AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE
WEDNESDAY, SEPTEMBER 22, 2021

This meeting will be held in person, but due to COVID-19, this meeting will also be conducted as a teleconference pursuant to the provisions of the Governor's Executive Orders N-25-20 and N-29-20, which suspend certain requirements of the Ralph M. Brown Act.

This meeting will be held in person at the District's headquarters located at 15600 Sand Canyon Avenue, Irvine, California, but participation by members of the Committee may be from remote locations. Members of the public may attend in person or remotely.

Virtual attendees can attend the meeting via Webex and may submit comments via the "Chat" function. To virtually attend the meeting, please join online via Webex using the link and information below:

Via Web: https://irwd.webex.com/irwd/j.php?MTID=mc881093f27f7bbb840f3336a5579cbef
Meeting Number: 146 816 6793
Password: SNe7AqEXa68

PLEASE NOTE: Webex observers of the meeting will be placed into the Webex lobby when the Committee enters closed session. Participants who remain in the "lobby" will automatically be returned to the open session of the Committee once the closed session has concluded. Observers joining the meeting while the Committee is in closed session will receive a notice that the meeting has been locked. They will be able to observe the meeting once the closed session has concluded.

CALL TO ORDER 1:30 p.m.

ATTENDANCE
Committee Chair: John Withers _____
Committee Member: Karen McLaughlin _____

ALSO PRESENT

Paul Cook	_____	Kevin Burton	_____	Wendy Chambers	_____
Jose Zepeda	_____	Paul Weghorst	_____	Cheryl Clary	_____
Rich Mori	_____	Eric Akiyoshi	_____	Richard Mykitta	_____
Kelly Lew	_____	Jim Colston	_____	Ken Pfister	_____
Lars Oldewage	_____	Malcolm Cortez	_____	Scott Toland	_____
Jacob Moeder	_____	Bruce Newell	_____	Mitch Robinson	_____
Belisario Rios	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the "chat" feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 9:00 a.m. on Wednesday, September 22, 2021.

All votes shall be taken by a roll call vote if one or more Committee members participates remotely.

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.

INFORMATION

4. RESEARCH BUSINESS PLAN UPDATE – COLSTON / BURTON

   Recommendation: Receive and file.

5. IN-HOUSE PRETREATMENT PROGRAM EVALUATION – COLSTON / BURTON

   Recommendation: Receive and file.

6. DIRECT ACCESS ENERGY AND COMMUNITY CHOICE AGGREGATION – WELCH / SANCHEZ / WEGHORST

   Recommendation: Receive and file.

ACTION

7. SEWER SIPHON IMPROVEMENTS BUDGET INCREASE AND CONTRACT CHANGE ORDER – MURPHY / CORTEZ / BURTON

   Recommendation: That the Board authorize a budget increase for Project 07886 in the amount of $800,000, from $9,746,000 to $10,546,000, and authorize the General Manager to execute Contract Change Order No. 3 in the amount of $508,048.79 to Vido Artukovich & Son, Inc. for the Sewer Siphon Improvements, Project 07886.

8. ORANGE COUNTY OPERATIONAL AREA AGREEMENT – STAYTON / MYKITTA / CHAMBERS

   Recommendation: That the Board authorize the General Manager to execute the Orange County Operational Area Agreement and any subsequent updates.

ACTION – Continued

9. CONSULTANT SELECTION TO UPDATE THE IRWD ENERGY AND GREENHOUSE GAS MASTER PLAN – WELCH / SANCHEZ / WEGHORST

   Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with NV5 Global, Inc. in the amount of $307,995 to prepare an update to IRWD's Energy and Greenhouse Gas Master Plan.

10. THIRD AMENDED AGREEMENT BETWEEN IRWD AND CITY OF ORANGE TO FACILITATE PFAS REMOVAL FROM GROUNDWATER – WEGHORST

    Recommendation: That the Board authorize the General Manager to execute the Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service, and Natural Treatment System Service between IRWD and the City of Orange, subject to non-substantive changes.

OTHER BUSINESS

11. Directors' Comments

12. Adjourn

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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 electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.

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September 22, 2021
Prepared by: J. Colston
Submitted by: J. Colston / K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

RESEARCH BUSINESS PLAN UPDATE

SUMMARY:

At the Committee meeting, staff will provide an update on the research projects in which IRWD is currently involved.

BACKGROUND:

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

One of the components of the Research Business Plan is for staff to provide a status update on the research projects to the Engineering and Operations Committee on a quarterly basis. IRWD actively participates in the Technology Approval Group (TAG) sponsored by Isle Utilities. The TAG hosts numerous developing technology providers in order to match interested agencies with their technologies. A status update on the current research projects is provided as Exhibit "A".

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Research Projects Summary Table

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Exhibit "A"

Research Projects Summary Table

No.	Project Title	Project Description	IRWD Contact	Organizations Involved	Type of Research	IRWD Participation Resource	Start Date	Projected Completion Date	Comments/Next Steps
1	UCI Industry-University Research Center-Perfluorinated Compound Sources and Loading at Wastewater Treatment Plants-A Sewershed-Scale Analysis	This project will develop and implement methodology for sewershed analysis to identify raw wastewater sources of PFAS.	Weghorst	UCI Industry-University Research Center	Case study, data review, best practice analysis and technical report.	Staff time for review of reports, sharing information, and site analysis.	Sep-20	TBD (1-2 years)	The Civil and Environmental Engineering Department at UCI began the research on September 1, 2020. UCI is in the process of collecting and analyzing influent samples from OC San to refine analysis methods. Residential sampling is delayed because of the pandemic.
2	Restoration of Local Recharge Sources from Invasive Mussels	This is an independent study that supports a larger effort by the Metropolitan Water District (MWD) to control invasive Dreissenid Mussels. Task 1 is to establish dose-response curves for mussel control with EarthTec QZ at locations that feed IRWD MWD water. Task 2 will evaluate the toxicity of EarthTec QZ to other species including minnow, trout and the water flea.	Colston	Trussel Technologies, Inc.	In situ	IRWD provides $26K funding and access to Irvine Lake.	Jul-20	Dec-21	Trussel has begun Task 1; however, insufficient mussels have been found in Irvine Lake. IRWD staff continues to take samples at Irvine Lake. The research continues at other local sites using MWD imported water. Three of five sites have completed testing. The final report is scheduled for December 31, 2021.
3	Automated, AI Based CCTV Video Analysis for Pipeline Assessments	The Abyss Extract software utilizes machine learning and AI technologies to automate the analysis of CCTV video footage. CCTV videos of sewer pipes are collected and analysed using machine learning algorithms to identify anomalies. The goal is to decrease the time it takes to inspect, identify and recommend repairs for any defects.	Zepeda	Abyss Solutions	Testing and Optimization	Staff time for review of reports, sharing information, and compare results of software tool against current methods.	Apr-21	Aug-21	Technology will be reviewed by staff for possible implementation to optimize current work practices of inspecting sewer pipelines and identifying defects. A second round of CCTV data will be provided by Abyss Solutions. The first data set was not consistent with field conditions. **Project testing completed.** We will be testing a similar product and will compare the the results to make a decision on which product provides the best value.
4	Bio-electrochemical Sensor for Real-time Monitoring of Microbial Activity and organic carbon	The SENTRY system can be inserted at various locations at the treatment process (aerobic and anaerobic), providing real-time visualisation of microbial metabolic activity and correlations to bio-available carbon. The sensor provides real-time data for insight on the health of the treatment plant and organic load at key locations (influent, nutrient removal bioreactors, anaerobic digesters and effluent).	Zepeda	Island Water Technologies (IWT)	Treatment Process Optimization	Staff time for review of performance data.	Jun-20	Feb-22	A test unit will be installed at MWRP to collect data. IRWD staff will work with IWT to evaluate the collected data. The goal will be to use the data to optimize CAS, MBR, and digestion processes. Testing the equipment was delayed, but we are working on getting back on track for testing this calendar year.
5	Aerator for Efficient Odor and Corrosion Control in force mains and aeration in treatment	The Vortex Force™ is a relatively new product designed to solve odor and corrosion problems in municipal wastewater treatment application and collection systems.	Zepeda	IPEX	Odor and Corrosion Control	Staff time for testing of product and reviewing performance results.	Jun-20	Oct-21	Staff is working with the IPEX representative to find a suitable location for testing of the equipment. **Project dropped due to lack of resources and follow up from vendor. This will be the last update for this project.**

Updated: 9/13/2021

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September 22, 2021
Prepared by: J. Colston
Submitted by: J. Colston / K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

IN-HOUSE PRETREATMENT PROGRAM EVALUATION

SUMMARY:

IRWD's pretreatment programs for the Michelson Water Recycling Plant (MWRP) and the Los Alisos Water Recycling Plant (LAWRP) are currently implemented by the Orange County Sanitation District (OC San) and the South Orange County Wastewater Authority (SOCWA), respectively. IRWD conducted an evaluation of an in-house program to determine if IRWD should implement its own pretreatment program with consultant support. After a careful review of the existing program, including a regulatory audit of all three agencies participating in IRWD's pretreatment program, staff recommends continuing the current program with some administrative updates to enhance cooperation between the three agencies.

BACKGROUND:

Currently, IRWD does not conduct its own pretreatment program. OC San operates a pretreatment program on behalf of IRWD for the sewersheds that are tributary to MWRP and to OC San sewage treatment facilities. This program is implemented in accordance with a Memorandum of Understanding (MOU) executed with OC San in 1987. SOCWA operates a pretreatment program in IRWD's sewershed that is tributary to LAWRP, with SOCWA as the permit holder for the NPDES permit regulating LAWRP discharges to the Aliso Creek ocean outfall.

In January 2018 IRWD staff presented an item to the Engineering and Operations Committee on *Pretreatment and Fats, Oils and Grease (FOG) Control Program Implementation*. At that time, IRWD staff was preparing to move forward with a consultant-supported in-house pretreatment and FOG control program. The FOG Control program is successfully implemented currently and is not part of a further discussion in this item. The pretreatment program remains operated by OC San and SOCWA in their respective areas of jurisdiction with IRWD oversight.

After staffing changes within IRWD's Regulatory Compliance Department, the District decided to reevaluate the existing pretreatment contracts and programs to determine if a consultant-supported in-house pretreatment program would be a better approach for IRWD and its customers, especially industrial dischargers to IRWD's collection system. Details of the evaluation are captured in the Staff Report dated August 21, 2021: Evaluation of Proposed In-house Pretreatment Program, provided as Exhibit "A".

Pretreatment Program Evaluation:

A careful review of both the OC San and SOCWA pretreatment programs demonstrated that they have competent, well-run programs that include the proper legal authorities, staffing, equipment, and budget to implement their respective pretreatment programs. Industries in IRWD's service

area (sewersheds) are treated the same as industries located in the respective OC San and SOCWA jurisdictional areas. Particularly in the case of OC San, its large pretreatment program provides broad-based pretreatment program experience that serves IRWD well. OC San has experience with many types of industry including all the types of industries located in IRWD's service area. It also has extensive permitting, inspection, monitoring, and enforcement experience.

SOCWA has a smaller pretreatment program, but it also conducts its program in a professional and competent manner. It is noteworthy that the number of industrial facilities in the LAWRP sewershed, which is tributary to SOCWA, is much smaller with only three industrial facilities. Staff with both agencies are in routine and effective communication with IRWD staff as part of the pretreatment program implementation.

In March 2019, the Santa Ana Regional Water Quality Control Board commissioned an audit of IRWD's pretreatment program including a review of OC San and SOCWA. Staff from all three agencies participated actively in the audit, and a final report was issued in September 2019. While there were audit findings that were resolved, the audit was successfully completed without any notices of violation or other compliance actions. The audit confirms that the current approach provides a successful and legally enforceable pretreatment program in IRWD's service area.

FISCAL IMPACTS:

There are no proposed changes to the current budget.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Staff Report: Evaluation of Proposed In-house Pretreatment Program (dated August 2021)

Staff Report

Evaluation of Proposed In-house Pretreatment Program

August 31, 2021

Jim Colston, Director of Water Quality and Regulatory Compliance

INTRODUCTION

The purpose of this memo is to evaluate the effectiveness of moving the IRWD pretreatment program to an in-house program versus the current practice of relying on OC San and SOCWA staff to implement the program in their respective IRWD jurisdictional areas pursuant to existing agreements[i] [ii] [iii]. IRWD is required to operate its wastewater treatment facilities pursuant to an approved pretreatment program as required by federal regulations[iv] and enshrined in IRWD's Master Reclamation Permit[v]. The original intent to evaluate the in-house option was based upon the construction of the Biosolids Facility at MWRP. IRWD contracted with Larry Walker and Associates to develop a needs assessment to bring the program in-house. This memo concludes with a recommendation to maintain the status quo under the current agreements. The following is a discussion of basis for the recommendation.

BACKGROUND

The Clean Water Act requires wastewater treatment plants with an industrial discharge base to develop and implement approved pretreatment programs for the control of non-conventional pollutants into wastewater collection and treatment systems. Pretreatment programs are specifically designed to prevent interference or upset of the wastewater treatment facilities or the pass-through of inorganic pollutants into the environment. With the addition of biosolids and water recycling facilities at a greater percentage of wastewater collection and treatment facilities, the reclamation of wastewater and residuals has also become an important component in pretreatment programs. For applicable NPDES permits, including IRWD, Pretreatment Program elements are integrated into these requirements. Standard pretreatment program elements include appropriate legal authority via an approved wastewater ordinance with local limits, permits for industrial dischargers to the sewer system, routine inspection and monitoring of permit holders, and enforcement for violations of the permits or wastewater ordinance.

EXISTING AGREEMENTS

Instead of implementing an approved pretreatment program within its own jurisdiction, IRWD entered into contractual agreements with OC San and SOCWA in 1987 to cover their respective jurisdictional areas within IRWD's service area. OC San was predominantly motivated to provide pretreatment services to protect its special NPDES permit. The agency previously operated under a modified permit which waived the standard Clean Water Act requirement that all wastewater treatment flows receive secondary treatment. The OC San modified permit required the Pretreatment Program to meet secondary equivalency for the removal of inorganic pollutants. IRWD does not pay additional fees or costs to OC San for the operation of the

program in IRWD's service area. Both OC San and SOCWA have approved Pretreatment Programs which include recognized legal authority that apply in IRWD's service area. Permits for industrial dischargers are issued directly by OC San and SOCWA. Inspection, monitoring and enforcement is also conducted by OC San and SOCWA. IRWD's role is to notify OC San and SOCWA regarding new industries, review draft permits, and participate in inspection of facilities. IRWD staff also act as liaisons to industry contacts as needed.

The primary legal basis for these agreements is that IRWD discharges wastewater to OC San (raw sewage and biosolids) and SOCWA (treated) wastewater systems. Therefore, IRWD is required by their ocean discharge permits and federal pretreatment requirements to have a pretreatment program at least as strict as their respective programs. Based on these requirements, IRWD chose to sign agreements with OC San and SOCWA to implement the respective pretreatment programs in the sewersheds that are tributary to the two agencies. Some MWRP flows are tributary to OC San via various trunkline and treatment plant flow scenarios, and LAWRP flows are tributary to SOCWA when LAWRP is not recycling treated wastewater for recycled water (predominantly during the winter season).

If IRWD were to operate its own Pretreatment Program, its program would need to be at least as strict as OC San and SOCWA in the respective areas that are tributary to those agencies (subject to the receipt of treated or untreated flows of wastewater or biosolids) under the federal rules for pretreatment programs. This is sometimes referred to as an "equivalent" program by regulators who review Pretreatment Programs for compliance with federal regulations and discharge permits. This is significant as it would require IRWD to remain linked to OC San and SOCWA even if IRWD were to operate its own program as long as IRWD maintains agreements for these agencies to accept flows from IRWD. IRWD would need to amend and then update its Rules and Regulations[vi] to maintain an equivalent program on an ongoing basis.

SUPPORT FOR GWRS AND WATER/BIOSOLIDS RECYCLING

Pretreatment programs were initially designed to protect wastewater collection and treatment systems as well as receiving waters; however, they have evolved to provide protection for biosolids and wastewater recycling. In particular, OC San has updated its pretreatment program to protect wastewater for recycling through the Groundwater Replenishment System (GWRS) and biosolids for composting and land application. Specific actions include amending its wastewater ordinance to add prohibitions on discharges which prevent water recycling as well as new local limits. OC San also has an agreement with OCWD in which OC San will maintain an enhanced pretreatment program to protect the treated wastewater for recycling through GWRS. Staff from OC San have participated actively in the annual review of GWRS through the NWRI independent expert panel review. As part of OC San's enhanced pretreatment program, the agency added a team to develop Non-Industrial Source Control measures. This has resulted in actions to control targeted commercial and residential sources of pollutants that could impact resource recovery.

CONTRACTED ASSESSMENT OF PRETREATMENT PROGRAM FOR IRWD

In preparation for the operation of the Biosolids Facility at MWRP, IRWD contracted with Larry Walker and Associates (LWA) to perform an evaluation of IRWD's Pretreatment and Fats, Oils, and Grease control (FOG) programs. The results of this evaluation were presented to the Engineering and Operations Committee in January 2018[vii]. Key findings which supported an in-house program were "program stability and maintaining relationships with the regulated customers." Advantages to an outsourced program were "reduced [IRWD] staffing needs, less training, and reduced dependence on other resources." LWA also evaluated costs. The outsourced (current) program was estimated to cost less than $100,000 per year in staff time and other resources. An in-house program was estimated to cost over $300,000 per year using third party assistance. LWA recommended a hybrid approach to implementation using a third-party contractor if IRWD chose to create an in-house program. With changes in staff within the departments at IRWD, the Director for Water Quality and Regulatory Compliance undertook an effort to review the adequacy of the current pretreatment program at IRWD.

