** 3,150

3. **Observation and Field Testing**.....**Total \$** 103,572

Compaction Testing.....Subtotal \$ 94,500

Pipeline sub-grade and backfill.....180 days @ 4 hrs / day

Appurtenances, above-grade equipment sub-grade.....20 days @ 2 hrs / day

ILP cut-in tee connection sub-grade and backfill.....10 days @ 4 hrs / day

Asphalt concrete paving.....25 days @ 2 hrs / day

Asphalt aggregate base.....25 days @ 2 hrs / day

Observation.....Subtotal \$ 10,962

ILP cut-in tee connections sub-grade preparation, backfill.....5 days @ 6 hrs / day

ILP cut-in tee connections dewatering activities.....10 days @ 2 hrs / day

ILP cut-in tee connections shoring install/removal.....5 days @ 6 hrs / day

Connections at Zone C+ Reservoir shoring install/removal.....2 days @ 6 hrs / day

Materials Inspection/Testing.....Subtotal \$ 13,860

Concrete.....3 days @ 4 hrs / day

Imported sand.....3 days @ 2 hrs / day

Native backfill.....2 days @ 4 hrs / day

Crushed rock.....3 days @ 2 hrs / day

Asphalt concrete paving.....25 days @ 2 hrs / day

Asphalt aggregate base.....25 days @ 2 hrs / day

Request for Proposals for Construction Phase Geotechnical Services for the
Offsite Pipelines for the Irvine Lake Pipeline North Conversion Project
June 6, 2017

	<i>Other Observation and/or Testing</i>	Subtotal \$ <u>-15,750</u>
	Add AC Overlay Paving - 5 days @ 10 hrs / day	
	Adjustment to Compaction Testing (Subtract)	-200 hours
4.	Laboratory Testing	Total \$ <u>15,781</u>
	List specific tests and quantities as required by the specifications.	
5.	Geologist / Engineer / Office Support / Administration	Total \$ <u>5,000</u>
	A. Meetings	Subtotal \$ <u>2,500</u>
	B. Technical Support	Subtotal \$ <u>2,500</u>
6.	Final Report	Total \$ <u>4,500</u>
	One (1) hard copy and 1 color PDF file on CD	
7.	Additional On-call Services	Total \$ <u>12,600</u>
	(Work under this task shall only be performed as requested and as authorized by IRWD. Provide a budget for the following stipulated tasks and time allowances.)	
	A. Field Technician – 15 days @ 8 hrs / day	Subtotal \$ <u>12,600</u>
	B. Geologist/Engineer – 5 days @ 8 hrs / day	Subtotal \$ <u>5,040</u>
	TOTAL PROPOSED FEE \$ <u>152,743</u>	(Tasks 1 – 7)

TABLE 1
SCOPE OF SERVICES AND ESTIMATED COSTS

17062-01
July 6, 2017

IRWD - IRVINE LAKE PIPELINE NORTH CONVERSION PROJECT				
Category	Staff Level	Hours	Unit Rate	Cost
1. PROJECT MANAGEMENT	Principal/Associate Eng/Geo	20	\$155	\$3,100
	Subtotal Task 1:			\$3,100
2. DAILY REPORTS	Prevailing Wage Technician	30	\$105	\$3,150
	Subtotal Task 2:			\$3,150
3. OBSERVATION AND FIELD TESTING				
3a. Compaction Testing				
Pipeline Subgrade and Backfill				
42-Inch ILP Trench Backfill	Prevailing Wage Technician	180	\$105	\$18,900
42-Inch C+ RW Trench Backfill	Prevailing Wage Technician	420	\$105	\$44,100
20-inch C+ RW Trench Backfill	Prevailing Wage Technician	80	\$105	\$8,400
10-inch Lateral Line Trench Backfill	Prevailing Wage Technician	40	\$105	\$4,200
	Subtotal:	720		\$75,600
Appurtenances, Above-Grade Equipment Subgrade				
Access Road Repair Subgrade	Prevailing Wage Technician	8	\$105	\$840
Curb Replacement Pavement Subgrade	Prevailing Wage Technician	20	\$105	\$2,100
V-Ditch Replacement Subgrade	Prevailing Wage Technician	4	\$105	\$420
Sidewalk Replacement Subgrade	Prevailing Wage Technician	8	\$105	\$840
	Subtotal:	40		\$4,200
ILP Cut-In Tee Connection Subgrade and Backfill				
Trench Subgrade	Prevailing Wage Technician	8	\$105	\$840
Trench Backfill	Prevailing Wage Technician	32	\$105	\$3,360
	Subtotal:	40		\$4,200
Asphalt Concrete Paving				
Trench Repair Paving	Prevailing Wage Technician	50	\$105	\$5,250
	Subtotal:	50		\$5,250
Asphalt Aggregate Base				
Trench Repair Aggregate Base Replacement	Prevailing Wage Technician	50	\$105	\$5,250
	Subtotal:	50		\$5,250
	Subtotal Task 3a:			\$94,500
3b. Observation				
ILP Cut-In Tee Connections Subgrade Preparation and Backfill	Prevailing Wage Technician	30	\$105	\$3,150
ILP Cut-In Tee Connections Dewatering Activities	Project Geologist	20	\$126	\$2,520
ILP Cut-In Tee Connections Shoring Install and Removal	Project Geologist	30	\$126	\$3,780
Connection at Zone C+ Reservoir Shoring Install/Removal	Project Geologist	12	\$126	\$1,512
	Subtotal Task 3b:	92		\$10,962
3c. Materials Inspection/Testing				
Concrete	Prevailing Wage Technician	12	\$105	\$1,260
Imported Sand	Prevailing Wage Technician	6	\$105	\$630
Native Backfill	Prevailing Wage Technician	8	\$105	\$840
Crushed Rock	Prevailing Wage Technician	6	\$105	\$630
Asphalt Concrete Paving	Prevailing Wage Technician	50	\$105	\$5,250
Asphalt Concrete Paving Aggregate Base	Prevailing Wage Technician	50	\$105	\$5,250
	Subtotal Task 3c:	132		\$13,860
3d. Other Observation and/or Testing plus Adjusted Hours				
Overlay Paving	Prevailing Wage Technician	50	\$105	\$5,250
Adjusted Compaction Testing Services (deduct)	Prevailing Wage Technician	-200	\$105	-\$21,000
	Subtotal Task 3d:	-150		-\$15,750
	Subtotal Task 3:			\$103,572

TABLE 1
SCOPE OF SERVICES AND ESTIMATED COSTS

17062-01
July 6, 2017

IRWD - IRVINE LAKE PIPELINE NORTH CONVERSION PROJECT				
Category	Staff Level	Hours	Unit Rate	Cost
4. LABORATORY TESTING				
	Maximum Density	15	\$215	\$3,225
	Sieve Analysis	15	\$95	\$1,425
	Asphalt Density	16	\$235	\$3,760
	Extraction and % Asphalt	16	\$300	\$4,800
	Asphalt Gradation	16	\$100	\$1,600
	Sand Equivalent	8	\$82	\$656
	Concrete Cylinder (Set)	3	\$105	\$315
	Subtotal Task 4:			\$15,781
5. GEOLOGIST / ENGINEER / OFFICE SUPPORT / ADMINISTRATION				
5a. Meetings				\$2,500
5b. Technical Support				\$2,500
	Subtotal Task 5:			\$5,000
6. FINAL REPORT				
	Subtotal Task 6:			\$4,500
7. SPECIAL SERVICES				
7a. Field Technician	Prevailing Wage Technician	120	\$105	\$12,600
7b. Geologist/Engineer	Associate or Principal Eng/Geo	40	\$126	\$5,040
	Subtotal Task 7:			\$17,640
	TOTAL COST ESTIMATE:			\$152,743