EVALUATION OF OC SAN PRETREATMENT PROGRAM TO FULFILL IRWD NEEDS

Currently IRWD uses part-time hours from one field staff and one supervisor to meet the oversight needs for Pretreatment Programs implemented by OC San and SOCWA in the IRWD service area. By comparison OC San has a fulltime pretreatment program staff of 37 people including 12 field staff, 9 engineers, 3 supervisors and a manager as well as administrative support staff. The program has been recognized by the USEPA by naming it the Large Pretreatment Program of the Year Award, and the NWRI Expert Panel for review of the GWRS program has recognized the program as suitable for the protection of OC San's treated wastewater for indirect potable reuse through the GWRS. OC San has 551 active permits including 335 Class I permits (those which are most likely to pose a threat to influent water quality) including 183 federal categorical permits (those for which the federal government has adopted specific effluent limitations based on the industrial processes used onsite).[viii] OC San's Pretreatment Program annual budget exceeds $7.2 million. IRWD's service area has 13 permits which are tributary to MWRP and another 24 permits that are tributary to OCSD via the IBC area.

OC San has established extensive professional experience on Pretreatment Program implementation both for traditional federal requirements as well as for recycling purposes. OC San's Pretreatment Program is routinely inspected by the regulators on a two- to three-year frequency. OC San's large program enables it to include program elements not found in small programs including covert monitoring of permittees suspected of illicit discharges, a non-industrial source control program, enhanced monitoring and inspection beyond minimum federal requirements (quarterly vs. annually), and extensive administrative enforcement experience. And OC San's comprehensive program has demonstrated success at protecting wastewater treatment facilities by preventing pass through, interference and upset for over 20-years. OC San has the demonstrated capability to implement all aspects of a successful pretreatment program.

IMPLEMENTATION OF MOU BETWEEN IRWD AND OC SAN

IRWD and OC San signed a memorandum of understanding Governing Industrial Waste Program Administration in 1987[ix]. Since that time, OC San has implemented all aspects of the federally approved pretreatment program in IRWD's service area (exclusive of the LAWRP sewershed). While OC San and IRWD established practices of cooperation in IRWD's service area, OC San was not consistent in their communication with IRWD regarding the program. In particular, OC San inspection staff were not consistently notifying IRWD staff in advance of inspection and monitoring activities in the service area. Also, OC San was not providing updated permitting documentation and did not engage IRWD with routine meetings and updates. Communication was generally limited to the exchange of information for annual reporting purposes.

In 2015 after a change in leadership, OC San began to improve cooperation with IRWD. Changes included the following activities: 1) Consistent notification in advance of inspection and monitoring activities in the IRWD service area; 2) Implementation of an internet accessible SharePoint page containing all IRWD permits and other pertinent documentation; 3) email notifications of new permits; 4) assigned permitting and inspection staff to the IRWD service area; and 5) routine bi-annual pretreatment program meetings between IRWD and OC San staff. With the hire of the new Water Quality and Regulatory Compliance Director and Regulatory Compliance Manager at IRWD, these relationships with OC San have been further enhanced. These changes to the relationship have improved the ongoing working environment between the two agencies to the benefit of all parties. The industrial facilities have an IRWD contact available to them, which is important as they see IRWD as the service provider for water and sewer service.

IMPLEMENTATION OF MOU BETWEEN IRWD AND SOCWA

While the focus of this report is on the relationship between IRWD and OC San, it is also worthwhile to review the existing implementation with SOCWA. Similar to OC San program, SOCWA staff implements the pretreatment program in the LAWRP sewershed. This is a much smaller region in terms of sewer flows and geographical area as well as a smaller industrial base. There are three industrial dischargers and one Special Purpose Discharge Permit in that region. SOCWA has a dedicated pretreatment manager devoted to implementing the approved pretreatment program in SOCWA's service area (including the LAWRP service area). To date, SOCWA staff have remained responsible and responsive to their pretreatment obligations and communications with IRWD staff. SOCWA's pretreatment manager participated actively in the regulatory audit of IRWD's pretreatment program, and they demonstrated competency to operate the SOCWA pretreatment program.

FINDINGS OF THE REGULATORY AUDIT OF IRWD'S PRETREATMENT PROGRAM

In March 2019, PG Environmental conducted a regulatory audit of IRWD's Pretreatment Program on behalf of the Santa Ana Regional Water Quality Control Board (RWQCB). Since IRWD's Pretreatment Program is implemented by OC San and SOCWA in the respective

sewersheds tributary to their agencies, staff from both of these agencies were present and actively participated in the audit. The RWQCB reported findings from the audit to IRWD in September 2019, and IRWD, OC San, and SOCWA responded to the Findings in a timely manner. The audit resulted in 11 Findings and 11 Recommendations. The Findings were promptly addressed, and the Recommendations were evaluated with 9 of the 11 of them implemented to improve the Pretreatment Program. The regulatory audit process was successfully completed with a prompt response and no regulatory action taken against any of the agencies (no notices of violations). This audit confirms that the current approach provides a successful and legally enforceable pretreatment program in the IRWD service area.

RECOMMENDATION

Upon review of the existing agreements and implementation of approved Pretreatment Programs between IRWD, OC San, and SOCWA, IRWD staff recommend a continuation of the current approach as defined in the existing agreements. OC San has demonstrated success in implementing an approved Pretreatment Program including the IRWD Service Area tributary to OC San. OC San has significantly more resources available to implement its program. This means that there is more experience and expertise available for permitting, inspection, monitoring and enforcement of industrial permit holders. By comparison, IRWD has limited Pretreatment Program resources. Even if IRWD chooses to conduct an in-house program, the fewer number of industries would limit staff to no more than one field staff and one office staff member to support the program. This would leave IRWD incapable of conducting a robust program unless contract support was used to augment the program. For all of these reasons, staff recommend continuing the current approach to manage industrial discharges in the IRWD service area via agreements with OC San and SOCWA. The most significant reason to consider revising this approach would be if either of these programs faced significant non-compliance for failure to properly maintain a compliant and effective Pretreatment Program. At this time, staff is also not recommending any changes to the FOG program which is managed in-house with third party contract support.

ACRONYMS AND INITIALISMS

IRWD-Irvine Ranch Water District
GWRS-Groundwater Replenishment System
IBC-Irvine Business Center
LAWRP-Los Alisos Water Reclamation Plant
MWRP-Michelson Water Reclamation Plant
NWRI-National Water Research Institute
OC San-Orange County Sanitation District or County Sanitation District of Orange County (CSDOC)
OCWD-Orange County Water District
NPDES-National Pollutant Discharge Elimination System [Permitting scheme under the Clean Water Act]
SOCWA-South Orange County Water Authority

[i] Memorandum of Understanding between County Sanitation District No. 14 of Orange County, California and Irvine Ranch Water District Governing Industrial Waste Program Administration, February 11, 1987.
[ii] Resolution of the Board of Directors of the Irvine Ranch Water District Declaring Intention that Los Alisos Water District Pretreatment Program Ordinance Remain in Effect, Resolution No. 2000-42, December 18, 2000.
[iii] Interagency Agreement between the Los Alisos Water District (LAWD) Facilitating the Pretreatment Program and Contracting with AWMA to Operate the Los Alisos Pretreatment Program, September 1, 1994.
[iv] Introduction to the National Pretreatment Program, United State Environmental Protection Agency, Chapter 1
[v] California Regional Water Quality Control Board, Santa Ana Region Order No. R8-2-15-0024/NPDES No. CA000326 as modified by Order No. R8-2018-0070.
[vi] Rules and Regulations for Water, Sewer, Recycled Water, and Natural Treatment System Service, IRWD, December 16, 2019.
[vii] Pretreatment and Fats Oils and Grease Control Program Implementation, Engineering and Operations Committee, IRWD, January 16, 2018.
[viii] 2019-2020 Annual Report, Resource Protection Division, OC San
[ix] See #1, above.

September 22, 2021
Prepared by: K. Welch
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

DIRECT ACCESS ENERGY AND COMMUNITY CHOICE AGGREGATION

SUMMARY:

Southern California Edison's (SCE) Direct Access Electric Service Program was established to allow non-residential customers to purchase electricity directly from a competitive Electric Service Provider (ESP) instead of SCE. Since 2018, IRWD has transferred 90 active electric service accounts to Direct Access service, which has provided IRWD flexibility and cost savings when compared to purchasing electricity from SCE. An alternative to Direct Access is to purchase energy from a Community Choice Energy (CCE) provider through Community Choice Aggregation. In December 2020, the Orange County Power Authority (OCPA), a new CCE provider, was formed. It is expected that in the spring of 2022, IRWD could participate in Community Choice Aggregation through the OCPA, if desired. The decision for such participation would be informed by early findings from the preparation of IRWD's updated Energy and Greenhouse Gas Master Plan.

BACKGROUND:

SCE implemented its Direct Access Program to provide an option for eligible non-residential customers to purchase electricity from an independent ESP. An ESP is responsible for generating or arranging for an adequate supply of electricity to meet its customers' needs. SCE delivers the electricity that customers purchase from ESPs over SCE's transmission and distribution system. Each year, SCE offers participation to interested Direct Access customers and acceptance in the program is through a lottery system.

IRWD's Participation in Direct Access:

Currently, IRWD currently has 90 active Direct Access electrical accounts that represent approximately 25% of the District's electrical usage. IRWD has contracted with Constellation NewEnergy, Inc. as its ESP. IRWD's participation in Direct Access service provides flexibility and can be a hedge against potential increases in SCE electricity rates due to volatile conditions. One potential risk with Direct Access service is that if IRWD decides to return to SCE to purchase its electricity, then the Direct Access accounts would be transferred to a higher-than-normal electrical rate for a period of six months before reverting to the normal SCE rate. IRWD's participation in Direct Access will be analyzed in the update to IRWD's Energy and Greenhouse Gas Master Plan, which is expected to be completed in 2022.

Community Choice Aggregation:

Community Choice Aggregation (CCA) is similar to Direct Access service where electricity is purchased through an alternative provider to SCE. CCA is a municipal power aggregation program that allows local governments to procure and generate power on behalf of their

residents, businesses, and municipal accounts from a CCE provider while still receiving transmission and distribution service through SCE. CCEs have been operating in California since 2002 following the passage of Assembly Bill 117.

Formation of Orange County Power Authority:

Communities can apply to the California Public Utilities Commission (CPUC) to become a CCE provider. In December 2019, the City of Irvine voted to consider formation of a CCE program in partnership with other Orange County cities and to conduct a corresponding feasibility study. In November 2020, the cities of Irvine and Fullerton entered into a Joint Powers Agreement forming the Orange County Power Authority (OCPA). In December 2020, the cities of Buena Park and Huntington Beach also executed the Joint Powers Agreement to become members of OCPA. The OCPA submitted a plan to the CPUC to become a CCE provider and establish a local CCE program in December 2020.

OCPA Objectives

The objectives of the OCPA are to provide local control and choice over electricity sources, increase access to renewable energy sources, and provide lower electricity prices to its membership. California's electric industry has been undergoing significant change with a Renewable Portfolio Standard targeting a statewide resource mix of 60% renewable energy by 2030. The state is further requiring that all of the state's electricity come from carbon-free resources by 2045. The creation of the OCPA was specifically targeted toward reaching the carbon neutrality goals of the City of Irvine and the partnering cities by 2030.

Ability to Opt-Out of Service Through the OCPA:

Customer enrollment in the CCE program established by the OCPA is expected to be automatic, with the ability to opt out. If an electric service account is located within the jurisdictional boundaries of a CCE, it is considered part of that CCE's territory and will automatically be switched to CCE service unless the customer chooses to opt out. Before customers are served by the CCE, they will receive notices with their monthly electric bills 60 days and 30 days before and after the CCE's launch. These notices will provide information for a customer to understand the terms and conditions of service from the CCE as well as for opting out of the service. Existing Direct Access electric accounts within the CCE may or may not be omitted from the CCE enrollment process. If IRWD, as a Direct Access participant, is included in the OCPA's application process, then it would be provided the ability to opt out of CCE programs being offered by the OCPA.

If IRWD were to participate in the CCE program offered by the OCPA, IRWD's participation in several existing SCE funding programs including Self-Generation Incentive Program (SGIP), Net Energy Metering, and Renewable Energy Self-Generation Bill Credit Transfer could be affected. These potential impacts will be evaluated early in the preparation of an update to IRWD's Energy and Greenhouse Gas Master Plan.

Next Steps:

As part of its start-up activities, the OCPA has been building its team of staff and consultants along with development programs to prepare for its CCE program launch in spring through the fall of 2022. During that time, IRWD would have the ability to opt out of participation in the program. Staff expects to make informed recommendations to the Board associated with IRWD's potential participation the CCE program based on early findings from the District's updated Energy and Greenhouse Gas Master Plan.

The OCPA plans to enroll its commercial and municipal customers first with its 60-day notices starting in April 2022. There are no proposed electric rates yet for the OCPA, but staff will continue to monitor and provide updates to the Engineering and Operations Committee on the OCPA progress and electric rates as they are developed.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

The presentation of the described information is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15262, which provides an exemption for planning studies.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

None.

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September 22, 2021
Prepared by: A. Murphy / M. Cortez
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

SEWER SIPHON IMPROVEMENTS
BUDGET INCREASE AND CONTRACT CHANGE ORDER

SUMMARY:

IRWD's sewer system includes 19 sewer siphons in various locations throughout its service area. In 2016, the District completed an evaluation that ranked the siphons using criticality analysis and prioritized rehabilitation based on a condition assessment, flow capacity, proximity to waterways and age. This project will rehabilitate four of the most critical sewer siphons. Staff recommends the Board:

- Authorize a budget increase in the amount of $800,000, from $9,746,000 to $10,546,000, and
- Authorize the General Manager to execute Contract Change Order No. 3 in the amount of $513,924.26 with Vido Artukovich & Son, Inc. for the Sewer Siphons Improvements.

BACKGROUND:

The Sewer Siphon Improvements project will rehabilitate four of the most critical sewer siphons located at: 1) San Diego Creek at Harvard Avenue (Siphon 2), 2) Main Street and Veneto (Siphon 4), 3) Harvard Avenue and Barranca Parkway (Siphon 6), and 4) Orange County Transit Authority at Jamboree Road (Siphon 10). A site map is provided as Exhibit "A". The improvements include cleaning and installing cured-in-place pipe (CIPP) lining in the siphon barrels, rehabilitating vaults and constructing new flow control components, site and vault access improvements, two grit traps and an odor control injection facility.

IRWD awarded the construction contract to Vido Artukovich & Son, Inc. (VAS) in May 2020. VAS has completed work at Siphons 4 and 10. In July, VAS completed the cleaning and closed-circuit television (CCTV) inspection of the South Irvine Interceptor that connects the Siphon 2 downstream vault to the MWRP Influent Junction Structure, and in August VAS completed CIPP lining of the Siphon 2 barrels and is currently working on the vault improvements and grit trap construction at the Siphon 2 upstream vault, and vault improvements at Siphon 6.

Contract Change Order No. 3 (CCO3): CIPP Lining of 39-inch South Irvine Interceptor:

During the cleaning and closed-circuit television inspection of the South Irvine Interceptor sewer from the Siphon 2 downstream vault in the San Joaquin Marsh main parking lot to the junction structure in the San Joaquin Marsh overflow parking lot, it was discovered that the existing 460-foot long, 55-year-old, 39-inch asbestos cement sewer pipe segment is severely degraded and has significant structural defects. A map of the South Irvine Interceptor highlighting the 39-inch pipe segment is provided as Exhibit "B". The design engineer, Woodard & Curran,

recommended rehabilitating this critical pipe segment that handles 25% of the MWRP influent with CIPP lining. This sewer segment was not replaced as part of the 2009 MWRP Phase II Expansion, and, when lined, the entire sewer length between the Siphon 2 upstream vault and MWRP influent sewer junction structure (home plate) will be completely restored with a long service life.

Lining this segment will require an above grade pumped bypass extending from the Siphon 2 downstream vault to home plate and a partial closure of Riparian View. Since the downstream vault lid has not yet been installed, it is an opportune time to install the CIPP lining prior to finishing all the downstream vault improvements. If the CIPP lining is deferred as a future project, IRWD will incur additional costs including removing and reinstalling the vault lid via crane, repairing any damages to the vault wall and coating, and repairing the asphalt paving adjacent to the vault. VAS's scope of work includes:

1. Construction of a temporary stop log in the Siphon 2 downstream vault to isolate the 39-inch pipe and provide a suction wet well for the bypass system;
2. Construction of a temporary bypass system including two primary and two standby pumps, 1,500 linear feet of primary and standby 18-inch-high density polyethylene discharge piping and labor to operate and monitor the bypass system;
3. Trenching and installation of the bypass piping below grade to provide construction access to the San Joaquin Marsh parking lot;
4. Cleaning, dewatering and CCTV inspection of the 39-inch pipe; and
5. CIPP lining of the 39-inch pipe.

The work is expected to take approximately 37 calendar days including construction and testing of the stop log and bypass system, cleaning, dewatering and lining of the 39-inch pipe and teardown of the bypass system and asphalt repairs. The bypass operation and CIPP will take one week. VAS will trench and plate the bypass piping across the driveway to the San Joaquin Marsh parking lot for construction access to allow visitors to access the parking lot. Riparian View will be reduced to one lane from south of the San Joaquin Marsh parking lot entrance to the MWRP Influent Junction Structure. Once the CIPP work is complete, it will take an additional 28 contract days to complete the remaining Siphon 2 downstream vault improvements which cannot be performed until the bypass and lining are complete. The proposed bypass plan is shown as Exhibit "C".

CCO3, provided as Exhibit "D", is for an amount of $513,924.26 and adds 65 contract days. Costs for the CIPP lining, cleaning, and dewatering items in CCO3 were at or below the unit prices for CIPP work in the original contract and staff has determined that the cost for the bypass work is reasonable. The revised construction substantial completion date is November 26, 2021.

FISCAL IMPACTS:

Project 07886 is included in the FY 2021-22 Capital Budget. A budget increase is required to fund the construction and engineering support services for this change order work as shown in the following table:

Project No.	Current Budget	Addition <Reduction>	Total Budget
07886	$9,746,000	$800,000	$10,546,000

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15301 which provides exemption for minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. A Notice of Exemption for the project was filed with the County of Orange on March 5, 2019.

RECOMMENDATION:

That the Board authorize a budget increase for Project 07886 in the amount of $800,000, from $9,746,000 to $10,546,000, and authorize the General Manager to execute Contract Change Order No. 3 in the amount of $513,924.26 to Vido Artukovich & Son, Inc. for the Sewer Siphon Improvements, Project 07886.

LIST OF EXHIBITS:

Exhibit "A" – Location Map
Exhibit "B" – South Irvine Interceptor Location Map
Exhibit "C" – Bypass Plan
Exhibit "D" – Contract Change Order No. 3

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EXHIBIT A - SEWER SIPHON IMPROVEMENTS LOCATION MAP

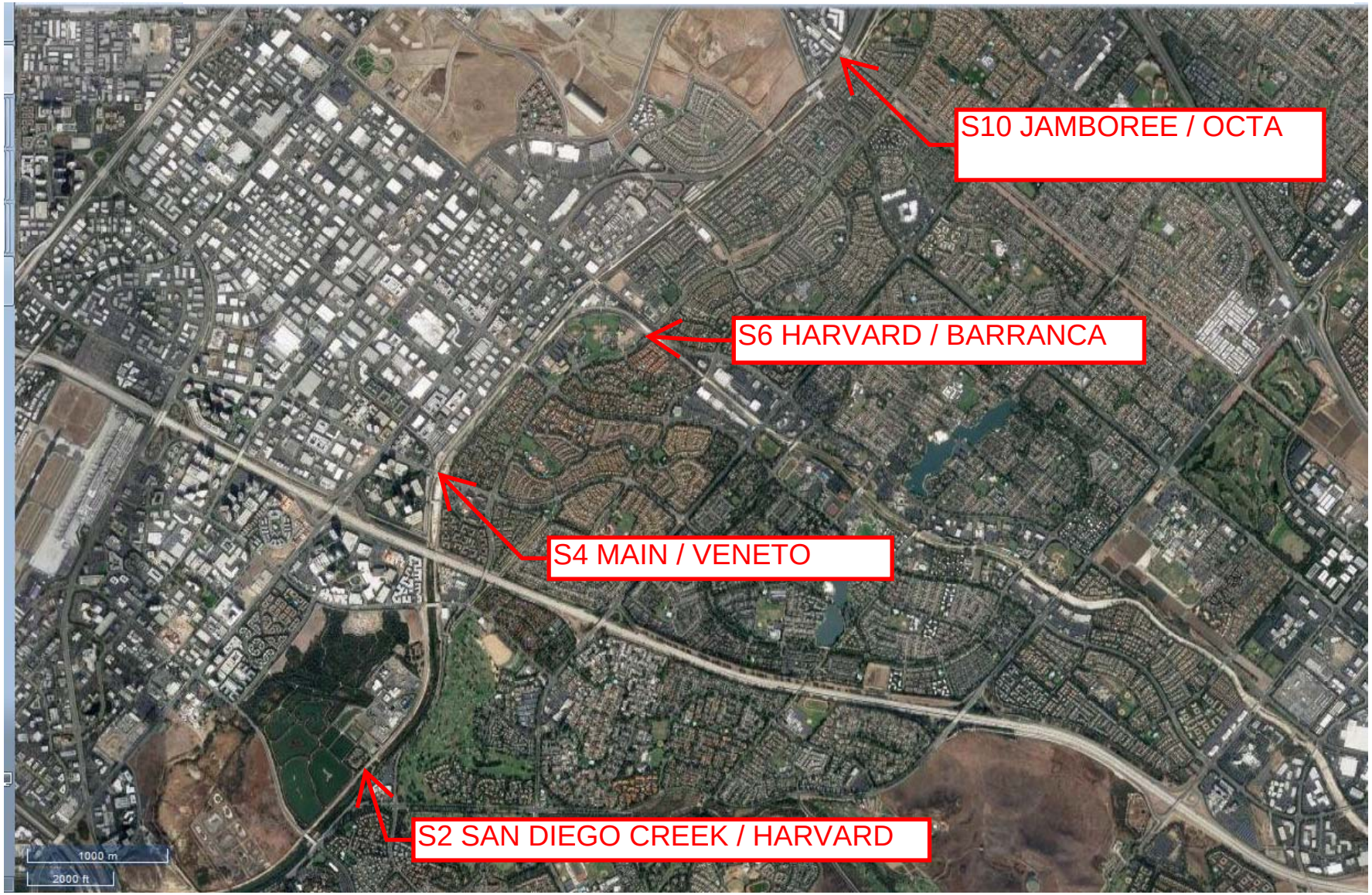

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EXHIBIT B:
SOUTH IRVINE INTERCEPTOR LOCATION MAP

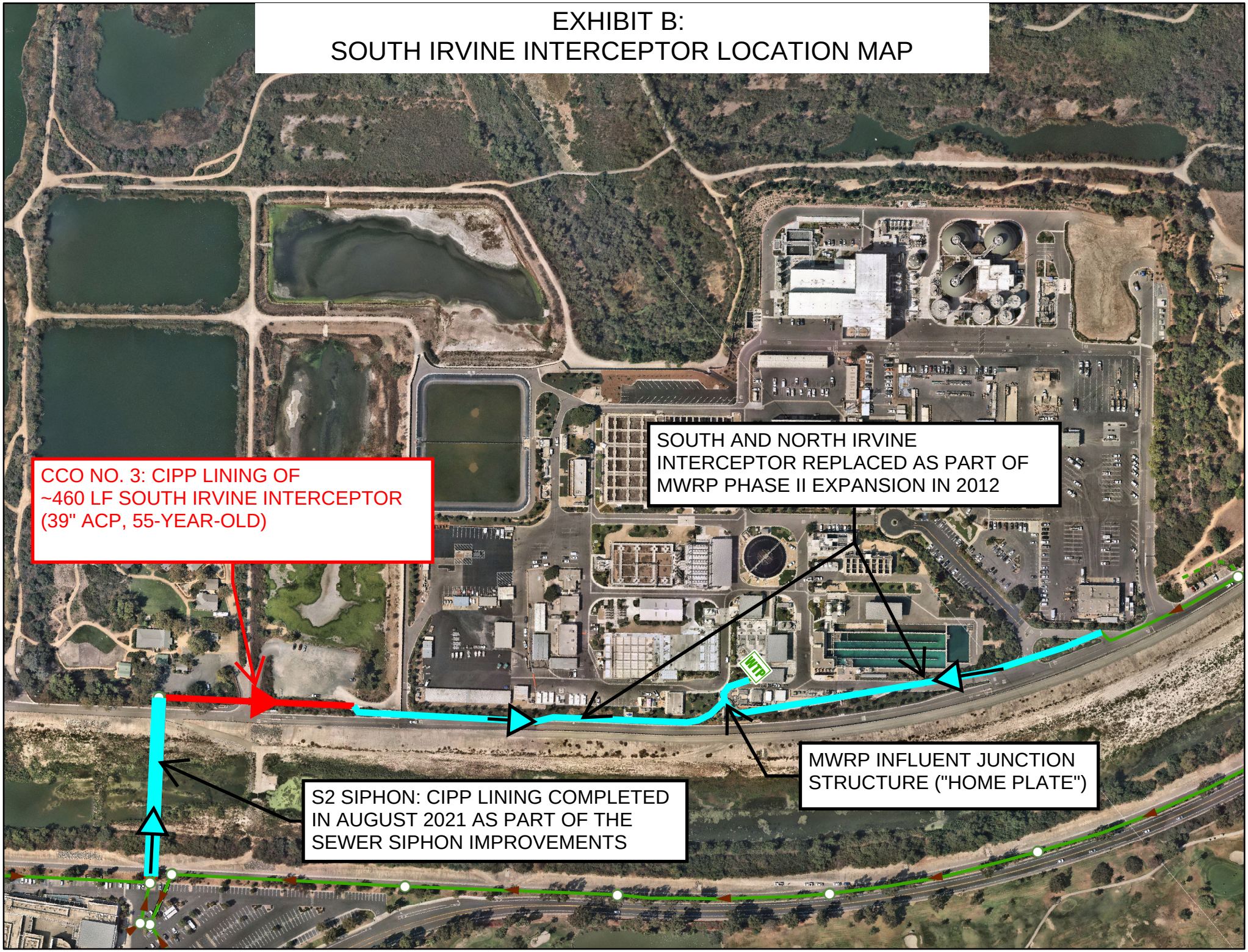

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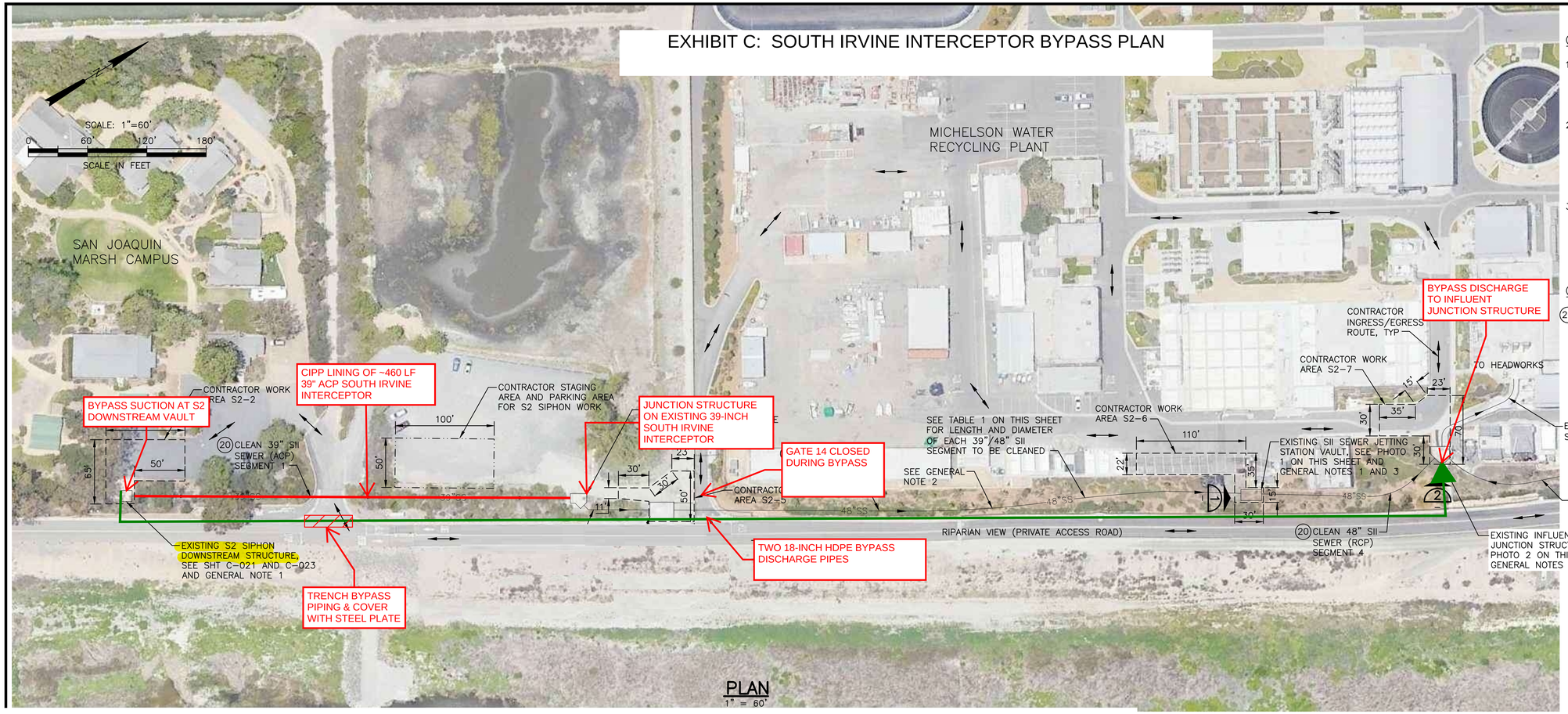
EXHIBIT C: SOUTH IRVINE INTERCEPTOR BYPASS PLAN



PLAN
1" = 60'

CIPP LINING

BYPASS PIPING

GENERAL NOTES:

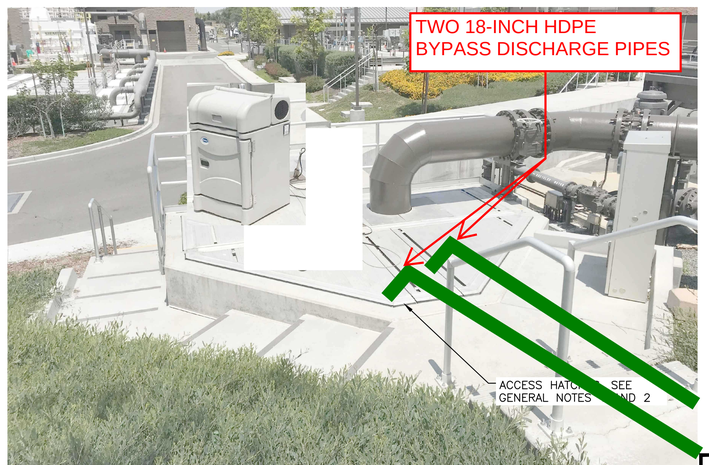
1. CONTRACTOR MAY ACCESS THE 39"/48" SOUTH IRVINE INTERCEPTOR (SII) SEWER FOR CLEANING AT THE FOLLOWING LOCATIONS: S2 SIPHON DOWNSTREAM STRUCTURE, INFLUENT FLOW METER VAULT, JETTING STATION VAULT, AND INFLUENT SEWER JUNCTION STRUCTURE.
2. REFER TO THE MWRP PHASE 2 EXPANSION RECORD DRAWINGS, IRWD PROJECT NOS. 20214 & 30214 (2016) FOR AS-BUILT INFORMATION ON THE 48" SII SEWER PLAN & PROFILE, SII SEWER CONNECTION STRUCTURE, SII SEWER INFLUENT FLOW METER VAULT, AND INFLUENT SEWER JUNCTION STRUCTURE. CONTRACTOR SHALL CONFIRM EXISTING CONDITIONS AND FIELD VERIFY ALL DETAILS.
3. REFER TO THE MWRP SOUTH IRVINE INTERCEPTOR SEWER MANHOLE ACCESS RECORD DRAWINGS, IRWD PROJECT NO. 07112 (2019) FOR AS-BUILT INFORMATION ON THE SII SEWER JETTING STATION VAULT. CONTRACTOR SHALL CONFIRM EXISTING CONDITIONS AND FIELD VERIFY ALL DETAILS.

CONSTRUCTION NOTES:

(20) CLEAN SOUTH IRVINE INTERCEPTOR (SII) SEWER AND PERFORM POST-CLEANING CCTV INSPECTION IN LIVE FLOW PER SPECIFICATION SECTION 02520.