2013 PROFESSIONAL FEE SCHEDULE

HOURLY RATES BY STAFF CATEGORY

Principal and Associate Engineer/Geologist.....	\$155
Project Engineer/Geologist	\$126
Senior Staff Engineer/Geologist.....	\$105
Supervisory Technician	\$105
Staff Engineer/Geologist	\$ 97
Senior Project Technician	\$ 97
Project Technician.....	\$ 89
Staff Technician.....	\$ 81
CAD Drafter/Technical Illustrator	\$ 81
Word Processor.....	\$ 71
Technical Assistant	\$ 58

LABORATORY TESTING

Moisture Content.....	\$ 17	Consolidation	\$195
Moisture Content & Density.....	\$ 27	- For time-rate, add \$38/increment	
Atterberg Limits	\$150	- For remolded, add \$54/specimen	
Particle-Size Sieve Analysis.....	\$ 95	- For reload, add \$105/cycle	
Finer than No. 200 Sieve.....	\$ 62	Hydroconsolidation/Collapse	\$125
Hydrometer Analysis	\$ 98	Undisturbed Direct Shear	\$185
Maximum Dry Density	\$215	Undisturbed Direct Shear – Slow.....	\$280
Maximum Dry Density with Oversize Particle.....	\$245	Remolded Direct Shear	\$235
Caltrans 216 Maximum Density	\$195	Remolded Direct Shear – Slow.....	\$370
Sand Equivalent	\$ 82	Residual Direct Shear	\$560
Soluble Sulfate Content.....	\$ 62	R-Value	\$235
Expansion Index.....	\$160	Asphalt Maximum Density	\$235
Concrete, Mortar or Grout Compression (per cylinder/cube/prism).....	\$ 27	Gunit/Shotcrete Panel Coring & Testing.....	\$105
CMU Grouted Prisms			
- Compression Test ≤8" x 8" x 16"	\$ 190		
- Compression Test >8" x 8" x 16".....	\$ 260		

NOTES

1. Prevailing Wage is invoiced at Supervisory Technician rate.
2. No additional charges for field vehicle usage, nuclear gauge, or overtime work (except for prevailing wage).
3. Heavy equipment (i.e. drill rig, backhoe, CPT) charges will be invoiced at cost.
4. Delivery and outside reproduction charges will be invoiced at cost.
5. Outside laboratory test charges will be invoiced at cost.

EXHIBIT "D"



June 19, 2017

Mr. Joe McGehee
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

Subject: Scope and Fee to provide Construction Support Services for the Offsite Pipelines for the Irvine Lake Pipeline North Conversion project

Dear Mr. McGehee:

Michael Baker International (MBI) is pleased to be submitting this proposal to provide construction support services during for the ILP North Conversion project. Construction of the Oak Park Acres Zone C+ 10" Recycled Waterline in Santiago Canyon Road (west of Jamboree) is not included. It is our understanding that the construction of that project will move forward in approximately twelve months.

Our proposed Scope of Services is summarized in Exhibit "A". A summary of our proposed fee for professional services is included as Exhibit "B", and a detailed breakdown of the proposed fee is included on Table 1.

If you would like to discuss our proposal or need any additional information, please do not hesitate to contact me at 949.330.4275, or jnagle@mbakerintl.com at any time.

Sincerely,

A handwritten signature in blue ink, appearing to read "J Nagle".

John Nagle, P.E.
Vice President
Michael Baker International, Inc.

Enclosures: Exhibit "A" – Proposed Scope of Services
Exhibit "B" – Proposed Fee

cc: Bryan Kallenbaugh, Michael Baker Intl.
Josh Stone, Michael Baker Intl.

P:\Irvine Ranch Water District (IRWD)\ILP-NorthConv_ESDC\2017-06-19_Proposal.docx

EXHIBIT "A"
IRVINE RANCH WATER DISTRICT
OFFSITE PIPELINES FOR THE ILP NORTH CONVERSION PROJECT
PROPOSED SCOPE OF SERVICES

Item No. 1: Project Meetings and Project Management:

The consultant shall attend up to ten (10) meetings during construction. A submittal log and RFI log shall be maintained and updated for each meeting. This task also provides budget for general project management including meeting preparation, following up on action items, and providing general day to day project correspondence.

Item No. 2: Response to Requests For Information (RFIs):

The consultant shall review RFI's and provide formal written responses within four (4) business days or sooner if possible. For this scope and fee, it is assumed that there will be twenty five (25) RFIs. A detailed matrix of the RFI's and the status of each shall be kept. Additional RFIs beyond the assumed amount may require additional budget.

Item No. 3: Review of Contractor Submittals:

The consultant shall review submittals and provide written responses within ten business (10) days or sooner if possible. For this scope and fee, it is assumed that there will be seventy five (75) submittals. Some submittals will require multiple reviews. A detailed matrix of the submittals and the status of each submittal shall be kept. Additional submittals beyond the assumed amount may require additional budget.

Item No. 4: Preparation of Plan Revisions:

This task will provide budget for plan revisions to the design plans and construction quantities. Up to eighty (80) hours will be assumed in this task. Plans revisions will be coordinated with the resident engineer and submitted to IRWD or the City of Orange for review as appropriate. A numbering system of delta revisions will be established for the revisions. Additionally, all design changes shall be coordinated with the future ICDC project and IRWD reservoir project as necessary. If additional budget for plan changes is required, the consultant shall notify the client prior to making additional revisions.

Item No. 5: Preparation of Record Drawings:

The consultant shall prepare record drawings upon completion of the project. It is assumed that the contractor will provide redlines that show the revisions made to the design during construction. The plans will be signed by the engineer or record and submitted in mylar format to IRWD.

Item No. 6: Additional Construction Coordination:

Work under this task generally includes support efforts outside of Tasks 2 and 3, and may include responding to general IRWD and contractor inquiries, additional coordination and correspondence with permitting agencies, IRWD, ICDC, the City of Orange, and contractor. For this proposal, we have allocated labor hours to correspond to a task budget amount of \$25,000.

EXHIBIT "B"**IRVINE RANCH WATER DISTRICT
OFFSITE PIPELINES FOR THE ILP NORTH CONVERSION PROJECT
PROPOSED COMPENSATION****PROJECT COMPENSATION**

The work described in Exhibit "A" is proposed to be completed on a time and materials basis for the not-to-exceed fee of \$136,050, as summarized below. Invoicing will be monthly basis. A detailed breakdown of the proposed fee by Task and Labor Classification is included on Table 1 (attached).

Task No.	Task Description	Proposed Amount
1	Project Meetings and Project Management	\$ 6,840
2	Response to Requests for Information	\$ 15,990
3	Review of Contractor Submittals	\$ 68,820
4	Preparation of Plan Revisions	\$ 11,440
5	Preparation of Record Drawings	\$ 7,690
6	Additional Construction Coordination	\$ 25,000
TOTAL:		\$ 136,050

TABLE 1
IRVINE RANCH WATER DISTRICT
OFFSITE PIPELINES FOR ILP NORTH CONVERSION PROJECT
CONSTRUCTION PHASE SERVICES

PROPOSED FEE

Task No.	Task Description	Project Manager	Project Engineer	Designer	Assistant Engineer	Permit Processor	Total Hours	Labor	Direct Costs [1]	Total
	Billing Rate (\$/hr):	\$220	\$165	\$130	\$105	\$95				
1	Project Meetings and Project Management (10 Meetings)	8	20	0	16	0	44	\$6,740	\$100	\$6,840
2	Response to Contractor RFI's (25 RFI's)	12	30	0	80	0	122	\$15,990	\$0	\$15,990
3	Review of Contractor Submittals (75 Submittals)	48	124	0	360	0	532	\$68,820	\$0	\$68,820
4	Preparation of Plan Revisions (80 hours)	8	20	32	12	8	80	\$11,240	\$200	\$11,440
5	Preparation of Record Drawings (20 shts)	2	8	40	0	0	50	\$6,960	\$1,000	\$7,960
6	Additional Construction Coordination	16	48	64	48	0	176	\$24,800	\$200	\$25,000
TOTALS		94	250	136	516	8	1,004	\$134,550	\$1,500	\$136,050

July 18, 2017

Prepared by: T. Lynch/J. Moeder/R. Mori

Submitted by: K. Burton *KL.B*

Approved by: Paul Cook *Paul Cook*

ENGINEERING AND OPERATIONS COMMITTEE

IRVINE LAKE PIPELINE NORTH CONVERSION RESERVOIR CONTRACT CHANGE ORDER

SUMMARY:

Pascal & Ludwig Constructors (P&L) is constructing the Irvine Lake Pipeline (ILP) North Conversion Reservoir, which is about 30% complete. Staff recommends that the Board approve Contract Change Order No. 8 in the amount of \$314,692 for import and placement of additional structural backfill beneath the reservoir.

BACKGROUND:

As part of IRWD's strategic plan to increase recycled water usage and reduce reliance on imported water supplies, IRWD is converting a significant portion of the ILP from untreated water to recycled water. The ILP North Conversion Reservoir project includes construction of a 2.4 million gallon buried concrete reservoir, modifications at the Rattlesnake complex, and modifications at the Orchard Hills Strainer Facility. Construction of the ILP North Conversion Reservoir project began October 2016.

Contract Change Order No. 8:

The Contract Documents require the contractor to over-excavate four-feet of soil below the reservoir slab and to reuse the over-excavated soil as compacted structural backfill for the reservoir foundation. The original over-excavation depth was based on borings obtained under the reservoir as part of the geotechnical investigation report, which suggested the potential for suitable soil conditions. The report further explained that the site is geologically unique and contains several in-active faults, which creates inconsistent soil conditions and the potential for modifications to the recommendations as the subgrade is exposed. When the contractor reached the reservoir subgrade elevation, the geotechnical engineer determined from visual inspection, soils analysis, and laboratory testing that the soil beneath the reservoir contained significant portions of expansive clay. Expansive clays are unsuitable soils for the reservoir foundation, so the geotechnical engineer recommended that the expansive clays be removed. Based on the results of the laboratory testing, the geotechnical engineer recommended that the over-excavation be continued to a depth of 10-feet below the foundation of the reservoir and that the excavated soils be removed from site. Further, the geotechnical engineer recommended that structural backfill be imported to the site and used as compacted backfill for the entire excavation beneath the reservoir.

The additional over-excavation required for the reservoir foundation resulted in the need for additional disposal of unsuitable onsite soils, specialized excavation techniques adjacent to the contractor's temporary shoring system, and import and placement of an additional 6,500 cubic yards of structural backfill. The additional costs associated with the first two items were

accounted for in previously executed change orders. The cost associated with the import and placement of additional structural backfill is the subject of Contract Change Order No. 8.

P&L initially submitted a lump sum cost of \$365,699 for the work, but due to the uncertainty of the actual production levels that could be achieved, staff directed P&L to proceed with the work on a time and materials basis. The work is now complete, and P&L submitted a change request in the amount of \$314,692 and a request for a Contract Time extension of 52 calendar days. Staff reviewed the change order in detail and confirmed that both the cost and the time extension request are acceptable. Staff recommends approval of Contract Change Order No. 8, which is presented as Exhibit "A". A summary of change orders to date is provided as Exhibit "B".

FISCAL IMPACTS:

Project 05407 is included in the FY 2017-18 Capital Budget. The existing budget is sufficient to fund the contract change order.

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 (SWRCB). 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 SWRCB 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:

This 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 approve Contract Change Order No. 8 with Pascal & Ludwig Constructors in the amount of \$314,692 for import and placement of additional structural backfill beneath the reservoir for the Irvine Lake Pipeline North Conversion Reservoir, Project 05407.

LIST OF EXHIBITS:

Exhibit "A" – Contract Change Order No. 8

Exhibit "B" – Contract Change Order Summary Log

EXHIBIT "A"

CONTRACT CHANGE ORDER



Irvine Ranch Water District

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

C.O. No. 08

☐ Final

Project No. 05407

ILP N. Conversion Santiago Hills Zone C+ Reservoir

Project Title

Date: 7/11/2017

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Change Request 22 - Import and placement of structural backfill	\$ 334,185.00	\$ 19,493.00	52
Note: With the execution of this contract change order, the revised contract completion date is 12/15/2018.			
TOTAL	\$ 334,185.00	\$ 19,493.00	52

1. NET AMOUNT THIS CHANGE ORDER	= \$	314,692.00	52
2. ORIGINAL CONTRACT AMOUNT	= \$	9,038,010.00	690
3. TOTAL PREVIOUS CHANGE ORDER(S)	= \$	652,906.00	115
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	= \$	9,690,916.00	805
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	= \$	10,005,608.00	857

We hereby agree to make the above change subject to the terms of this change order for the sum of:

Three Hundred Fourteen Thousand Six Hundred Ninety Two and 0/100

Dollars

7/11/17

Date

Pascal & Ludwig Constructors

Contractor

By: Scott Flynn

By:

SIGNATURE	DATE	APPROVAL LEVEL REQUIRED
	7/11/17	Department Director Approval Required
IKWD Engineer or Consulting Engineer	Date	Executive Director Approval Required
	07/10/17	General Manager Approval Required
Principal Engineer	Date	Board Approval Required ☒
	7/11/17	
Executive Director of Engineering & Water Quality	Date	
General Manager	Date	Purchase Order No.