TABLE 1: SEWER PIPELINE SEGMENTS FOR CLEANING

SEWER SEGMENT NO.	PIPE DIAMETER	LENGTH TO CLEAN	ESTIMATED DEBRIS VOLUME
#	(IN)	(LF)	CY
1	39	460	8
2	48	100	3
3	48	550	15
4	48	250	7
ESTIMATED TOTAL DEBRIS =			33



INFLUENT SEWER JUNCTION STRUCTURE
PHOTO 2
NTS

CITY OF IRVINE
PC#00802725-EMC
PERMIT#00802726-MCE

CODE 7437

SEWER SIPHON IMPROVEMENTS

FEBRUARY 2020

NO.	DATE	REVISIONS	APPROVED

WOODARD & CURRAN
24422 Avenida de la Carlota, Suite 180
Laguna Hills, CA 92653
949.420.5300 | www.woodardcurran.com

REGISTERED PROFESSIONAL ENGINEER JONATHAN T. CHASE No. 77953 Exp. 06-30-21 CIVIL STATE OF CALIFORNIA

GLENN E. HERMANSON	PROJECT ENGINEER R.C.E. 46659	02/06/2020 DATE
NATHAN T.L. CHASE	PROJECT MANAGER R.C.E. 77953	02/06/2020 DATE
MALCOLM A. CORTEZ	IRWD ENGINEERING MANAGER R.C.E. 52698	02/06/2020 DATE

Irvine Ranch WATER DISTRICT

IRVINE RANCH WATER DISTRICT

SEWER SIPHON IMPROVEMENTS

PROJECT NO. 07886

S2 SIPHON DOWNSTREAM TO MICHELSON WRP SEWER CLEANING PLAN

SHEET C-026

11 OF 43 SHEETS

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EXHIBIT "D"

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. 3
☐ Final

Project No. 7886

Project Title: Sewer Siphon Improvements

Date: 9/15/2021

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	$ ADDITIONS	$ DELETIONS	DAYS ±
CIPP Lining of 39-Inch South Irvine Interceptor The revised Substantial Completion date is November 26, 2021	$513,924.26		65
TOTAL	$ 513,924.26	$ -	65

DAYS ±

1. NET AMOUNT THIS CHANGE ORDER	=	$ 513,924.26	65
2. ORIGINAL CONTRACT AMOUNT	=	$ 8,355,349.67	371
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	$ 243,271.77	112
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	$ 8,598,621.44	483
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	$ 9,112,545.70	548

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

Five Hundred Thirteen Thousand Nine Hundred Twenty Four and 26/100 ---------- Dollars

9/15/2021 (Date) — Vido Artukovich & Son, Inc/Vidmar, Inc A JV (Contractor) — By: Vido Artukovich, Managing Partner

SIGNATURE	DATE	APPROVAL LEVEL REQUIRED
Alex Murphy (Digitally signed by Alex Murphy, DN: C=US, E=murphy@irwd.com, O=Irvine Ranch Water District, OU=Engineering Operations Support, CN=Alex Murphy, Date: 2021.09.15 12:54:28-07'00')		Department Director Approval Required ☐
IRWD Engineer or Consulting Engineer	Date	Executive Director Approval Required ☐
Malcolm A Cortez	6/15/21	General Manager Approval Required ☐
Engineering Manager	Date	Board Approval Required ☒
Executive Director of Technical Services	Date	
General Manager	Date	619305 (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.

CCO No.3 Cost Breakdown

IRWD
Job Estimate Summary

Job: SII CIPP
Bid Date & Time:
Eng. Estimate

	Pipe size & Type: 39" CIPP							
	Lin. Ft. : 460 LF		Quant.	Unit	Extension	Markup		
	Contract Days:				(Total)	5%	15%	IRWD Comments
	CIPP	LS			$152,554.57	$7,627.73		removed insituform bond markup
	Aggregates (AC, CAB)	LS			$2,550.00		$382.50	corrected total to match aggregates tab total
	Grind & Cap	LS			$10,000.00	$500.00		
Sub	CKC Pump/Bypass Rental	LS			$80,893.13		$12,133.97	
	Fuel ^	Day	6	$1,200.00	$7,200.00		$1,080.00	
	Performace Pipe clean/dewater/cctv	LS			$16,875.00	$843.75		
	Traffic control	LS			$500.00		$75.00	
	Constr. Water - testing - meter	LS			$1,200.00		$180.00	
	Small tools	LS			$500.00		$75.00	
	SWPPP/BMP	LS			$500.00		$75.00	
	Disposal	LD	3	$400.00	$1,200.00		$180.00	
	Field office & yard rentals	MO	1	$1,000.00	$1,000.00		$150.00	
	Pre Video	LS			$0.00	$0.00		zeroed out because included in PPT quote
	Steel Plate Rental (Road Plates)	Mo	10	$170.00	$1,700.00		$255.00	
	Temp Steel Stoplog Plate/ Angle Iron/ bolts…	LS			$6,500.00		$975.00	
	Welder	Day	1	$1,200.00	$1,200.00	$60.00		
	Saw Cut	LS			$800.00	$40.00		
	Anglemyer Crane Rental (Set S2 D/S Lid)	LS			$10,000.00	$500.00		
	Equipment/ Fuel & maintenance	LS			$ 27,811.00		$4,171.65	corrected total to match equipment tab total before markup
	Truck Rental	Day	2	$880.00	$1,760.00		$264.00	
	Tool rental	LS			$1,000.00		$150.00	
	Job Cost Subtotal				$325,743.70			
	Direct Labor cost		$133,797.00		$133,797.00		$20,069.55	
	Add - Tax, Ins., Fringe @ (%)							
	Est. Job cost				$459,540.70			
	Add - Bonds @ (1 %)		$4,595.41					
	Overhead & profit ( )		$49,788.15				**$49,788.15**	
	TOTAL JOB ESTIMATE				$513,924.26			
	Est. per L.F. (M.L.)							

Irvine Ranch Water District (IRWD)
Sewer Siphon Improvement
Insituform Project number 200389
Change order for additional 39" Lining

Changes to the contract:

	Additional CIPP Lining, 39" downstream of S2 siphon:				
	Mob	EA	1	7,326	7,326.00
	CIPP Lining of 39" X 460 ft	LF	460	316	145,228.57
	Total Changes				152,554.57
	Bond 1.5%				2,288.32
	Total Changes including bond				154,842.89

seems reasonable per contract price for S4 42-inch

bond markup by GC not sub

25.00	**Mobilization and demobilization for S4 CIPP activities.**				
25.10	Mobilization and demobilization for S4 CCTV activities	LS	1	$ 8,000.00	$ 8,000.00
25.20	Mobilization and demobilization for S4 CIPP activities	LS	1	$ 37,000.00	$ 37,000.00
	Total for Bid Item No. 25				**$ 45,000.00**
26.00	**Provide and install CIPP lining of the S4 Siphon 42" barrel, including pre-CIPP installation cleaning, dewatering, and CCTV inspection and post-CIPP installation CCTV inspection.**				
26.10	Clean and dewater the S4 Siphon 42" barrel	LF	455	$ 65.00	$ 29,575.00
26.20	Provide and install CIPP lining of the S4 Siphon 42" barrel	LF	455	$ 395.00	$ 179,725.00
	Total for Bid Item No. 26				**$ 209,300.00**
27.00	**Provide and install CIPP lining of the S4 Siphon 24" barrel, including pre-CIPP installation cleaning,**				

S4 42-inch CIPP price

Material

	Quantity	Unit	Total
Hot Mix AC	20	$75.00	$1,500.00
CAB	35	$30.00	$1,050.00
Total			$2,550.00

Charles King Company
2841 Gardena Ave.
Signal Hill, CA 90755
562 426-2974
562 426-9714 FAX
Lic No. 738236 A (Exp. 7/31/22)
DIR # 1000001537

Date 7/30/21
Revised 8/31/21

Project: **Downstream S2 Siphon CIPP**
Owner: **IRWD**
Contractor: **Artukovich**
Bid Date: **na** Bid Time: **na**

Subject: **Provide 8.2MGD Bypass System with Standby**
Revised with Discharge to Junction Structure

Includes the following:

1 Provide 8.2MGD Bypass system, inlcuding 100% standby pumps and piping.
2 Mobilization/Demobilization of all bypass and support equipment.
3 Based on attached preliminary bypass plan.
4 Furnish diesel/sound attenuated standby pumps.
5 Rental includes all pipe, pumps, manifolds, valves, fittings, bends for complete system.
6 1 month minimum rental will apply. Rent begins after system is installed and ready for use.
7 PERP AQMD Permits
8 All scheduled maintenance to pumping equipment/bypass system.
9 Bid item 2 includes 1 non labor technician and 2 fusion machines to assist GC with installation/testing process.
10 Install is estimated at 10 days based on GC providing 2 operators/2 labors. Removal estimate 3 days.
11 Bid item 2 includes 9K reach lift to assist GC with installation. GC to provide backhoe or 2nd machine for efficient install.
12 No Hidden Charges. Includes all sales taxes and fees.
13 Optional real time monitoring system with call out autodialer.

Excludes the following:

1-1 Items not specifically listed above.
1-2 Permits or notifications.
1-3 Traffic Control.
1-4 Plugs or Stoplogs
1-5 Operation and monitoring of equipment.
1-6 Breakdown and removal of system.
1-7 Water meter and backflow device in vacinity of pumps for testing and flushing.
1-8 Access or right of way for access to suction/discharge points.
1-9 Any special bypass/spill response requirements to to working adjacent to waterway.
1-10 SWPPP plan or submittal, BMPs, Errosion Control.
1-11 Onsite labor.
1-12 Security, lighting, sanitation.
1-13 Secure Laydown area to be provided by GC.

BI #	Description	Unit	Est. Quan	Unit Cost	Subtotal
1	**Mobilization of Bypass**	**LS**	**1**	**13,800.00**	**13,800.00**
2	**Install Support (fusion tech/machine/tools)**	**LS**	**1**	**21,963.13**	**21,963.13**
3	**Bypass System Rental**	**Monthly**	**1**	**41,130.00**	**41,130.00**
~~4~~	~~Pump Watch Tech (to work with GC pump watch)~~	~~Hourly~~	~~48~~	~~135.00~~	~~6,480.00~~
5	**Optional Real Time Monitoring System w/ autodialer**	**LS**	**1**	**4,000.00**	**4,000.00**

Estimated Project Total: **87,373.13**
80893.13
Includes all sales taxes.

This proposal is based on the inclusions and exclusions above.
Thank you for the opportunity to submit this bid and please feel free to call the undersigned for further information.

Sincerely,

Steve Radaich

Labor Backup

Labor Cost Estimate

Contract Time:

	Mainline L.F._____			Cost Per	
	Est. L.F. / Day_____		No.	8 Hrs.	Total
	Est. M.L. Wkg. Days_____			Day	
Excavation:	Operators		1	$764.00	$764.00
	Oilers		1	$738.00	$738.00
	Teamsters				
	Laborers				
Pipelaying:	Operators				
	Oilers				
	Teamsters				
	Laborers				
Backfill & Temp:	Operators				
	Oilers				
	Teamsters		1	$601.00	$601.00
	Laborers		1	$589.00	$589.00
Misc. Labor:	Operators				
	Teamsters				
	Laborers (Flag)		1	$578.00	$578.00
Supervision:	Foreman		1	$833.00	$833.00
	** Total Labor Cost per Day:				
			6		$4,103.00
	Labor Recap:		Quant.	Unit	Total
	Build/Set Stoplog (6 men)		1	$4,103.00	$4,103.00
	Pothole (6 men)		1	$4,103.00	$4,103.00
	Dig ditch Driveway (6 men)		1	$4,103.00	$4,103.00
	Setup Bypass (6 men)		10	$4,103.00	$41,030.00
	Remove Bypass (6 men)		3	$4,103.00	$12,309.00
	Backfill/ Pave (6 men)		1	$4,103.00	$4,103.00
	Clean/Dewater/CCTV (2 men)		3	$1,411.00	$4,233.00
	CIPP (2 men)		3	$1,411.00	$4,233.00
	Pump Watch Clean/Dewater (2men)		3	$6,480.00	$19,440.00
	Pump Watch CIPP (2 men)		3	$6,480.00	$19,440.00
	Superintendent		20	$835.00	$16,700.00
	Total Direct Labor Cost:				$133,797.00
	Main Line L.F.				
	Labor per L.F.				

Equipment Backup

EQUIPMENT	Cal-Trans	HRS WK	HRS STBY	WK RATE	STBY RATE	TOTAL
Pickup 4x4 F250	34	160		$ 28.46	$ 14.23	$ 4,553.60
Pickup 4x4 F250	34			$ 28.46	$ 14.23	$ -
Pickup 4x4 F250	34			$ 28.46	$ 11.38	$ -
Pickup F550	34	160		$ 36.92	$ 18.46	$ 5,907.20
Pickup F550	34			$ 36.92	$ 18.46	$ -
Flatbed F650	34			$ 39.12	$ 19.56	$ -
Dump Truck F750	35			$ 50.64	$ 25.32	$ -
Water Truck 2000 gal	34/1	36		$ 45.23	$ 22.62	$ 1,628.28
Compressor	1	8		$ 18.17	$ 9.09	$ 145.36
JackHammer	1	8		$ 1.58	$ 0.79	$ 12.64
Rivet Buster	1			$ 0.88	$ 0.44	$ -
Clay Spade	1			$ 0.88	$ 0.44	$ -
Compaction-hand guided	4	8		$ 9.32	$ 4.66	$ 74.56
24" Compaction Wheel	25			$ 4.63	$ 2.32	$ -
25' Suction Hose	23			$ 0.13	$ 0.06	$ -
50' Discharge Hose	23			$ 0.10	$ 0.05	$ -
4" Trash Pump	23			$ 21.50	$ 10.75	$ -
2" Submersible Pump	23			$ 21.50	$ 10.75	$ -
CAT 302.5C	32			$ 27.42	$ 13.71	$ -
CAT 325BL	9			$ 118.14	$ 59.07	$ -
CAT 345BLII	9			$ 186.16	$ 93.08	$ -
CAT349E	9			$ 197.71	$ 98.86	$ -
CAT 375L	9			$ 313.21	$ 156.61	$ -
CAT 430F	17			$ 58.53	$ 29.27	$ -
CAT 450E	18	132		$ 77.84	$ 38.92	$ 10,274.88
CAT950H	18			$ 89.18	$ 44.59	$ -
Hyundai Loader	18			$ 93.25	$ 46.63	$ -
Asphalt Zipper	22			$ 312.30	$ 156.15	$ -
Bobcat S220	4	16		$ 28.66	$ 14.33	$ 458.56
Galion Crane	15	88		$ 47.26	$ 23.63	$ 4,158.88
Dynapac Roller	26	8		$ 47.99	$ 24.00	$ 383.92
CAT 224E	25			$ 34.72	$ 17.36	$ -
Zieman	33			$ 0.87	$ 0.44	$ -

Equipment Backup

Cut Off Saw				$ 3.06	$ 1.53	$	-
Generaltor Multiquip	003-008		8	$ 3.63	$ 1.82	$	29.04
Generator Mag 35K	025-050			$ 13.00	$ 6.50	$	-
Blower 10"			8	$ 4.23	$ 2.12	$	33.84
Light Tower	4lights			$ 8.04	$ 4.02	$	-
Lincoln Welder				$ 9.86	$ 4.93	$	-
Bit Tank			8	$ 6.83	$ 3.42	$	54.64
Test Pump			8	$ 3.30	$ 1.65	$	26.40
Vibro Plate	4.0		8	$ 3.78	$ 1.89	$	30.24
Wacker Walk Behind	26			$ 19.49	$ 9.75	$	-
Gas Detector			8	$ 4.87	$ 2.44	$	38.96
Tripod/Winch/h/Fall Protection				$ 3.75	$ 1.88	$	-
Arrowboard	32			$ 3.18	$ 1.59	$	-
Arrowboard	32			$ 3.18	$ 1.59	$	-
Arrowboard	32			$ 3.18	$ 1.59	$	-
Message Board	32			$ 11.87	$ 5.94	$	-
Message Board	32			$ 11.87	$ 5.94	$	-
H Beams	21			$ 0.04	$ 0.02	$	-
Plates	21	per day		$ 1.42	$ 0.71	$	-
Fence Panels		per day		$ 2.00	$ 1.00	$	-
Plywood		per day		$ 1.50	$ 0.75	$	-
Delineators	32	per day		$ 0.26	$ 0.13	$	-
Barricades/Sign	32			$ 1.16	$ 0.58	$	-
Flag Stand	32	per day		$ 2.97	$ 1.49	$	-
Cones	32	per day		$ 0.16	$ 0.08	$	-
K-Rails	32	per day		$ 0.48	$ 0.24	$	-
K-Rails filled	32	per day		$ 1.23	$ 0.62	$	-
					Add on 15%	$	4,171.65
					Total Equipment Cost	$	31,982.65

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EQUIPMENT & SUPPLY CO.

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800-992-0100 STEMARINC.COM LOS ANGELES, CA

CUSTOMER	JOB LOCATION	TICKET #
ARTUKOVICH AND SONS, VIDO 11155 RUSH STREET SO. EL MONTE CA 91733.3585	IRVINE IRVINE CA	BID# 66380

ACCOUNT #	ORIGINAL TICKET #	SHIPPED VIA
101028		

CONTACT:	PO/JOB #	ORDERED BY
P		ANTHONY

	DATE	TIME
OUT	08/26/21	3:21 PM KBM
	09/23/21	3:21 PM KBM

*****BID*****

DEL:N P/U:N

QTY	ITEM	DESCRIPTION		EXT AMT	NET AMT
	PURCHASED ITEMS:				
1	NONINVENTORY	A36 - 1"X72"X120" STEEL PL	3545.00 ea	3545.00	3545.00
1	NONINVENTORY	A36 - 1"X96"X120" STEEL PL	4726.50 ea	4726.50	4726.50
1	DEL	DELIVERY TO	150.00 ea	150.00	150.00

Rental Text : PRICING IS GOOD FOR 2 DAYS.
TURNAROUND TIME: 6-8 BUSINESS DAYS

5'X6'=+- 2000

----- Payments ------

$6500 for steel and angle iron

This is a contract. By signing this contract, I agree that all rental returns are subject to final inspection. Charges for damaged equipment may be billed on a separate invoice.
IF I DO NOT UNDERSTAND OR FORGET THE INSTRUCTIONS I HAVE BEEN GIVEN, OR IF THE EQUIPMENT FAILS TO FUNCTION PROPERLY, I WILL NOT ATTEMPT TO OPERATE OR REPAIR IT. I WILL DISCONTINUE USE AND NOTIFY RENTAL CENTER WITHIN 30 MINUTES OF OCCURANCE (OTHERWISE NO REFUNDS OR ALLOWANCES WILL BE MADE).
THE BACK OF THIS CONTRACT CONTAINS IMPORTANT TERMS AND CONDITIONS INCLUDING LESSOR'S DISCLAIMER FROM ALL LIABILITY FOR INJURY OR DAMAGES AND DETAILS OF CUSTOMER OBLIGATIONS. I ACKNOWLEDGE THAT A LARGER FONT COPY OF THE TERMS AND CONDITIONS IS AVAILABLE UPON REQUEST.
I have had the opportunity to read, and have read, discussed and understand the terms and conditions of the Agreement and agree to be bound thereto.
SIGNING PERSONALLY AND FOR THE CUSTOMER:

X _____

RENT	0.00
SALES	8271.50
OTHER	150.00
ENV FEES	0.00
Addl TAX	0.00
SALES TAX	785.79
TOTAL DUE	9207.29
TOTAL PAID	0.00
EST AMT DUE	9207.29

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September 22, 2021
Prepared by: A. Stayton
Submitted by: R. Mykitta / W. Chambers
Approved by: Paul A. Cook

ENGINEERING & OPERATIONS COMMITTEE

ORANGE COUNTY OPERATIONAL AREA AGREEMENT

SUMMARY:

The Orange County Operational Area (OA) represents all local government jurisdictions and special districts within Orange County in planning, coordination, response, recovery and mitigation efforts resulting from natural, human-caused, or war-caused emergencies. The OA is staffed by the Orange County Emergency Management Division of the Orange County Sheriff-Coroner's Department. The County developed and executed an agreement with each jurisdiction in the OA in 1995, creating a formal understanding of cooperation and responsibilities. This agreement has been updated and must be approved by all jurisdictions to confirm the partnership. Staff recommends the Board authorize the General Manager to execute the Orange County Operational Area Agreement and any subsequent OA agreement updates.

BACKGROUND:

The OA Agreement formally organizes the County of Orange and its political subdivisions as the Orange County Operational Area for purposes of emergency management coordination as required by the State of California's Standardized Emergency Management System. First approved by the OA in 1995, the document outlines framework for inter-jurisdictional cooperation and the responsibilities of the County of Orange and its subdivisions. This document has served as the foundation for nearly 25 years of regional emergency management collaboration. IRWD signed the original agreement in 1995.

In 2017, the Orange County Sheriff's Department Emergency Management Division began a process to revise the Operational Area Agreement to account for changes in emergency operations plans, incorporate advances and new perspectives in the emergency management discipline, and ease administration of Operational Area functions. Following an extensive review and revision process in 2018 and 2019, the updated Operational Area Agreement was approved by the Orange County Board of Supervisors on March 24, 2020. The Agreement requires approval by each jurisdiction in the Orange County Operational Area.

Agreement Updates:

The new OA Agreement has significant structural and content changes from the original document approved by the IRWD Board in 1995. Agreement sections were reorganized to make the document easier to understand and reference. The document was also reformatted to more closely align with the Emergency Management Division's plan document style guide. The updated agreement is provided as Exhibit "A".

IRWD expectations and responsibilities are unchanged, although clarified. The Mutual Aid Agreement (where IRWD participates) has been moved to the OA Emergency Operations Plan to ensure its regular review and update. Staff recommends that the Board approve the OA agreement and any subsequent updates.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

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

RECOMMENDATION:

That the Board authorize the General Manager to execute the Orange County Operational Area Agreement and any subsequent updates.

LIST OF EXHIBITS:

Exhibit "A" – Orange County Operational Area Agreement

Orange County Operational Area Agreement

of the County of Orange and Political Subdivisions

January 2020

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Table of Contents

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I. Recitals

OPERATIONAL AREA AGREEMENT
OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

THIS AGREEMENT is entered into this 19th day of May, 2020 which date is enumerated for purpose of reference only, by and between the County of Orange, hereinafter referred to as County, and all other Political Subdivisions within Orange County, as defined in Government Code Section 8557 (b) of the California Emergency Services Act, hereinafter referred to as Subdivisions, collectively hereafter referred to as the Parties.

W I T N E S S E T H:

WHEREAS, it is the intent of the Parties hereto to coordinate prevention, preparedness, response, recovery and mitigation efforts for the safety of persons and property from the effects of natural, human-caused, or war-caused disasters, hereinafter referred to as emergencies, as required by the California Emergency Services Act and the Standardized Emergency Management System (SEMS) Regulations, Title 19 California Code of Regulations Sections 2400 et seq.; and

WHEREAS, the purpose of an Operational Area, as defined in Government Code Section 8605 and Title 19 California Code of Regulations Sections 2403 and 2409, is to manage and coordinate information, resources, and priorities among the local governments within the geographic area of the County, and to serve as the coordination and communication link between the local government level and the regional level of the State; and to use multi-agency or inter-agency coordination to facilitate decisions for overall operational area level emergency response activities; and

WHEREAS, this Agreement is intended to provide for the continued management of the Operational Area; cooperative and mutual handling of duties and responsibilities of the Operational Area Lead Agency; coordination of the emergency functions of the Operational Area with all other public agencies, corporations, organizations, and affected private persons within the Operational Area; and the preparation and implementation of plans for the protection of persons and property within the Operational Area in the event of an emergency; and

WHEREAS, in accordance with the requirements of California laws and regulations the County previously adopted Orange County Codified Ordinances, section 3-1-5 and Resolutions 81-1104 and 95-870 and intends to adopt an updated resolution for this Agreement to support emergency management planning and coordination of all political subdivisions within the Orange County geographic area as required by State law; and

WHEREAS, Orange County Board of Supervisors Resolution 05-144 adopted the National Incident Management System (NIMS) for the Orange County Operational Area which sets many of the same objectives as the Standardized Emergency Management System;

NOW THEREFORE, the Parties hereto agree as follows:

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Section One. Operational Area Establishment

1.1 Operational Area Established

The entire geographic area of Orange County constitutes an Operational Area (OA) for the purposes of coordinating the prevention, preparedness, response, recovery and mitigation efforts for the safety of persons and property from the effects of natural, human-caused or war caused disasters, hereinafter referred to as emergencies. All local governments should cooperate in organizing an effective OA, but the OA authority and responsibility is not affected by the non-participation of any local government. The County of Orange shall be the Operational Area Lead Agency as specified in Title 19 California Code of Regulations Section 2409(d).

1.2 Local Authority

In the event of an actual or threatened emergency, each jurisdiction shall retain the authority provided for by law respecting its jurisdiction. No body created by this Agreement can bind Parties to legal or financial obligations.

Section Two. Operational Area Council, Executive Board and Subcommittees

2.1 Operational Area Signatory Council

All political subdivisions within the geographic area of Orange County, California are organized into the OA, regardless of signatory status.[1] The OA Signatory Council, hereinafter referred to as the Council, is hereby created to include the signature Parties to this Agreement. The Parties acknowledge that the Council is not a separate legal entity and that it is not their intention to form a joint powers authority.

2.1.1 Membership

By approval and execution of this Agreement, all Subdivisions in the County of Orange, including cities, school districts, community college districts, special districts, joint powers authorities, and the County, are members of the Council. Each signature party shall designate annually in writing to the Orange County Sheriff's Department Emergency Management Division, hereinafter referred to as county emergency management, one primary and one alternate representative of its governing body to serve on the Council.

2.1.2 Responsibilities

It is not the intent of this Agreement that there be regular meetings of the Council. In routine matters and day-to-day decision-making, the OA Executive Board (as described in Section 2.2) will represent the interests of the OA. However, the Council shall have authority over the major policy issues of the OA, as determined by the Executive Board, including adoption of any amendments to this Agreement or adoption of any fees to support OA coordination activities. Council members will receive information regarding major OA policy issues from the Executive Board, when necessary, for consideration at their respective governing body meetings. Furthermore, whenever a majority of the Council determine that an issue should be brought before the Council, it shall be done irrespective of whether the Executive Board has identified it as a major policy issue.

2.1.3 Representatives Meeting

The representatives of the Council may meet as necessary as determined by the Executive Board or as requested by a majority of the members of the Council. Should it be necessary for the Council to meet, each member of the Council shall be entitled to one vote. The representatives present shall, by majority vote, select a Chair Pro Tem for that meeting from among the representatives present. A majority of all Council member representatives shall constitute a quorum for the transaction of business relating to the OA. Unless otherwise provided herein, a vote of the majority of those present and qualified to vote shall be sufficient for the adoption of any motion, resolution, or order and to take any other action deemed appropriate to further the

[1] Title 19 California Code of Regulations Section 2409

objectives of the OA. Voting will be conducted in accordance with Robert's Rules of Order. All meetings will be noticed and conducted in accordance with the Brown Act.

2.2 Operational Area Executive Board

2.2.1 Membership

The Council shall have an OA Executive Board, hereinafter referred to as the Executive Board, consisting of sixteen voting members. The Executive Board includes representatives from the County Board of Supervisors, public safety agencies and Mutual Aid Coordinators, key County departments, and OA jurisdictions. Individuals will only serve as a voting member in one role for any single meeting and for purposes of determining quorum.

Executive Board Members

1. The Chair of the Orange County Board of Supervisors
2. The County Executive Officer
3. The OA Law Enforcement Mutual Aid Coordinator, the Orange County Sheriff
4. The OA Fire & Rescue Mutual Aid Coordinator, as selected by the Orange County Fire Chiefs Association
5. The OA Public Works Mutual Aid Coordinator, the Orange County Public Works Director
6. The OA Health Care Mutual Aid Coordinator, the Orange County Health Care Agency Director
7. The OA Water/Wastewater Mutual Aid Coordinator
8. The Orange County Social Services Agency Director
9. A representative selected jointly from the Orange County City Managers Association
10. A representative from the Orange County Chiefs of Police and Sheriff's Association
11. A representative from the Orange County Fire Chiefs Association
12. A representative from the Orange County City Engineers and Public Works Directors Association
13. A representative from Independent Special Districts of Orange County
14. The Orange County Superintendent of Schools, representing Orange County K-12 School Districts
15. A representative selected jointly from Orange County Community College Districts
16. The Orange County Transportation Authority Chief Executive Officer

Terms, Alternates and Voting

Executive Board members subject to being "selected," which are enumerated above as numbers 4, 9-13 and 15, shall be appointed by their respective agency, jurisdiction or organizations annually and shall serve at the discretion of their organization for one year. Each jurisdiction, agency or organization shall also designate three alternate representatives. Individuals appointed to the Executive Board can be the same or different than those identified in Section 2.1.1 as a

member jurisdiction's Council primary or alternate representative. In no circumstances shall one individual occupy more than one Executive Board position or count as more than one member for purposes of determining quorum.

Each Executive Board member, or alternate in the absence of the voting member for whom he/she is the designated alternate, shall be entitled to one vote. A majority of the Executive Board (9 members) shall constitute a quorum for the transaction of business relating to the OA. Unless otherwise provided herein, a vote of the majority of those present and qualified to vote shall be sufficient for the adoption of any motion, resolution or order and to take any other action deemed appropriate to achieve the objectives of the OA. Voting will be conducted in accordance with Robert's Rules of Order. The OA Executive Board is a Brown Act meeting and is noticed and conducted as such.

Operational Area Executive Board Chair and Vice-Chair

The Chair and Vice Chair shall be elected annually by the Executive Board. In the absence of both the Chair and the Vice Chair, the members of the Executive Board present shall, by majority vote, select one of the members present to act as Chair Pro Tem.

Meetings

The Executive Board shall meet quarterly or as designated by the Executive Board Chair.

2.2.2 Responsibilities

The Executive Board shall have oversight of the actions of the OA Manager (as described in Section 4.2) in the daily operations and administration of the OA. The Executive Board's oversight authority shall include directing the development, establishment, and implementation of the policies of the OA, and keeping the Council informed of its actions. The Executive Board shall determine which major policy issues of the OA require Council approval and shall seek such approval.

Policy and Operational Area Emergency Operations Plan

The Executive Board will establish OA policy, review and approve the OA Emergency Operations Plan (EOP) and Annexes, and maintain these documents as required by SEMS and NIMS.

Mutual Aid Plans and Agreements

The Executive Board shall review proposals of emergency mutual aid plans and agreements and make recommendations on endorsement of such proposals to governing boards of Subdivisions.

Laws, Rules, Legislation and Regulation

The Executive Board shall review and may recommend for action or adoption by Subdivisions, emergency and mutual aid plans, agreements, ordinances, resolutions, and any rules and regulations necessary to implement such plans and agreements. The Executive Board may also

study, review, and make recommendations on State and Federal legislation and policy as appropriate, and on matters referred to the Executive Board in writing by Council members.

Operational Area Executive Board Emergency Advisory Capacity

The Executive Board may be convened by the Chair or the OA Coordinator, as described in Section 4.1, to review a potential or actual emergency situation and make and receive appropriate recommendations from the OA Coordinator and Council members to facilitate a coordinated OA response.

2.2.3 Subcommittees and Working Groups

The Executive Board may establish standing and ad hoc subcommittees and working groups to complete its work and to ensure communication and coordination between all interested persons or groups. Subcommittees and working groups shall elect a Chairperson and provide appropriate staff support from their participants. The OA Manager shall provide coordination between these subcommittees and the Executive Board only.

2.3 Orange County Emergency Management Organization

There is hereby established a standing subcommittee to the Executive Board, the Orange County Emergency Management Organization, hereinafter referred to as OCEMO. OCEMO is a collaboration and coordination body tasked with developing the plans, procedures, and associated documents necessary for a robust Operational Area emergency management program. The County and all Subdivisions shall be expected to participate in OCEMO, to the maximum extent possible, with the understanding that the cooperative maintenance of the OA EOP, policies and procedures, training and exercises is necessary to ensure that the OA EOP, policies, procedures, training and exercises meet the emergency needs of the Subdivisions, County, and OA.

2.3.1 Membership

The entire OCEMO body ("Members at Large") consists of three groups of representatives involved in some capacity of an emergency management function, as defined below and in the OCEMO Bylaws.

Signatory Members

Staff members with primary emergency management responsibilities from signatory agencies to this agreement are considered Signatory Members. Each signatory jurisdiction shall identify a primary and secondary representative who shall have the right to vote on behalf of the jurisdiction. To ensure compliance with the Brown Act, no more than eight OCEMO members who are also voting members of the OA Executive Board shall be present at any OCEMO meeting.

Collaborative Members

Representatives of other government, non-profit, or private agencies that are not signatories to this agreement and are not currently represented by a Signatory or Collaborative Member, but are considered to have a significant role in OA planning, response and recovery processes are considered Collaborative Members. Collaborative members must be approved by Signatory Members and have limited voting rights as outlined in the OCEMO Bylaws.

Associate Members

Other representatives of organizations interested in participating in OCEMO activities, and who may provide input into the OA EOP, annexes, and supporting Standard Operating Procedures (SOPs) are considered Associate Members. Associate members have no voting rights.

2.3.2 Responsibilities

As a subcommittee to the Executive Board, the responsibilities of OCEMO are to meet the following objectives as they relate to disaster and emergency prevention, preparedness, response, recovery and mitigation within the OA:

Operational Area Plans, Annexes, and Standard Operating Procedures

- Participate in revisions and updates of the OA EOP and associated Annexes and SOPs developed and maintained by county emergency management staff as described in Section 3.2. Once completed, plans and the associated Annexes reviewed by OCEMO shall be forwarded to the OA Executive Board for approval.

Training and Exercises

- Coordinate training and exercises for the OA, to include after action discussions, lessons learned and professional development.

Public Education and Outreach

- Coordinate the development of public education and whole community emergency preparedness programs.

Legislation

- Review and report on legislation impacting emergency plans and programs, and propose concepts for new legislation for consideration by the Executive Board.

Other

- Other duties as assigned by the Executive Board.

2.3.3 OCEMO Leadership

The OCEMO Leadership shall consist of the OCEMO Chairperson, First Vice Chairperson and Second Vice Chairperson, elected in accord with the OCEMO Bylaws, the OA Manager and the

immediate past Chairperson. Any Signatory or Collaborative Member shall be eligible to serve as a candidate for OCEMO Chairperson, First Vice Chairperson, and Second Vice Chairperson as outlined in the OCEMO Bylaws.

2.3.4 Organization and Procedures

OCEMO will maintain and approve Bylaws. The Bylaws will define, at a minimum, OCEMO purpose, membership, leadership duties, elections, voting procedures, official meeting frequency, and the process for amending the Bylaws. The Bylaws shall in all instances be consistent with this Agreement.

OCEMO will review the Bylaws, as needed. Any amendments to the Bylaws will be approved by OCEMO Signatory Members, as detailed in the OCEMO Bylaws.

If OCEMO identifies the need for additional Subcommittees or working groups, OCEMO members participating in that subcommittee or working group shall provide staff support.