NOTE: 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"

ILP N. Conversion Santiago Hills Zone C+ Reservoir Project
PR 05407

Construction Change Order Summary

Date: July 11, 2017
Contractor: Pascal & Ludwig
Design Engineer: Kleinfelder

			Contract Amount						Contract Days				Original Completion Date:
			Original Contract Amount \$9,038,010.00						Original Days: 690				7/1/2018
Change Order No	Description	Category	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 Order Days	Cum Change Order Days	Revised Total Contract Days	Revised Completion Date
1	Approved by Executive Director of Eng and WQ Approved on November 22, 2016 CR-1: Addition of 4-inch water line at Santiago Canyon Reservoir Site CR-2: Removal of fencing along Santiago Canyon Road CR-3: Modifications to the strainer backwash pumps CR-4: Modifications to the fencing plan at the Santiago Canyon Hills Reservoir Site CR-5: Addition of a project sign at the Irvine Company disposal site	B D D C C	 \$10,628.00 \$818.00 \$1,491.00 \$7,159.00 \$750.00	\$ 20,846.00	\$ -	\$ 20,846.00	0.23%	\$9,058,856.00	0	0	0	690	7/1/2018
2	Approved by Executive Director of Eng and WQ Approved on March 28, 2017 CR-6: Additional potholing at Rattlesnake Complex CR-7: Addition of mulch at Rattlesnake Complex CR-8: Modification to the stainless steel tapping sleeve CR-10: Addition of Proposition 1 Funding Agreement requirements CR-11: Addition of remote control station on 30-inch ball valve CR-12: Time extension request for weather delays	B C A C D B	 \$3,283.00 \$2,065.00 \$12,605.00 \$0.00 \$3,728.00 \$0.00	\$21,681.00	\$ 20,846.00	\$ 42,527.00	0.47%	\$9,080,537.00	48	0	48	738	8/18/2018
3	Approved by Executive Director of Eng and WQ Approved on March 31, 2017 CR-15: Additional time for delay in disposal site availability	B	\$0.00	\$0.00	\$ 42,527.00	\$ 42,527.00	0.47%	\$9,080,537.00	25	48	73	763	9/12/2018
4	Approved by Board Approved on April 24, 2017 CR-9: City of Orange modified work hours CR-13: Additional handling and disposal	C B	 \$83,970.00 \$267,044.00	\$351,014.00	\$ 42,527.00	\$ 393,541.00	4.35%	\$9,431,551.00	25	73	93	783	10/2/2018
5	Approved by Executive Director of Eng and WQ Approved on April 19, 2017 CR-15: Modified Shoring for Additional Over Excavation	B	\$65,459.00	\$65,459.00	\$ 393,541.00	\$ 459,000.00	5.08%	\$9,497,010.00	22	93	115	805	10/24/2018
6	Approved by General Manager Approved on May 24, 2017 CR-19: Additional Over-Excavation	B	\$95,380.00	\$95,380.00	\$ 459,000.00	\$ 554,380.00	6.13%	\$9,592,390.00	0	115	115	805	10/24/2018
7	Approved by General Manager Approved on CR-20: Slot cutting in front of shoring	B	\$98,526.00	\$98,526.00	\$ 554,380.00	\$652,906.00	7.22%	\$9,690,916.00	0	115	115	805	10/24/2018
8	Approved by Board Approved on CR-22: Import and Placement of Structural Backfill	B	\$314,692.00	\$314,692.00	\$652,906.00	\$ 967,598.00	10.71%	\$10,005,608.00	52	115	167	857	12/15/2018

Category	Total Amount	Contract
A - Owner Directed Change	\$12,605.00	0.14%
B - Differing/Unknown Condition	\$855,012.00	9.46%
C - External Agency, Regulatory, and/or Permit Required Change	\$93,944.00	1.04%
D - Design Oversight	\$6,037.00	0.07%
E - Design Error	\$0.00	0.00%
Total Change Order Amount (A + B + C + D + E)	\$967,598.00	10.71%

July 18, 2017

Prepared by: S. Malloy

Submitted by: K. Burton

Approved by: Paul Cook 

ENGINEERING AND OPERATIONS COMMITTEE

MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONTRACT CHANGE ORDER NO. 56

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. 56 includes the addition of stairs and a platform for the Regenerative Thermal Oxidizer and programming modifications for the microturbine's Capstone Logic Controller. Staff recommends that the Board approve CCO No. 56 in the amount of \$201,744.33 with FBB 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. 56:

Staff negotiated with FBB and agrees to the labor and material costs contained in CCO No. 56, which contains the following items:

- *Stairs and platform for the sludge dryer's Regenerative Thermal Oxidizer (RTO), in the amount of \$101,744.33* – The RTO treats the off-gases from the sludge drying system in compliance with the air quality permit. Operation of the RTO requires that the internal ceramic media be periodically replaced. Lessons learned by cross-training staff at the Encina Wastewater Authority's sludge dryer indicated that it would be easier and safer to access the media with stairs and a platform rather than a ladder. This item is for the labor and material to install both the stairs and a platform at the RTO.
- *Programming modifications for the microturbine's Capstone Logic Controller (CLC), in the amount of \$100,000* – The Biosolids Project calls for an energy system supplier to be responsible for both the biogas treatment and the microturbine systems. The controls for these systems was to be programmed into a programmable logic controller for the overall system. This controller would communicate with the CLC, which in turn controls the microturbines. For more reliable monitoring and enhanced automation, staff working

with the contractor and the microturbine supplier decided to increase the scope of the programming for the microturbine CLC. One feature of the enhanced automation is that the CLC will automatically turn on microturbines whenever adequate biogas is available rather than alerting an operator to do so. Additionally, the CLC will turn on the microturbine with the least run hours. This item is the cost for increasing the CLC programming.

Another advantage of this change is that the microturbines will be operational and ready for testing on natural gas by the March 2018 deadline for the Self-Generation Incentive Program (SGIP). This allows IRWD's microturbine project to remain eligible to receive the SGIP financial incentive when biogas is available for use in the microturbines later in 2018.

Staff recommends that the Board approve CCO No. 56 in the amount of \$201,744.33, which is attached as Exhibit "A". Items that do not claim or grant additional time are considered for full compensation. If items require additional time, the items included in this change order are at full compensation except for time impacts. FBB reserves the right to claim time impacts, but 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. 56 does not extend any of the milestone completion dates. The construction change order summary is attached as Exhibit "B".

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. Through CCO No. 56 the total change order amount is \$15,812,812.77 or 9.67% of the original contract, and the total contract amount is \$179,278,752.77.

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. 56 in the amount of \$201,744.33 with Filanc/Balfour Beatty for the addition of stairs and a platform for the Regenerative Thermal Oxidizer, and programming modifications for the microturbine's Capstone Logic Controller for the Michelson Water Recycling Plant Biosolids and Energy Recovery, Project No. 04286.