2.3.5 Administrative Support

The County shall provide administrative support to OCEMO as follows:

- Attend all OCEMO and OCEMO Leadership meetings
- Maintain a contact list of the primary and alternate representatives of each OCEMO member
- Organize and manage OCEMO Leadership elections and votes on other issues
- Notify members of their appointment to office or subcommittees
- Create and distribute OCEMO meeting agendas
- Take and transmit OCEMO meeting minutes
- Maintain official OCEMO records, including agendas and minutes, in compliance with County record retention policies.

Section Three. Responsibilities

3.1 Operational Area Jurisdiction Responsibilities

Subdivisions of the OA have the responsibilities as set forth below:

Participation

Actively participate as a member jurisdiction in the Council, Executive Board (if designated), and subcommittees such as OCEMO.

Cooperation

Promote cooperation among all Subdivisions in order to improve the overall OA emergency management program.

Emergency Management Program

Develop an emergency management program to provide for the needs of the Subdivision, which shall be complementary to and compatible and coordinated with the needs of the OA in the event of an emergency.

Emergency Plan and Organization

Develop and maintain an EOP and organization to provide for the emergency needs of the Subdivision according to SEMS Regulations and NIMS, and coordinate with and, where able, support other Subdivisions, the County, and the OA Emergency Operations Center (EOC).

Procedures

Develop Subdivision procedures that outline the steps necessary to satisfy responsibilities as a member jurisdiction of the OA.

Training and Exercises

Maintain a thorough knowledge of the Parties' and OA's EOPs and ensure that the supporting services and key personnel are properly trained and organized to meet all of their responsibilities in the event of an emergency. Conduct regular exercises and participate in regional exercises, when offered.

Emergency Assistance

Parties shall offer assistance to other jurisdictions and secondary and relief support to the OA within the limits of capabilities and according to applicable mutual aid agreements. Parties should participate in mutual aid agreements wherever possible.

Resource Lists

Maintain current resource listings of staff, facilities, equipment and supplies available in the jurisdiction for use in the event of an emergency.

Critical Points of Contact

Identify 24-hour or other critical points-of-contact for the Subdivision that may be used by the OA EOC during emergency operations. If the points-of-contact are individuals, identify a primary and at least three alternates for each. Inform county emergency management staff when critical points-of-contact change or are updated.

Disaster Recovery and Financial Reimbursement

Subdivisions have ultimate responsibility for their own recovery program and will work directly with FEMA and Cal OES throughout the cost recovery process. Each Subdivision is individually responsible for developing, submitting, and receiving their own emergency aid, loans or grants from any source including local, state, and federal governments. Each is individually responsible for the timeliness, accuracy, and compliance of its own expenditures submitted for reimbursement through such mechanisms.

3.2 County-Specific Responsibilities

The County acts as the OA Lead Agency. The OA Lead Agency has the following responsibilities to the OA in addition to those responsibilities specified under Section 3.1 of this Agreement:

24-Hour Contact Point

The County will serve as the 24-hour contact point for the OA and act as lead in activating the OA EOC, hereinafter referred to as OA EOC.

Operational Area Emergency Operations Center

The County EOC and Alternate EOC (as designated) shall serve as the OA EOC. The OA EOC shall exist as a dedicated essential facility and be capable of serving as the central point for:

- coordinating information and resources with OA subdivisions
- coordinating all levels of government as a component of Orange County's Multiagency Coordination System (MACS)
- coordinating with other OAs
- reporting information to and coordinating with the California Office of Emergency Services (Cal OES) Southern Region EOC

County emergency management staff shall be responsible for ensuring the OA EOC is maintained in a state of constant readiness, in accord with the FEMA Emergency Operations Center Assessment Checklist and ASTM E2668 – Standard Guide for Emergency Operations Center Development, or subsequent standards if revised.

Initial EOC Activation Staffing

The County shall provide initial OA EOC activation staff. Subdivisions with available resources may provide secondary and relief OA EOC staffing.

Disaster Recovery and Financial Reimbursement

The County shall be responsible for coordinating the formal recovery process through Cal OES and FEMA and will assist with:

- Coordinating initial OA disaster recovery
- Scheduling damage assessment site visits
- Other duties as outlined in the Recovery Annex to the OA EOP

Operational Area Emergency Operations Plan and Annexes

County emergency management staff shall be responsible for coordinating with the Orange County Emergency Management Organization to maintain and revise the OA EOP, annexes and SOPs as directed by the Executive Board.

Operational Area Executive Board Support

County emergency management staff shall provide support to the Executive Board for agendas and minutes for meetings and coordinating follow-up only.

Subcommittee and Working Group Support

County emergency management staff shall provide support to Executive Board subcommittees and working groups.

Section Four. Operational Area Coordinator and Operational Area Manager

4.1 Operational Area Coordinator

By this Agreement, the Council creates and recognizes the position of an OA Coordinator, hereinafter referred to as the Coordinator. During an emergency the OA Coordinator position will be filled by the Orange County Director of Emergency Services, as specified by Section 3-1-6 of the Orange County Code of Ordinances and County Board of Supervisors Resolution 12-036, as presently existing or as hereafter amended.

4.1.1 Powers and Duties

The Coordinator shall direct and coordinate the OA during times of emergency. In addition to his/her responsibilities as Director of Emergency Services, the Coordinator shall have the additional duties and powers, as described below and in the OA EOP:

Direction and Coordination

Serve as key decision-maker in the OA EOC, providing direction and coordination necessary to accomplish the purposes of this Agreement and responsibilities of the OA Lead as specified in Title 19 California Code of Regulations Section 2409(e).

Operational Area Representative

Represent the OA in all dealings with the public or private agencies on matters pertaining to emergencies as defined in Section 3-1-2 of the Orange County Code of Ordinances.

4.2 Operational Area Manager

By this Agreement, the Council creates and recognizes the position of an OA Manager. The OA Manager shall be the County Emergency Manager as specified in Section 3-1-6 of the Orange County Code of Ordinances and County Board of Supervisors Resolution 12-036, as presently existing or as hereafter amended.

4.2.1 Powers and Duties

The OA Manager shall have the following powers and duties:

Administration of Operational Area Agreement

On a day-to-day basis, ensure County-specific responsibilities detailed in Section 3.2 are met.

Staff to the Operational Area Executive Board

Serve as staff to the Executive Board, maintain close liaison with the Executive Board, and coordinate all activities of assigned OA staff with the Executive Board.

Daily Coordination and Assistance

Direct the daily coordination and cooperation between the county emergency management staff, Subdivisions, and Executive Board Subcommittees, including OCEMO. Resolve questions of authority and responsibility that may arise between them, and work closely with and assist the Executive Board, as required.

Notification of Emergency Operations Center Activation

Notify the Board of Supervisors, the Executive Board, and OCEMO of an OA EOC activation as soon as practical, and keep the Executive Board and Board of Supervisors informed on all aspects of a current emergency situation as soon as information becomes available.

OCEMO Support

Serve on OCEMO Leadership. Provide support to OCEMO for agendas, minutes and administrative support only. Staff support to OCEMO subcommittees shall be provided by OCEMO members.

Budget and Staffing

Develop an annual operating budget and staffing recommendations, and monitor the expenditures at the direction of the Executive Board.

After Action Reports

Coordinate with OCEMO for the development of after action reports for the Executive Board following activations of the OA EOC.

Resource Coordination

Act as the coordination point between Subdivisions and the Cal OES on a day-to-day basis for Emergency Management Mutual Aid (EMMA) resource requests, in accordance with the State of California Emergency Management Mutual Aid Plan. The OA Manager may also coordinate other OA mutual aid requests, as appropriate.

Section Five. Operational Area Response Systems

5.1 Operational Area Emergency Operations Plan

Under the direction of the Executive Board, county emergency management staff shall be responsible for maintaining the OA EOP, which shall provide for the effective mobilization of all OA resources, both public and private, to meet any condition constituting an emergency; and shall provide for the organization, powers and duties, and staff of the OA emergency response organization. This responsibility is inclusive of the EOP and any associated Annexes and SOPs.

5.1.1 Compliance

The OA Emergency Operations Plan shall comply with applicable local, state and federal planning criteria, including NIMS and SEMS.

5.1.2 Functional Assignments

The OA EOP shall include the functions assigned to the mutual aid organizations, County agencies/departments and Subdivisions. It shall be the responsibility of agency/department heads and Subdivisions to appoint staff who shall report to the OA EOC and carry out the assigned duties as appropriate.

5.1.3 Approval

Updates and revisions to the OA EOP and annexes will be effective on approval by the Executive Board. SOPs and other support documents may be updated on an ongoing basis by county emergency management staff as long as changes are consistent with approved plans and annexes.

5.2 Operational Area Emergency Operations Center

5.2.1 Location

The primary and dedicated County EOC located at 2644 Santiago Canyon Rd., Silverado, California, or alternate as designated, shall serve as the OA EOC. Communication connection to the OA EOC shall be the responsibility of each Subdivision and Mutual Aid Coordinator or their representative.

5.2.2 Required Activation

Activation of the OA EOC is required under the conditions defined by SEMS, Title 19 California Code of Regulations Section 2409(f), the Orange County OA EOP and associated Annexes.

5.2.3 Staff for the Operational Area Emergency Operations Center

The County shall provide initial OA EOC activation staff. Subdivisions with available resources shall provide secondary and relief OA EOC staffing. Emergency management or other mutual aid shall be used to staff the OA EOC as necessary. The County declares its willingness to provide a staff member to an impacted Subdivision's EOC or Incident Command Post to act as an OA coordination point, if desired by the Subdivision and as personnel availability and safety concerns allow.

Section Six. Operational Area Finance

6.1 Operational Area Expenses and Revenues

Operational Area Administrative Expenses

This Agreement recognizes that there are day-to-day costs associated with OA administration and emergency management activities; these costs are separate from County-specific emergency management activities. The County shall provide administrative staffing for the OA to carry out the duties as delineated in Section 3.2 and Section 4 of this Agreement; however, the County shall not be solely responsible for the costs of administering the OA.

The County Board of Supervisors has the over-arching authority and responsibility to approve the county emergency management budget that supports both County and OA emergency management activities.

To offset costs of the OA, the Executive Board shall be responsible for the acquisition and distribution of federal, state, and business or private foundation emergency management grant funds. For emergency management grant funds made available to the OA for distribution among the Subdivisions, the Executive Board will review and approve proposed funding allocation methods. Their review will take into consideration recommendations from OCEMO, acting in their role as subcommittee to the Executive Board. To offset administrative costs, a percentage of such grants may be allotted to the OA before apportionment among the subdivisions. If funding becomes available with a short application period that does not allow for OCEMO, Executive Board, and County Board of Supervisors pre-approval, then approval will be sought retroactively through the ratification process set forth by the County Board of Supervisors.

The County or any Subdivision may fund through general or special funds any services, supplies, or programs that they separately or jointly determine are necessary to comply with laws or regulations, or that serve the purposes of emergency prevention, preparedness, response, recovery and mitigation on an OA level.

Costs of Operational Area during Emergency Response and Recovery

During emergencies, all OA jurisdictions shall be expected to participate to the maximum extent possible, according to mutual aid and other agreements, with the understanding that during an emergency, the priorities are life safety, property, and the environment (in that order), regardless of which jurisdiction is impacted. This Agreement incorporates by reference the reimbursement concepts of the Emergency Management Assistance Compact, the California Disaster and Civil Defense Master Mutual Aid Agreement, and the State of California Emergency Management Mutual Aid Plan. Expenditures made in connection with such emergency activities required by this Agreement, the California Emergency Services Act and/or SEMS, including mutual aid activities,

shall be deemed conclusively to be for the direct protection and benefit of the persons and property in the OA.

In deciding the level of OA response and resource commitment during emergencies, the County and Subdivisions agree to operate according to the EOP and supporting documents defined in Section 5.1 of this Agreement.

Financial Reimbursement and Recovery Following Emergencies

The County and each Subdivision are each individually responsible for developing, submitting, and receiving their own emergency aid, loans or grants from any source including local, state, and federal governments. Each is individually responsible for the timeliness, accuracy, and compliance of its own expenditures submitted for reimbursement through such mechanisms.

Section Seven. Operational Area Agreement Administration

7.1 Existing Agreements

Nothing contained in this Agreement shall be construed as superseding or modifying any existing agreements, including mutual aid agreements, except for superseding the existing OPERATIONAL AREA AGREEMENT OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS dated October 3, 1995, and addenda; and nothing herein shall be construed as preventing any Party from entering into or modifying mutual aid or other emergency response agreements.

7.2 Effective Date

This Agreement shall become effective six months after approval and execution by the County Board of Supervisors and at least one Subdivision. Any Subdivision in Orange County may become a Party hereto by executing this Agreement. Notice shall be provided to the County upon a Subdivision's execution of this Agreement.

7.3 Withdrawal

Any Party may withdraw from this Agreement by providing written notice to county emergency management staff. Said notice shall be given 30 days before withdrawal from this Agreement.

7.4 Indemnification

Each Party shall defend, indemnify, and hold harmless the other Parties, and their officers, agents, employees and representatives from any and all losses, liability, damages, claims, suits, actions, administrative proceedings, demands, and litigation, and all expenses and costs relating directly to the negligent or otherwise wrongful acts or omissions of the indemnitor, its officers, agents, employees, or representatives arising out of or incidental to performance under this Agreement. No Party assumes liability for the acts or omissions of persons other than that Party's respective officers, agents, employees or representatives.

7.5 Counterparts

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, and all of which shall constitute one and the same instrument.

7.6 Interpretation

Save to the extent that the context or the express provisions of this Agreement otherwise require:

- Headings and sub-headings are for ease of reference only and shall not be taken into consideration in the interpretation or construction of this Agreement;
- All references to Parts, Sections, and Paragraphs are references to Parts, Sections and Paragraphs contained herein;

- All references to any ordinance, resolution, law, regulation or guidance shall include references to any ordinance, resolution, law, regulation or guidance which amends, extends, consolidates or replaces the same or which has been amended, extended, consolidated, supplemented, substituted, novated, replaced, or assigned by the same and shall include, without limitation, any instrument, proclamation, bylaw, directive, decision, regulation, rule, order, notice, codes of practice, code of conduct, rule of court, instrument or delegated or other subordinate legislation thereto;
- The words "herein", "hereto" and "hereunder" refer to this Agreement as a whole and not to the particular Section, or Paragraph in which such word may be used;
- Any reference to a public organization or representative shall be deemed to include a reference to any successor to such public organization or representative or any organization or entity or representative which has taken over the functions or responsibilities of such public organization or representative.

7.7 Ambiguities

In the case of any ambiguity or discrepancy:

- Between the provisions in this Agreement and the provisions of any underlying Executive Order, law, or regulation, the provisions of underlying Executive Order, law, or regulations will be incorporated by approval of the Executive Board and written notice shall be provided to all Parties.
- Between the provisions in this Agreement and the provisions of any underlying mutual aid agreement or EOP, the provisions of this Agreement shall prevail until such time as the OA Executive Board considers the matter and notice of proposed resolution to such issues are provided to all Parties.

7.8 Amendment

This Agreement may not be amended or modified except in a writing executed by a majority of all signature Parties as defined by Section 2.1 of this Agreement.

OPERATIONAL AREA AGREEMENT
OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

DATED: 5/19/20

County of Orange
(City or Jurisdiction)

BY

Michelle Steel, Chairwoman

County of Orange

ATTEST:

By: Robin Stieler

Robin Stieler, Clerk of the Board

County of Orange

Date 5/19/20

NOTICE TO COUNTY OF ORANGE TO BE GIVEN TO:
City/Jurisdiction

Donna Boston
Name

County of Orange
City/Jurisdiction

2644 Santiago Canyon Road
Address

Silverado, CA 92676
City/State/Zip

714-628-7154
FAX Number

APPROVED AS TO FORM:

Wendy J Phillips

Wendy Phillips, Senior Deputy County Counsel

County of Orange

Dated 5/26/20

Orange County Operational Area Agreement

ATTEST:

By: _____

_____

_____

Date _____

NOTICE TO _____ TO BE GIVEN TO:
City/Jurisdiction

_____
Name

_____
City/Jurisdiction

_____
Address

_____
Chapter 3 City/State/Zip

_____
FAX Number

APPROVED AS TO FORM:

Wendy J. Phillips
Senior Deputy County Counsel
Orange County
Dated 2/26/20

September 22, 2021
Prepared by: K. Welch / F. Sanchez
Submitted by: P. Weghorst
Approved by: Paul Cook

ENGINEERING AND OPERATIONS COMMITTEE

CONSULTANT SELECTION TO UPDATE
THE IRWD ENERGY AND GREENHOUSE GAS MASTER PLAN

SUMMARY:

Consistent with IRWD's Board-approved 2021 Goals and Target Activities, staff is preparing to update the District's Energy and Greenhouse Gas Master Plan. The plan will identify a suite of cost-effective projects to reduce current and future energy costs and to reduce greenhouse gas (GHG) emissions. A Request for Proposal (RFP) to perform the work was circulated and three proposals were received. Staff recommends the Board authorize the General Manager to execute a Professional Services Agreement with NV5 Global, Inc. in the amount of $307,995 to update IRWD's Energy and Greenhouse Gas Master Plan.

BACKGROUND:

In 2012, IRWD prepared an Energy and Greenhouse Gas Master Plan that identified and recommended a portfolio of cost-effective projects to reduce the District's energy use, and as required under future regulatory conditions, reduce GHG emissions. Since that time, IRWD has constructed several major facilities and has implemented a number of projects and programs to address IRWD's energy goals. These projects and programs include:

- 6.25 Megawatt (MW) Energy Storage Facilities;
- Wells 21 & 22 Water Treatment Plant;
- Baker Water Treatment Plant;
- 1.0 MW Baker Solar Project;
- Biosolids and Energy Recovery Facilities; and
- Southern California Edison-IRWD Water Energy Pilot Program.

Updating Energy and Greenhouse Gas Master Plan:

IRWD's Board-approved 2021 Goals and Target Activities included an item to update the District's Energy and Greenhouse Gas Master Plan. In accordance with this item, staff proposes to update the plan in two phases. Phase 1 will reevaluate IRWD's historic and future energy use and GHG emissions and identify up to 20 potential projects that could achieve further cost-effective reductions in energy use and emissions. This phase will include an assessment of any external funding sources that could be leveraged to implement the projects, as well as any potential regulatory or legislative constraints that may impact energy use or GHG emissions. A Phase 1 report will summarize the work effort and recommend up to five projects for further analysis in Phase 2. Phase 2 of the project will analyze the recommended projects and provide a basis of design for each that will include a project description, cost estimate, schedule, estimated

energy savings with net present values, and expected GHG reductions. A final Energy and Greenhouse Gas Master Plan will be prepared that summarizes the key findings and results from both phases of work. Following is an overview of the consultant selection process for performing the required work.

Consultant Selection Process:

Staff issued an RFP to five firms to update IRWD's Energy and GHG Master Plan. Proposals were received from TerraVerde Energy, AECOM and NV5 Global, Inc. NV5 originally proposed the project as a joint venture with Sage Energy Consulting, but the two firms have since formally merged under NV5. After completing a thorough evaluation of the written proposals and conducting interviews with each firm, staff recommends the selection of NV5 to complete the work. Key strengths of NV5's proposal are as follows:

- NV5 has deep knowledge of the solar, battery storage and microgrid markets with significant experience in distributed energy generation projects in California;
- NV5 demonstrated the ability to develop and recommend project opportunities for IRWD, as well as identify and overcome challenges based on NV5's extensive knowledge of the water and wastewater industry;
- NV5 proposes to develop a real-time and historic energy use database that will assist IRWD with identifying and evaluating potential projects;
- NV5 will use industry-leading financial tools and Monte Carlo analysis to evaluate the financial performance and risks associated with potential projects;
- The NV5 team brings resources with specialized expertise in energy efficiency, renewables, water and wastewater infrastructure, water engineering, hydraulic analysis and design as well as mechanical and electrical systems;
- NV5 will utilize its active engagement and depth of experience in state and federal legislation, as well its understanding of energy rates and tariffs, to ensure IRWD is able to optimize and maximize the long-term benefits of energy projects; and
- NV5's scope of work and level of effort is consistent with staff expectations.

Staff has prepared a consultant selection matrix, which is provided as Exhibit "A". NV5's scope of work is provided as Exhibit "B".

FISCAL IMPACTS:

IRWD's Board-approved Fiscal Year 2021-22 budget includes Project 11799, which provides for water and energy studies. The existing budget is sufficient to fund preparation of an update to IRWD's Energy and Greenhouse Gas Master Plan.

ENVIRONMENTAL COMPLIANCE:

This study is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15262, which provides exemption for planning studies.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with NV5 Global, Inc. in the amount of $307,995 to prepare an update to IRWD's Energy and Greenhouse Gas Master Plan.

LIST OF EXHIBITS:

Exhibit "A" – Consultant Selection Matrix
Exhibit "B" – NV5 Global Inc. Scope of Work

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EXHIBIT "A"

Energy & Greenhouse Gas Master Plan Consultant Selection Matrix					
Item	**Description**	**Weights**	**TerraVerde**	**AECOM**	**NV5**
A	TECHNICAL APPROACH	**60%**			
1	Project Approach	20%	3	2	1
2	Scope of Work	15%	3	2	1
3	Proposal Completeness	15%	3	2	1
4	Schedule	10%	3	1	2
	Weighted Score (Technical Approach)		1.80	1.10	0.70
B	QUALIFICATIONS AND EXPERIENCE	**40%**			
1	Project Manager		1 Jen Petherick, P.E. Not Stated	2 Li Luan, LEED AP 18 yrs Exp	3 Ilan Fuss 11 yyrs Exp
2	Principal-in-Charge		2 Kevin Ross Not Stated	3 Calum Thompson, P.E. 12 yrs Exp	1 Chris Halpin, P.E. 36 yrs Exp
3	Project Team	25%	3	2	1
4	Similar Projects	10%	3	2	1
5	Firm's Relevant Experience	10%	3	1	2
	Weighted Score (Experience)		1.05	1	0.45
	COMBINED WEIGHTED SCORE		1.50	0.90	0.60
	Ranking of Consultants				
C	SCOPE OF WORK				
TASK			FEE	FEE	FEE
1.1	Phase 1 Management		$17,513	$25,510	$12,840
1.2	Phase 1 Meetings		$13,525	$16,940	$24,838
1.3	Data Collection		$24,825	$19,920	$39,702
1.4	Historic and Future Energy Use and GHG Emissions		$13,530	$22,040	$6,840
1.5	Project Funding Sources		$2,735	$18,400	$6,145
1.6	Regulatory Constraints and Opportunities		$7,705	$12,360	$7,235
1.7	Potential Projects		$11,825	$50,770	$37,480
1.8	Phase 1 Report		$4,835	$29,380	$17,820
1.9	Updated Phase 2 Scope of Work		$1,660	$9,300	$9,500
	SUB-TOTAL PHASE 1		$98,153	$204,620	$162,400
2.1	Phase 2 Management		$8,757	$15,100	$9,850
2.2	Phase 2 Meetings		$4,625	$11,610	$16,785
2.3	Project Evaluation		$54,345	$65,320	$97,320
2.4	2021 Energy and GHG Master Plan Report		$9,065	$34,210	$21,640
	SUB-TOTAL PHASE 2		$76,792	$126,240	$145,595
	TOTAL PROFESSIONAL SERVICES, FEES		**$174,945**	**$330,860**	**$307,995**
	Total Hours		**1,112**	**2,118**	**1,464**
	Avg $/hr		$157	$156	$210
D	OTHER				
	Conflict of Interest		No	No	No
	Joint Venture		No	No	No
	Exceptions taken to IRWD Std. Contract		No	No	No
	Insurance (Professional & General Liability)		Yes	Yes	Yes

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NV5 PROPOSAL FOR: IRVINE RANCH WATER DISTRICT
2021 ENERGY AND GREEN HOUSE GAS MASTER PLAN

DUE BY DATE: JULY 22, 2021, 3:00 P.M.

Prepared for:

Paul Weghorst
Ray Bennett
Kellie Welch

NV5

163 Technology Dr.
Suite 100
Irvine, CA 92618
Ph: 415.663.9914

July 22, 2021

Paul Weghorst
Executive Director of Water Policy
Irvine Ranch Water District
welch@irwd.com

Re: Request for Proposals – 2021 Energy and Green House Gas Master Plan
NV5 Proposal No. P63021-0005184.00

Dear Mr. Weghorst:

NV5 Energy Efficiency Services (NV5EES) (JBA Consulting Engineers, Inc. dba NV5 Consultants is our legal name) and Sage Energy Consulting (Sage), the NV5 Team, is pleased to present this proposal in response to Irvine Ranch Water District's (IRWD) referenced Energy and GHG Master Plan RFP. Our team's core business is working as owner's representative to public agencies, providing energy planning, feasibility analysis, procurement, implementation, and operational support on energy efficiency, renewable energy, and resilience projects.

NV5 has been helping Federal, State, and local governments and utilities develop, implement, and manage successful energy programs since 2000. We are experts in the technologies utilized in water and wastewater treatment facilities, and also in the leading-edge business models being used to maximize the value of Owner's assets, such as Energy Savings Performance Contracts, Public Private partnerships, Solar PPAs, etc. and achieving carbon reduction targets. Since 2009, Sage has been trusted by more than 120 California public agencies and has developed unmatched expertise in distributed energy projects in California. Our conservative approach, financial acumen, market knowledge, and end to end project services are unique and were developed over the last decade to meet our client's needs for low-risk, high performing projects.

We are confident that our combination of experience and technical and financial expertise make the NV5 team the perfect partner for the District's energy projects. We encourage you to contact any of our clients as references and look forward to the opportunity to work with you. Should you need any additional clarity or have any questions, please do not hesitate to contact me at 860.328.0535 or Chris.halpin@nv5.com.

Best Regards,

Chris Halpin

Christopher F. Halpin, PE, CEM, CMVP. LEED AP, USDOE PF
Vice President

cc:
Ray Bennett
Kellie Welch

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SCOPE OF WORK

The NV5 team has extensive experience performing feasibility reviews and investment-grade feasibility studies to evaluate the technical and financial aspects of proposed projects. We typically begin with a desktop Feasibility Review (much of the work in Phase 1 of this effort aligns with work that we perform during the Feasibility Review) to establish project criteria and identify fatal flaws at potential sites or for potential project types, before committing significant evaluation time and resources in a detailed study. The following Investment-Grade Feasibility Study (IGFS), which aligns with Task 3 of Phase 2, is a deep dive into site energy usage and potential for energy services and assets at candidate sites. The IGFS provides the technical and financial detail necessary to make informed decisions about whether to pursue a project and forms the basis of a following competitive procurement request for qualifications/proposal.

PHASE 1

Task 1: Phase 1 Project Management

1.1 Produce monthly progress report that summarize progress and costs associated with that month's activity. The progress report will include each task with an estimate of the percent completed along with any issues or concerns that may impact the consultant's ability to deliver the scoped activities within the contracted budget and schedule.

The NV5 Team has assigned Ilan Fuss as Project Manager. Mr. Fuss has 11 years of experience in renewable energy with a focus on project management, solar asset management, project finance, and financial modeling. He will be assisted by Dave Wyllie, P.E., CEM, LEED AP, USDOE PF. Dave has over 26 years of experience in the energy efficiency industry managing many multi-million-dollar projects for NV5. He is currently leading our efforts for the LA County Sanitation Districts, City of Phoenix, VA hospitals in Los Angeles, Las Vegas, Shreveport, LA, and several municipalities and school districts in the west.

1.2. NV5 will prepare the monthly progress report, as well as submit meeting minutes on a weekly basis for IRWD's review and concurrence.

Task 2: Phase 1 Project Meetings

2.1 Schedule and hold monthly meetings with the District to discuss monthly progress report and upcoming scheduled items. As described above, the NV5 PM will facilitate the formal monthly meeting with the District to discuss progress and imminent items. However, we feel that more frequent interactions always deliver a superior quality deliverable. We will discuss these proposed communication protocols and other critical aspects of setting proper expectations for all stakeholders at the kickoff meeting. It is of paramount importance that all IRWD's internal stakeholders, especially those with "veto" authority over capital projects, are involved from the very beginning of the project.

We recommend weekly for the first few months, and then go to bi-weekly calls/meetings for the remainder of the project development phase. It is imperative that IRWD and the NV5 Team closely monitor the progress during the development ofthe plan, as there will be many internal and external stakeholders, who all have different perspectives, needs, objectives,and motivations. There are many opportunities to make interim decisions that will ensure a successful project. It will also allow for continuous review of the proposed scope of work, energy savings calculations, etc.

Task 3: Data Collection

Approach: Our overall approach to data collection is to begin with a thorough review of relevant past studies and reports and then hold a project kickoff meeting with IRWD staff to discuss project goals, constraints, criteria, etc. and identify key IRWD staff who will be engaged in the project and be available to provide further background information on the potential projects. As part of the review of past studies, we will identify any key assumptions or informational needs that may require validation or updating.

Following the project kickoff meeting, we will conduct site walks with IRWD staff to assess existing equipment and facilities as well as siting constraints for future electrical equipment.

The project kickoff meeting and site walks will provide us with a significant amount of information as well as help us identify further informational needs. We've developed a comprehensive data needs form that will be customized based on the identified project parameters and will assist in tracking the receipt of this information.

The NV5 team will then begin a series of interview with IRWD staff members to complete a deeper dive into understanding specific project goals and constraints.

Collecting detailed historical energy consumption data is critical to establishing baseline energy profiles and identifying trends, with 15-minute interval data as the gold standard for conducting investment grade energy analyses. The accuracy of our analysis improves with the quantity of historical data we have and different sources may have differing quantities of data. We can access this data directly from SCE, through a third-party such as UtilityAPI, or directly from IRWD if this data is stored on IRWD servers. This multi-pronged approach will ensure we are gathering as much energy data as possible.

3.1 Discrete tasks are noted below:

- Review reports, including the Energy and Green House Gas Master Plan (July 2012), Southern California Edison Water-Energy Pilot with IRWD- Phase 1 Report (March 2017), Green House Gas Inventory for 2019 (December 2020), Green House Gas Inventory for 2020 (expected to be completed by July 2021), Embedded Energy Plan 2019 Update (February 2020), Water Resources Master Plan, 2020 Urban Water Management Plan, Energy Efficiency Master Plan and Biosolids Handling Energy Audit (October 2009), Sewage Treatment Master Plan (2021), and IRWD Demand Forecast (information to be provided as needed);
- Conduct site visits to evaluate potential system component locations/limitations and to investigate electrical infrastructure
- Prepare and submit data needs form
- Perform personnel interviews to discuss goals, needs, constraints, preferences, potential changes in energy consumption, and other issues that might affect projects
- Prepare and submit utility authorization forms

Task 4: Evaluation of Historic and Future Energy Use and GHG Emissions

Approach: The NV5 team evaluates historical consumption data to establish trends in energy use. Future consumption, including any increases or decreases in load that can be expected from planned improvement projects or changes in facility use, are used to adjust historical consumption to account for expected future consumption. This analysis is preferably done with 15-minute interval level data to accurately model peak demand. In the absence of 15-minute data, 60-minute data can be used but is inherently less precise. Where sites have more than one meter, this exercise will be repeated for each meter (either hourly or 15-minute). Efficiency measures should also be explored and considered in the future load where applicable. The historic and future energy use, along with assumptions regarding expected changes in use, will be compiled into a workbook use for use in evaluating potential projects. With the future consumption established, the initial size of energy systems to offset and/or "shape" the load at the site can then be estimated to inform the next scope item. For instance, a PV system sized to offset 90% of the annual site load or a BESS sized near the max demand for the site are helpful rules of thumb to assess the upper end of potential energy projects at a site. Discrete tasks are noted below.

4.1 Collect and review IRWD's historic (2010-2019) power use and GHG estimates. The NV5 Team will collect IRWD's historic (2010-2019) power, and fossil fuel use and GHG estimates, and review them to learn about the District's energy use profile baseline and changes over time. NV5 will ensure all GHG estimates meet all California Environmental Quality Act (CEQA) guidelines for GHG accounting and reporting. This review will give NV5 a better idea of the nature of IRWD's future "carbon risk", which can focus our efforts during the development of a plan to mitigate and then eliminate that risk over time.

4.2 Summarize IRWD's total historic energy use for each of the facilities identified in the table below.

#	Table 1.1: Energy and GHG Facility Types
1	Michelson Water Reclamation Plant (MWRP)
2	Los Alisos Reclamation Plant (LAWRP)
3	Sewage Lift Stations
4	Deep Aquifer Treatment Plant (DATS)
5	Irvine Desalter Plant (IDP-PTP)
6	Wells 21 & 22 Desalter (Wells 21 & 22)
7	Baker Water Treatment Plant (Baker)
8	Dyer Road Well Field (DRWF)
9	Other Potable Supply (Well OPA-1, Well 115,Manning WTP, etc.)
10	Irvine Desalter Plant Non-Potable (IDP-NP)
11	Other Non-potable supply (ET-1, ET-2, etc.)
12	El Toro Shallow Groundwater Unit (SGU)
13	Vehicles
14	IRWD HQ (Sand Canyon Ave)
15	IRWD Operations (Riparian Way)
16	IRWD Investment Properties
17	San Joaquin Marsh
18	Peters Canyon Diversion Project
19	Other Natural Treatment Systems
20	Michelson Biosolids Plant (Biosolids)

4.3 Based on the results of Task 3: Data Collection, identify near-term planned projects and system operations that are approved and currently planned for the future.

Once the energy use data have been analyzed, the NV5 team will review the previous reports that IWRD commissioned, to learn more about the energy using systems in IRWD's portfolio. We will conduct focused site investigations of all IRWD energy using assets to help understand existing conditions, chronic problems and operational challenges, etc. We will interview IRWD facilities, operations, and maintenance personnel to gain their input into the analysis. Depending on the amount and quality of the data that has been gathered from the initial task and the site visits, NV5 may request interval data from the electric utility in order to understand the variations in the load profiles across the portfolio of assets. NV5 may also deploy data loggers to get more granular operational and energy use data to inform our development of near, and long term projects. If appropriate, NV5 will also apply AI based analytics to the systems to detect faults, and determine short term savings opportunities.

In close consultation with IRWD staff, NV5 will develop a list of energy saving operational changes and near term projects that the District can pursue. If IRWD staff have already identified energy projects, we will review them for the technical and financial accuracy. We will also work closely with SCE, and other utility providers, and State agencies to incorporate incentives and rebates into the technical and financial planning for the measures.