LIST OF EXHIBITS:

Exhibit "A" – Contract Change Order No. 56 with FBB
Exhibit "B" – Construction Change Order Summary


Irvine Ranch Water District

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

C.O. No. 56

☐ Final

Project No. 04286

MWRP Biosolids and Energy Recovery Facilities

Project Title

Date: 07/11/2017

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Addition of Stairs and Platform to the Regenerative Thermal Oxidizer (CR-266) PR 4286 Task 5.29	\$101,744.33	\$0.00	See Notes.
2. Programming Modifications for the Microturbine Capstone Logic Controller (CR-277) PR 4286 Task 5.30	\$100,000.00	\$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	\$201,744.33	\$0.00	0

DAYS ±

1. NET AMOUNT THIS CHANGE ORDER	=	\$201,744.33	0
2. ORIGINAL CONTRACT AMOUNT	=	\$163,465,940.00	1,278
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	\$15,611,068.44	368
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	\$179,077,008.44	1,646
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	\$179,278,752.77	1,646

NOTE: 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: _____
 -----Two-Hundred One Thousand Seven Hundred Forty-Four and 33/100 -----Dollars

 Date Contractor Filanc/Balfour-Beatty By: Nate Trevor, Project Manager

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.

NOTE: 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

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

Construction Change Order Summary

PR 21146 (4286)

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

B - 1

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

Contractor: Filanco/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	Cumulative 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	Deletion of Concrete Pad near Development Area (CR-004A) PR 21146 (4286) Task 3235	A	IRWD	(\$2,700.00)						0				
8.3	Deletion of Ground Test Device (CR-034) PR 21146 (4286) Task 3210	A	IRWD	(\$3,865.00)						0				
8.4	Deletion of Existing T-4 Switchgear Level Indicating Switch (CR-035) PR 21146 (4286) Task 3210	A	IRWD	(\$15,579.00)						0				
8.5	Change to NEMA 4X Panels and Modification to NEMA 4X Bar Graph Display (CR-046) PR 21146 (4286) Task 3210	A	IRWD	(\$9,167.00)						0				
8.6		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 PLC's (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: 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
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 3,373.2 CY 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				

B - 3

**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				

B - 4

**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
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				

B - 5

**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: 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
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: 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
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										
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: 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
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				

B - 10

**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
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
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
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)

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
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										
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				

B - 13

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
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				

**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
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				

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
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 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				
51	Approved by Executive Director of Engineering & Water Quality Approved on March 31, 2017				\$16,390.00	\$15,455,851.38	\$15,331,881.38	9.38%	\$178,797,821.38	0	368	368	1,646	10/31/2017

**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
51.1	Credit for Overtime Inspection Hours From 1/1/2016 to Through 12/31/2016 (CR-089C) PR 4286 Task 4.0	E	IRWD	(\$95,150.00)						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	\$15,331,881.38	\$15,430,223.54	9.44%	\$178,896,163.54	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	\$15,430,223.54	\$15,472,505.50	9.47%	\$178,938,445.50	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	\$15,472,505.50	\$15,516,716.01	9.49%	\$178,982,656.01	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	\$15,516,716.01	\$15,611,068.44	9.55%	\$179,077,008.44	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	Pending Approval by Board Pending Approval on July 24, 2017				\$201,744.33	\$15,611,068.44	\$15,812,812.77	9.67%	\$179,278,752.77	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				

B - 17

**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

Category	Total Amount	% of Original Contract
A - District Convenience/Initiation - Project Related	\$ 1,942,916.45	1.19%
B - Differing Site Conditions	\$ 11,699,554.55	7.16%
C - Design Oversight	\$ 2,276,905.01	1.39%
D - District Convenience/Initiation - Non-Project Related	\$ -	0.00%
E - Contractor Convenience/Initiation	\$ (106,563.24)	-0.07%
TOTAL (A + B + C + D)	\$ 15,812,812.77	9.67%

Category	Total Amount	% of Original Contract
IRWD-Initiation/Driven	\$ 2,727,136.15	1.67%
FBB-Initiation/Driven	\$ 12,914,956.40	7.90%
Not applicable	\$ 170,720.22	0.10%
TOTAL	\$ 15,812,812.77	9.67%

July 18, 2017

Prepared by: C. Kessler/K. Lew

Submitted by: K. Burton

Approved by: Paul Cook 

ENGINEERING AND OPERATIONS COMMITTEE

REIMBURSEMENT AGREEMENT BETWEEN IRWD AND THE CITY OF IRVINE FOR INSTALLATION AND ADJUSTMENT OF IRWD FACILITIES TO GRADE

SUMMARY:

The City of Irvine (City) is proceeding with its annual slurry seal and pavement rehabilitation project for miscellaneous areas throughout the City. This project requires a Reimbursement Agreement (RA) since the estimated construction cost is over \$100,000. Staff recommends that the Board authorize the General Manager to execute a RA with the City for its Annual Slurry Seal and Pavement Rehabilitation project.

BACKGROUND:

IRWD has had an RA in place with the City since 1995 for managing various street rehabilitation projects. Typically included in the City's Capital Improvement Projects are alternate bid items for raising existing IRWD sewer manhole covers, sewer cleanouts, and water valve frames and lids to the new pavement grade. Any project up to \$100,000 in reimbursable costs can be authorized by the General Manager as an addendum to this "umbrella" RA.

IRWD and the City have also agreed that any City street improvement project which involves the construction, modification or relocation of IRWD facilities with an estimated construction cost over \$100,000 will be administered through a separate RA. The City's Annual Slurry Seal and Street Rehabilitation Project, Bid No. 18-1292, has an estimated construction cost of \$572,520 and, therefore, requires a project-specific RA.

The project focuses on the Irvine villages of Woodbridge, University Park, Westpark and Northwood. Approximately 464 domestic and 71 recycled water valve frames and lids, 13 sewer cleanouts, and 186 sewer manholes will be installed or adjusted to new pavement grade. A Vicinity Map is attached as Exhibit "A", the Engineer's Estimate as Exhibit "B", and the RA as Exhibit "C". The RA has been reviewed by IRWD's legal counsel.

FISCAL IMPACTS:

Staff anticipates receiving invoices from the City in January 2018. Projects 07127, 07129, and 07131 are included in the FY 2017-18 Capital Budget and have adequate budgets as shown in the following table.

Project No.	Current Budget	Addition <Reduction>	Total Budget
07127	\$577,500	\$-0-	\$577,500
07129	\$346,500	\$-0-	\$346,500
07131	\$138,600	\$-0-	\$138,600
Total	\$1,062,600	\$-0-	\$1,062,600

ENVIRONMENTAL COMPLIANCE:

These projects are exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15061 (b) (3). The activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

RECOMMENDATION:

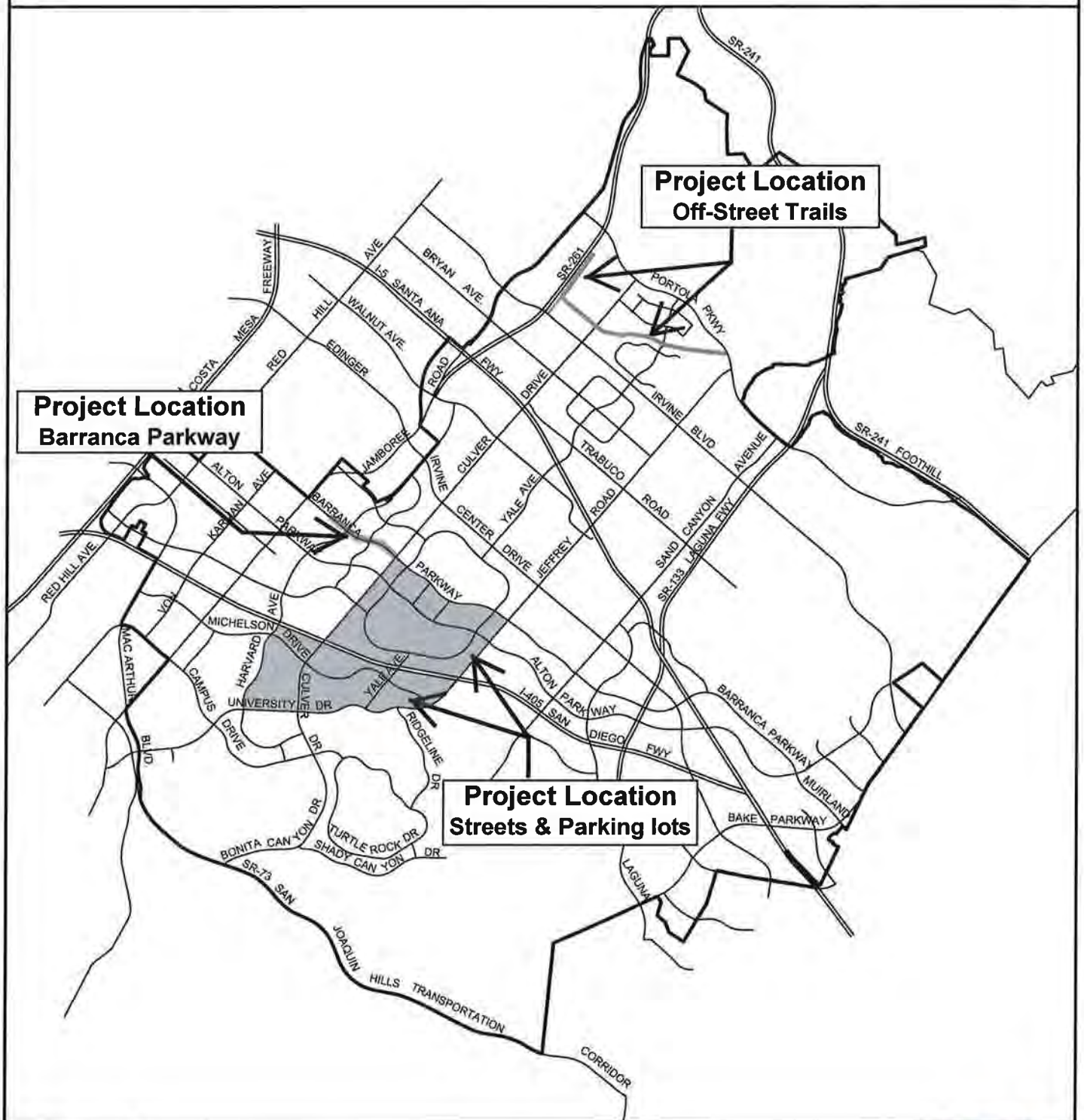
That the Board authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for its Annual Slurry Seal and Pavement Rehabilitation Project, Bid No. 18-1292.

LIST OF EXHIBITS:

- Exhibit "A" – Vicinity Map
- Exhibit "B" – Engineer's Estimate
- Exhibit "C" – Reimbursement Agreement

EXHIBIT "A"

ANNUAL STREET REHABILITATION AND SLURRY SEAL PROJECT (FY 2017-18)



VICINITY MAP



EXHIBIT "B"

REIMBURSEMENT AGREEMENT BETWEEN IRVINE RANCH WATER DISTRICT (IRWD)
AND THE CITY OF IRVINE
FOR
ANNUAL STREET REHABILITATION AND SLURRY SEAL PROJECT, BID NO. 18-1292

ENGINEER'S ESTIMATE

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED AMOUNT
A-1	INSTALL NEW IRWD WATER VALVE FRAME AND COVER TO GRADE	464	EA	\$ 750.00	\$ 348,000.00
A-2	INSTALL NEW IRWD RECLAIM WATER VALVE FRAME AND COVER TO GRADE	71	EA	\$ 750.00	\$ 53,250.00
A-3	INSTALL NEW IRWD SEWER CLEANOUT FRAME AND COVER TO GRADE	13	EA	\$ 750.00	\$ 9,750.00
A-4	ADJUST EXISTING IRWD SEWER MANHOLE FRAME AND COVER TO GRADE	186	EA	\$ 750.00	\$ 139,500.00
TOTAL CONSTRUCTION ESTIMATE					\$ 550,500.00
4% ADMINISTRATION FEE PER SECTION 5 OF AGREEMENT					\$ 22,020.00
TOTAL COSTS					\$ 572,520.00

EXHIBIT "C"

File No.

REIMBURSEMENT AGREEMENT BETWEEN
IRVINE RANCH WATER DISTRICT
AND THE CITY OF IRVINE
FOR
INSTALLATION AND ADJUSTMENT OF STREET UTILITIES TO GRADE FOR
ANNUAL STREET REHABILITATION AND SLURRY SEAL
BID NO. 18-1292

This Agreement is made and entered into as of this ____ day of _____, 2017,
by and between IRVINE RANCH WATER DISTRICT, a California water district formed and
existing pursuant to the California Water District Law, hereinafter referred to as "DISTRICT,"
and the CITY OF IRVINE, a municipal corporation, hereinafter referred to as "CITY."

W I T N E S S E T H:

WHEREAS, CITY proposes to construct street and utility improvements on Barranca
Parkway from Culver Drive to San Diego Creek Channel and within the Woodbridge South,
University Park, and San Joaquin communities for the ANNUAL STREET REHABILITATION
AND SLURRY SEAL, Bid No. 18-1292 (the "Project"), within the jurisdictional boundaries of
DISTRICT and the City of Irvine; and

WHEREAS, such construction will necessitate the installation or adjustment to grade of
approximately 464 Water Valves, approximately 71 Recycled Water Valves, approximately 13
Sewer Cleanouts and approximately 186 Sewer Manholes, as depicted on Exhibit "A" attached
hereto incorporated by reference herein (hereinafter referred to as the "IRWD FACILITIES");
and

WHEREAS, the parties have determined that it would be more expedient for CITY to
construct the IRWD FACILITIES rather than for DISTRICT to do so; and

WHEREAS, DISTRICT is amenable to the CITY constructing the IRWD FACILITIES
with the CITY agreeing to advance the costs; and

WHEREAS, DISTRICT agrees to fully reimburse the CITY through payments billed by the CITY and approved by DISTRICT for the entire cost of the IRWD FACILITIES; and

WHEREAS, except as otherwise provided herein, upon the completion of the IRWD FACILITIES, the IRWD FACILITIES shall become the property of DISTRICT in accordance with the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, the parties hereto agree as follows:

SECTION 1. IRWD FACILITIES. In conjunction with the Project, CITY agrees to initiate and pursue to completion the design and construction of the IRWD FACILITIES.

SECTION 2. PLANS. CITY agrees that the IRWD FACILITIES shall be completed pursuant to approved project plans and specifications (the "Plans and Specifications") which shall be approved by DISTRICT and used in awarding the construction contract. Prior to commencement of preparation of the Plans and Specifications, CITY shall submit its design engineer's proposal for the design of the IRWD FACILITIES to DISTRICT. DISTRICT will have a period of five (5) calendar days from its receipt of such design proposal to review and either indicate its approval or request changes. CITY shall cause its design engineer to review and respond to any requested changes. The Plans and Specifications shall be deemed to incorporate the applicable portions of DISTRICT's latest edition of "Construction Manual for the Construction of Water, Sewer, and Reclaimed Water Facilities" (the "Construction Manual"). The IRWD FACILITIES shall be contracted by CITY together with non-reimbursable work to be completed by CITY within the Project pursuant to plans prepared by CITY's design engineer.

SECTION 3. BIDDING AND AWARD. The parties agree that the construction of the IRWD FACILITIES shall be included in CITY's contract(s) awarded for the Project and that the IRWD FACILITIES shall be bid as a separate item or items that can be deleted. During the bidding process, CITY shall deliver to IRWD one (1) complete set of the bid documents that include the IRWD FACILITIES, including all related addenda concurrently with the distribution thereof to prospective bidders. Upon opening of bids by CITY, CITY will submit the bids or a spread sheet summary of the bids to DISTRICT. DISTRICT will have a period of ten (10) calendar days from its receipt of the bid results for review and approval of the IRWD FACILITIES bid item(s) submitted by the bidder identified to DISTRICT by CITY as CITY's proposed successful bidder. CITY agrees that bids received for the construction of the IRWD

FACILITIES bid item(s) shall be subject to the approval of DISTRICT prior to award of the Project construction contract(s) that include the IRWD FACILITIES; and further agrees that in the event DISTRICT does not approve such bids, either party may terminate this Agreement upon twenty-four (24) hours' prior written notice, in which event CITY shall have no further obligation to construct the IRWD FACILITIES, and DISTRICT may elect to install the IRWD FACILITIES with its own contractor. If DISTRICT approves of the IRWD FACILITIES bid item(s) of CITY's successful bidder, CITY agrees to cause the IRWD FACILITIES to be constructed as part of the contract awarded to such bidder. The total estimated construction cost for the IRWD FACILITIES is \$572,520, provided, however, the amount to be reimbursed by DISTRICT shall be based on the actual costs of construction. Upon award of the construction contract, CITY shall provide DISTRICT with one (1) original copy of the fully executed contract documents and one (1) copy of the bid package relating to the IRWD FACILITIES received from the successful bidder.

SECTION 4. DESIGN REVISIONS AND CHANGE ORDERS. DISTRICT agrees to reimburse CITY for any change order(s) for revision(s) requested by DISTRICT or otherwise required to construct the IRWD FACILITIES. CITY shall promptly furnish DISTRICT with copies of any proposed change order(s) to such contract within five (5) working days of the initiation of the changed conditions to such contract, which shall be subject to DISTRICT approval if and to the extent the IRWD FACILITIES are affected therefrom.

DISTRICT shall promptly review proposed change order(s) and provide CITY with a response within five (5) working days or sooner of receiving proposed change order(s) information from CITY. DISTRICT agrees not to unreasonably cause delay(s) to the construction schedule of the Project in reviewing proposed change order(s) for the IRWD FACILITIES. Notwithstanding any other provision herein, any approval required to be given by the DISTRICT under this Section shall be deemed given if no response to the CITY's request for such approval is received by the CITY within eight (8) working days following the written request for such approval unless the parties agree otherwise in a writing executed by both parties.

SECTION 5. REIMBURSEMENT. DISTRICT agrees to reimburse CITY for the following costs (collectively, the "Costs"): (1) the actual costs of design, construction, permits, bonds, and legal fees (excluding the costs of preparation of this Agreement) incurred by CITY in connection with the design and construction of the IRWD FACILITIES, plus (2) an administration fee which shall be equal to four percent (4%) of the actual cost of construction (costs paid directly to CITY's contractor for construction, only, excluding any cost for design,

surveying, geotechnical or other work) of the IRWD FACILITIES and which shall be deemed to cover all costs of project administration, including, but not limited to, accounting, inspection, surveying, compaction testing, geotechnical services and engineering. CITY shall keep a separate accounting of all Costs incurred by CITY in relation to the IRWD FACILITIES.

Within sixty (60) days of DISTRICT's acceptance of the IRWD FACILITIES as provided in Section 8, a final accounting of the Costs shall be made by CITY and submitted to DISTRICT along with an invoice for the Costs and any supporting documentation necessary to show the amounts which represent Costs of IRWD FACILITIES. Amounts paid pursuant to progress payment invoices shall be subject to adjustment in the final accounting. Within thirty (30) days of said final accounting, DISTRICT agrees to pay to CITY the total amount of the Costs.

SECTION 6. LAWS, ORDINANCES, RULES AND REGULATIONS. CITY shall require in its contract for the construction of the IRWD FACILITIES that its contractor be fully informed of and comply with all laws, ordinances, rules and regulations, including, but not limited to, all applicable requirements of the California Labor Code, prevailing wage laws, the Construction Manual, and the Rules and Regulations of DISTRICT, in connection with the construction of the IRWD FACILITIES.

SECTION 7. INSPECTION. DISTRICT shall have sole and absolute discretion as to all aspects of design and construction of the IRWD FACILITIES, and DISTRICT shall be entitled to inspect the construction of IRWD FACILITIES as it deems necessary to assure compliance with the Plans and Specifications, including shop drawing review and material inspection thereof. DISTRICT shall have access to all phases of the Project work to be performed by CITY for the purpose of such inspection; provided, however, all questions regarding the work being performed will be directed to CITY's resident engineer. DISTRICT will promptly notify CITY of any portion of the work on the IRWD FACILITIES which appears not to conform to the Plans and Specifications. The determination of DISTRICT as to conformity of the IRWD FACILITIES with the Plans and Specifications shall be made in DISTRICT's sole and absolute discretion. DISTRICT agrees not to unreasonably withhold its approval as to such conformity of the IRWD FACILITIES with the Plans and Specifications. CITY shall require its contractor to construct the IRWD FACILITIES so that the IRWD FACILITIES conform to the Plans and Specifications. CITY agrees to assume full responsibility for certifying or obtaining certification of the compaction of backfill material over the IRWD FACILITIES.

SECTION 8. ACCEPTANCE. DISTRICT agrees to accept the IRWD FACILITIES when the IRWD FACILITIES have been completed by CITY in accordance with all requirements of the Plans and Specifications, including any change orders approved by DISTRICT as provided in Section 3 hereof. At the time of completion and acceptance of the IRWD FACILITIES, CITY agrees to furnish DISTRICT with one (1) copy of the contractor's redlined set of blue-line "record" drawings (showing all revisions, manufacturer and type of valves, pipe and fittings as required by DISTRICT) and one (1) copy of the compaction reports and certificate, survey notes and cut sheets.

SECTION 9. OWNERSHIP. It is mutually agreed between the parties hereto that notwithstanding the fact that CITY shall accomplish the construction of the IRWD FACILITIES subject to reimbursement, the IRWD FACILITIES to be completed hereunder, together with the necessary franchises, licenses, easements, rights-of-way, and other privileges, shall at all times be subject to the applicable rates, rules and regulations of DISTRICT, as modified or amended from time to time. CITY hereby disclaims any interest in the IRWD FACILITIES and does hereby transfer and assign to DISTRICT any and all right, title, and interest it may have in the IRWD FACILITIES. DISTRICT shall own, operate and maintain the IRWD FACILITIES following acceptance thereof.

SECTION 10. GUARANTEES. CITY will, pursuant to the requirement(s) of the Plans and Specifications, cause its contractor(s) for the IRWD FACILITIES to guarantee the IRWD FACILITIES against defects in workmanship and materials for a period of one (1) year from the date of acceptance by CITY, which acceptance shall be given only after acceptance by DISTRICT as provided in Section 8. It is further agreed that CITY shall cause the IRWD FACILITIES to be brought or restored to full compliance with the requirements of the Plans and Specifications, including any test requirements, for any portions of the IRWD FACILITIES which during said one (1) year period are found not to be in conformance with the provisions of the Plans and Specifications. This guarantee is in addition to any and all other warranties, express or implied, from CITY's contractors or material manufacturers, with respect to the IRWD FACILITIES. The guarantee and obligations under this section shall in no way be relieved by DISTRICT's inspection and/or acceptance of the IRWD FACILITIES. This section sets forth the entire guarantee and warranty of CITY with respect to the IRWD FACILITIES. The express or implied warranties of other persons with respect to IRWD FACILITIES shall in no way be limited by the guarantee and warranty of CITY contained in this section. If requested by DISTRICT, CITY agrees to assign to DISTRICT the contractor's guarantee and/or any other guarantees or warranties relating to the IRWD FACILITIES.

SECTION 11. INDEMNIFICATION. CITY shall indemnify, defend and hold DISTRICT, its officers, agents, employees, and engineers harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen during construction of the IRWD FACILITIES as a result of any work or action performed by CITY or on behalf of CITY, save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any act, omission, or negligence of DISTRICT, its officers, agents, employees or engineers or by any act or omission for which DISTRICT, its officers, agents, employees or engineers are liable without fault.

DISTRICT shall indemnify, defend and hold CITY, its officers, agents, and employees, harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen either (i) as a result of any acts performed by DISTRICT, its officers, agents, or employees, with respect to the IRWD FACILITIES construction; or (ii) following DISTRICT acceptance of the IRWD FACILITIES, with respect to maintenance and operation of the IRWD FACILITIES, save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any negligence of CITY, its officers, agents, employees or engineers, or by any act or omission for which CITY, its officers, agents, employees or engineers are liable without fault.

SECTION 12. INSURANCE AND BONDING. CITY shall cause its contractor(s) to provide performance and payment bonds for the construction of the Project including the IRWD FACILITIES and to obtain insurance coverage sufficiently broad to insure the matters set forth in this Agreement and to include DISTRICT, its officers, agents, employees and engineers, as additional insureds on all insurance policies that CITY requires its contractor(s) to provide. As evidence of such insurance coverage, CITY shall, prior to commencement of construction of the IRWD FACILITIES, provide DISTRICT with certificates of insurance and insurance endorsements from CITY's contractor(s) in a form acceptable to DISTRICT.

SECTION 13. TERMINATION. DISTRICT shall have the right to terminate this Agreement at any time, subject to the provisions of this section, by providing five (5) business days' prior written notice to CITY, except as noted in Section 3. If at the request or direction of a party other than CITY, the construction of the IRWD FACILITIES is not accomplished or completed, DISTRICT shall remain obligated for the actual amount of the Costs incurred by CITY to the date of termination.

If CITY's Project is canceled or modified so as to eliminate the necessity of the construction of the IRWD FACILITIES, CITY shall have the right to terminate this Agreement and thereby terminate its obligation to construct the IRWD FACILITIES, by providing five (5) business days' prior written notice to DISTRICT. In such case, DISTRICT will not be obligated for any design or any other Costs incurred by CITY. If IRWD elects to construct the IRWD FACILITIES, DISTRICT may, but shall not be obligated to, acquire the design or other work from CITY by separate agreement.

SECTION 14. NOTICE. Any notice or other written instrument required or permitted by this Agreement to be given to either party shall be deemed received when personally served or twenty-four (24) hours after being deposited in the U.S. Mail, postage prepaid, registered or certified and addressed as follows:

DISTRICT:	Irvine Ranch Water District 15600 Sand Canyon Avenue P.O. Box 57000 Irvine, CA 92619-7000 Attn: General Manager
CITY:	City of Irvine 6427 Oak Canyon, Bldg. 1 Irvine, CA 92618 Attn: Allison Tran, Associate Engineer

SECTION 15. SUCCESSORS AND ASSIGNS; INTEGRATION; AMENDMENT.

This Agreement shall be binding upon and inure to the benefit of the successor and assigns of CITY and DISTRICT. This Agreement constitutes the entire Agreement between CITY and DISTRICT and supersedes all prior understandings and agreements between the parties with respect to the subjects hereof. This Agreement may be modified only in writing signed by both parties hereto.

SECTION 16. LEGAL FEES. In the event of any declaratory or other legal or equitable action instituted between CITY and DISTRICT in connection with this Agreement, the prevailing party shall be entitled to recover from the losing party all of its costs and expenses, including court costs and reasonable attorneys' fees.

SECTION 17. DEEMED APPROVAL. Any approval required to be given by either party pursuant to this Agreement shall be deemed given if no response to the party's request for

such approval is received by the requesting party within fifteen (15) days following the written request for such approval.

SECTION 18. SEVERABILITY. If any term, provision, covenant or condition of this Agreement is held to be invalid, void or other unenforceable, to any extent, by any court of competent jurisdiction, the remainder of this Agreement shall not be affected thereby, and each term provision, covenant or condition of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

SECTION 19. APPLICABLE LAW. This Agreement shall be construed and enforced in accordance with the laws of the State of California.

SECTION 20. WAIVER. The waiver of any provision of this Agreement by either party shall not be deemed to be a waiver of any other provision or of any preceding or subsequent breach hereunder.

IN WITNESS WHEREOF, the parties to the Agreement have executed this Agreement on the date herein above written.

IRVINE RANCH WATER DISTRICT

By _____
Paul Cook, General Manager

Dated _____

ATTEST:

By _____
Secretary/Assistant Secretary

Dated _____

APPROVED AS TO FORM:

By _____
Legal Counsel, IRWD

Dated _____

CITY OF IRVINE
A Municipal Corporation

By _____
Sean Joyce
City Manager of the City of Irvine

Dated _____

By _____
Manuel Gomez
Director of Public Works

Dated _____

ATTEST:

By _____
Molly McLaughlin
City Clerk of the City of Irvine

Dated _____

APPROVED AS TO FORM:

By _____
Jeffrey Melching, RUTAN & TUCKER, LLP
City Attorney of the City of Irvine

Dated _____