4.4 The NV5 Team will use the information from the previous task to estimate current and future (2020-2035) energy use and GHG emissions for the existing and near-term planned projects and system operations. We will use the same approach for new measures and projects as described above. The NV5 Team will leverage our decades of experience collaborating closely with our clients to develop leading edge ideas, approaches, and potential projects that meet technical and financial objectives. In order to optimize the project development planning process NV5 will assist IRWD select the business models that will be used for detailed development and implementation.

They may include:
- Traditional design/bid/build (D/B/B)
- Design/build (D/B)
- Design/bid/build/own/operate/manage (DBOOM)
- Energy Savings Performance Contracting (ESPC)
- Energy as a Service (EaaS)
- Other P3 delivery vehicles

4.5 Document the results of Tasks 3 and 4 in a rough draft chapter to the Phase 1 Report (Task 8) and provide to IRWD for review.

4.6 Revise the rough draft chapter based on IRWD comments and provide a revised draft chapter.

Task 5: Identification of Project Funding Sources

Approach: With the broad range of projects under consideration, there are many potential sources of funding for both project development and ongoing project support. The NV5 team frequently assists with obtaining financing, grants, and incentives for clients and is comfortable taking the lead in identifying and securing funding sources.

For energy projects, federal, state, and local grants are available from time to time for specific technologies. At the federal level, the EPA and DOE have intermittent grant programs, though nothing is active at the moment. At the state level, California provides direct project development funding through the Self Generation Incentive Program (SGIP) for approved renewable energy generation and storage technologies such as solar thermal, wind, fuel cells, and battery energy storage. The California Energy Commission also has a limited 1% revolving loan program that could be used by IRWD to finance energy efficiency and generation projects. For Electric Vehicle (EV) fleet transitions and charging infrastructure (EVSE), there are multiple grant opportunities including CEC, CARB, HVIP, utility, and local air board grants. In addition, EV charging coupled with local renewable generation such as solar PV, can increase the production of Low Carbon Fuel Standard (LCFS – a California carbon market for transportation fuels and vehicles) that can be used to significantly lower the cost of ongoing operations, at least through 2030.

The primary source of project funding comes from project financing. The most common financing sources for public agency energy projects are third-party financing structures, such as PPAs and leases. The NV5 team regularly procures and negotiates these contracts for clients, which indirectly leverage federal investment tax credits and accelerated depreciation for public entities. The NV5 team has developed financing contract term sheets for public clients to assist in negotiating these arrangements. Similarly, the NV5 team has assisted with municipal lease arrangements, tax exempt bonds, CEC loans, ESCO contracts, and other financing mechanisms.

The NV5 team has extensive experience identifying project funding sources for renewable, efficiency, and resilience projects. There are many incentives, rebates, grants, and loans available to public entities like IRWD. The funding sources that may be good matches for this project include:

- Southern California Edison (SCE) energy efficiency programs for businesses, Net Energy Metering for solar business customers, Self-Generation Incentive Program (SGIP) offers battery storage rebates for businesses, and the Charge Ready Program offers EV charging equipment incentives.
- California Infrastructure Bank CLEEN Program. The CLEEN Center provides direct public financing to Municipalities, Universities, Schools and Hospitals (MUSH borrowers) to help meet the State's goals for greenhouse gas reduction, water conservation and environmental preservation. The CLEEN Center offers two programs: the Statewide Energy Efficiency Program (SWEEP) and the Light Emitting Diode Street Lighting Program (LED). Financing can be through a direct loan from IBank in amounts from $500 thousand to $30 million.
- Federal Emergency Management Agency Building Resilient Infrastructure and Communities (BRIC) Program. Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.

- US Environmental Protection Agency Clean Water State Revolving Fund (CWSRF).

  The CWSRF will provide low interest loans for Green Infrastructure Projects. Released in December of 2015, the policy promotes CWSRF investment in green infrastructure projects and broadly encourages investment in sustainable infrastructure. Amongst the variety of sustainable projects that CWSRF programs finance, green infrastructure offers flexible, innovative solutions for stormwater management.
- CARB Fleet Vehicle Incentives
- California Air Resources Board offers fleet vehicle point-of-sale incentives up to $198,000 per truck, or up to 90% of vehicle costs through the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). On August 10, the program funding status is up to $83 million will be available.
- Many Third-Party Financing opportunities are available for energy efficiency, renewables, and resilience projects IRWD is interested in implementing. They include:
  - Tax Exempt Lease Purchase (TELP) financing which is used to fund over 90% of municipal and school district ESPC projects in the US.
  - Public Private Partnership (P3) financing is available for comprehensive projects such as design/build/own/operate/manage (DBOOM) and other styles of transferring the financial risk from IRWD to a third party's balance sheet. The third party would develop, finance, implement, and manage a major infrastructure upgrade such as bio-gas digester power plant, solar +Battery Energy Storage (BESS) plant, etc. asset. IRWD would only have an "Availability Payment" to pay every year, avoiding a downgrade to its financial health score for the rating agencies such as Fitch, Standard & Poors, etc.

The NV5 team analyzes and optimizes incentives for each project, taking into account ITC tax treatment for third-party-financed projects and managing incentive and interconnection applications to secure grandfathering and funding levels for various incentive types. As a Qualified Reporting Entity (QRE) with WREGIS, we also assist with REC and LCFS management for our clients. The NV5 team can register RECs on behalf of clients and advise/assist clients in monetizing or retiring RECs, obtaining LCFS credits, or pursuing Green-E swaps for RECs.

During project feasibility, the NV5 team examines existing, potential, and upcoming tariffs to optimize energy costs with current consumption trends and with all adopted energy measures. The team constantly monitors working groups and proceedings at the California Public Utilities Commission (CPUC) for anticipated changes to energy tariffs over time. Two examples of this are:

1. The ongoing NEM 3.0 proceeding which is currently scheduled for final decision by the Commission in January 2022. The team has modeled various party proposals as they have been put forward (as well as potentially impactful legislation such as AB 1139) and has run models with the CPUC's recently updated Avoided Cost Calculator (ACC). From this ongoing work and rebuttal testimonies submitted the week of July 11, the team believes that NEM 3.0 will result in a dramatic reduction in the value of behind the meter solar generated energy, reducing its value to 50% or less of current NEM 2.0. The team is advising our clients to grandfather upcoming solar PV projects on the NEM 2.0 tariff by submitting interconnection applications in the early November timeframe to allow time for the applications to be deemed complete by the utility. The team stands ready to support this effort.
2. For three years prior to the PG&E 2017 GRC Phase 2 proceeding, the team anticipated and modeled in solar avoided cost reductions stemming from changes to time of use (TOU) periods and rate tariffs. During that proceeding, team members represented RES-BCT customers as lead technical consultant in a successful protest and hearings which resulting in RES-BCT customers (public agencies) being grandfathered on legacy rates to ensure that financial returns targets could be met.

5.1 Identify external funding sources such as grants, loans, and subsidies that IRWD should consider for projects to reduce current and future energy use and GHG emissions. Rank the funding sources according to their potential benefit and likelihood of eligibility.

5.2 Perform high-level tariff modeling using consumption and production data. Review avoided value of energy generated on available and future tariffs (if known) within the range of potential system sizes. Determine optimal sizing, locations and tariff(s).

5.3 Perform high-level financial modeling with multiple financing scenarios as determined with IRWD.

5.4 Document results and provide a rough draft chapter to the Phase 1 Report (Task 8) and provide to IRWD for review.

5.5 Revise the rough draft chapter based on IRWD comments and provide a revised draft chapter.

Task 6: Identification of Regulatory Constraints and Opportunities

The NV5 team actively follows incentive discussions and state and federal legislation to ensure that our clients make informed decisions to maximize the long term benefits of their energy projects. As mentioned in Task 5 above, the current NEM 2.0 scheme is scheduled to be superseded by NEM 3.0 within the next year, which we anticipate will significantly reduce the value of behind-the-meter retail solar PV generation. The NV5 team will aggressively manage interconnection applications to ensure that our clients are grandfathered on NEM 2.0 if possible. You can read more about the NEM 3.0 transition on Sage Energy Consulting's website at www.sagerenew.com/NEM.

Over the longer term, the NV5 team expects a continued flattening of TOU rate tariff differentials and novel pilot locational tariff programs, as well as tariffs, such as PG&E's Option S tariffs, that are targeted toward energy storage. We also anticipate, based on proposed legislation, discussions at the CPUC, and trends in other energy markets around the US, to see more storage-based demand response and other value stream (such as RA) tariffs being introduced in the short to medium term.

There has been a shift in funding traditionally allocated to Energy Efficiency programs that is now dedicated to programs that reduce GHG emissions. For example, the California Investor-Owned Utilities (CA IOUs) will fund programs such as the Technology and Equipment Clean Heating Program and the Statewide Market Transformation Programs with Energy Efficiency funding. The CEC and CPUC are approving new methodology to assess the cost effectiveness and viability of Energy Efficiency measures with a focus on fuel substitution (removing gas and replacing with electric) and GHG emissions reductions. These changes will make additional incentives and funding available for IRWD to reduce energy costs and GHG emissions.

Lastly, at the federal level, significant incentives for renewables, such as ITC application to battery storage introduced by California Representative Panetta, will likely have a greater chance of adoption if the 2022 midterm elections result in Democrats retaining control of both chambers.

6.1 Identify proposed regulatory constraints and potential future legislation that may impact the District's current and future energy use and GHG emissions, including the forthcoming CPUC Net Energy Metering decision.

6.2 Document results and provide a rough draft chapter to the Phase 1 Report (Task 8) and provide to IRWD for review.

6.3 Revise the rough draft chapter based on IRWD comments and provide a revised draft chapter.

Task 7: Identification of Potential Projects

The NV5 team has exceptionally broad expertise across energy generation and efficiency technologies, allowing us to analyze the full spectrum of project opportunities and optimize project delivery for maximum financial and environmental outcomes. The team starts by identifying and prioritizing client goals. We then look for energy efficiency measures by drilling down into fuel types and usage patterns, identifying where operational and technological efficiencies can be effectively implemented. Efficiency measures can be coupled with renewable generation and used to offset GHG as well as enhance LCFS carbon market credits. The team's broad experience allows us to look for opportunities to capture waste and reuse it to improve process efficiencies, for instance through anerobic digestion and capture of biogas and biosolids. The team has experience optimizing the value of biogas through both onsite usage in cogeneration that would qualify for NEM interconnection, as well as gas pipeline injection and sale to optimize both LCFS and RINs credits.

Lastly, the NV5 team has deep experience with EV fleet transition planning and implementation, having worked with large transit agencies and retail truck dealerships to help them plan for a transition to EVs.

This work centers on identifying vehicle usage patterns which drive charging system design and placement, which in turn requires close interaction with serving electrical utilities to manage significantly increasing distribution system loads over time, and finally charge management system (CMS) specification to allow for cost/grid optimized vehicle charging loads.

7.1 Identify and develop, at a conceptual planning level, up to 20 potential project types as identified in the Table 1.2 from the RFP that IRWD should consider that will save energy, reduce GHG emissions, and/or position IRWD for future regulatory constraints and opportunities. The conceptual planning level evaluation performed in this task shall include sufficient information to perform an initial screening of potential projects, a brief description of each project, concept-level cost estimates, estimated energy savings, and GHG emission reductions and estimated schedule.

#	Table 1.2: Potential Project Types
1	MWRP Electric Load Study
2	Future SCE regarding billing rates and demand response participation
3	Develop a real-time and historic energy use database
4	Vehicle Fleet Electrification
5	Switch gear to provide a secondary power source to MWRP
6	Energy Efficient Water Supply Sources
7	Energy Efficient Waste Water Treatment Processes
8	Energy Efficient Water Reuse Processes
9	Alternative Biosolids Processes
10	Energy Efficiency Building Improvements
11	Additional Renewable Energy Projects
12	GHG Offset Projects
13	Other

NV5 expects to collaboratively develop ideas for additional project types, including solar PV+ BESS, among others.

7.2 Conduct Workshop #1 for IRWD's senior staff to present the results of the prior tasks and discuss each potential project type.

7.3 Develop and apply a simple ranking system and, in cooperation with IRWD staff, rank and select up to ten potential project types for additional analysis in Phase 2.

7.4 Document results, address IRWD comments, and provide a draft chapter to the Phase 1 Report.

Task 8: Phase 1 Report

8.1 Prepare a Phase 1 2021 Energy and GHG draft report that consolidates and refines the draft documents prepared in previous tasks. The report should make recommendations for approximately five projects for further analysis and evaluation under Phase 2.

8.2 Incorporate any additional IRWD comments into a final Phase 1 Report and provide three hard copies and one digital copy in both pdf and Word format.

Task 9: Updated Phase 2 Scope of Work

9.1 After completion of Task 8: Phase 1 Report, update the Phase 2 scope of work, budget, and schedule included in this RFP to include the final potential projects recommended in the Phase 1 Report. The updated Phase 2 scope of work, budget, and schedule are expected to incorporate IRWD review and comments.

PHASE 2

Task 1: Phase 2 Project Management

1.1 Monthly progress report that summarizes progress and cost associated with that month's activity. The progress report will include each task with an estimate of the percent completed along with any issues or concerns that may impact the consultant's ability to deliver the scoped activities within the contracted budget and schedule.

Task 2: Phase 2 Project Meetings

2.1 Monthly meetings with the District to discuss monthly progress report and upcoming scheduled items.

Task 3: Project Evaluation

Approach to MWRP Electric Load Study: The scope of this project task is assumed to be the electrical modeling of MWRP for the sake of performing a load flow study. For a task of this nature, the first item to be completed is collection of data for the existing electrical system and equipment at MWRP. NV5 would request any existing system documentation such as one-line drawings, panel schedules, cable schedules, etc. We would then coordinate with personnel at the plant to collect any other information in order to create a complete picture of the electrical system. Typically, we provide equipment data collection forms to plant electricians or personnel that are familiar with the system, to record the data. This process generally takes time and several rounds of data collection depending on how accurate and complete the drawings and documentation are for the given facility. Additional information will be needed such as fault current contribution from the providing electrical utility provider and modeling of any on-site generation that may contribute to a given fault.

The second task is building the electrical model. This proposal assumes that an existing model does not exist, and that it will need to be built from scratch. The model building will be performed using SKM PowerTools, which is a common software tool used in the industry. This process will take time and many times elicits further data collection to make the model complete and allow the study to run properly. When the model is completed, a load flow study will be run within the software to determine any existing deficiencies or equipment that may require further analysis within the system.

Finally, a Summary Report will be created that highlights the overall status of the existing electrical system. This will be provided in a draft format for client review. Any questions that come up in the review can be addressed in the final version of the summary report.

Approach to SCE Billing Rates and Demand Response Participation: We will use a mix of commercially available software and proprietary tools to analyze whether any change in utility rates or participation in demand response programs will result in utility savings for each SCE service based on current and future energy use. This will be followed up with interviews with IRWD staff to quantify the potential demand impact from operational changes that would further enhance the benefit of participation in demand response or rate changes. This analysis would form the basis of Year-1 savings from rate changes or participation in demand response programs.

We have developed industry-leading financial and risk modeling tools to provide more realistic estimates of energy project savings. In our financial analysis, we input key assumptions to more accurately model risk. These include, but are not limited to energy rate escalators, demand rate escalators, utility tariff degradation, and responsiveness to demand response periods. We then perform a sensitivity analysis to identify the input variables that have the greatest impact on financial performance and multi-variable Monte Carlo analysis with sophisticated variable distributions to create a "probability envelope" which clearly shows potential financial performance upside as well as risk. Discrete tasks necessary to complete this scope of work are described below.

1. Collect historical energy consumption data and information on future changes to site usage/energy efficiency measures to estimate future energy consumption.
2. Meet with IRWD to investigate and quantify potential operational changes that would reduce peak demand during typical demand response periods.
3. Conduct tariff analysis to determine potential savings from SCE rate changes or demand response programs.

4. Conduct detailed financial and risk modeling to determine expected savings over time.
5. Conduct workshop #2 for IRWD's senior staff to present the results of the Phase 2 tasks and discuss each selected project.
6. Document results, address IRWD comments, and provide a draft chapter to the Phase 2 Report.

Approach to Developing a Real-Time and Historic Energy Use Database: The development of the historic energy use database can be adequately completed in Phase 1 and is critical to informing subsequent project evaluation. It can be easily updated in Phase 2 with the most recent data. The development of a real-time energy use database is significantly more involved and will necessitate a deep understanding of IRWD's intended usage of this database. Some key considerations that will inform the basis of design and accompanying costs of implementing the database include assessment of existing energy management system(s), required instrumentation level (e.g. sensors at meter level or at the equipment level), and whether integration with existing energy management systems/SCADA is required. Discrete tasks necessary to complete this scope of work are described below.

1. Update historical energy consumption data and information on future changes to site usage/energy efficiency measures to estimate future energy consumption.
2. Meet with IRWD to determine needs, goals, and constraints for a real-time energy use database.
3. Review potential solutions that best meet IRWD's stated goals and constraints, including technical and financial assessments.
4. Review findings with IRWD staff to determine recommended solution(s).
5. Generate a basis of design basis of design that includes a project description, conceptual drawings (site plan, typical section, schematic), refined cost estimates, and implementation schedule.
6. Conduct workshop #2 for IRWD's senior staff to present the results of the Phase 2 tasks and discuss each selected project.
7. Document results, address IRWD comments, and provide a draft chapter to the Phase 2 Report.

Approach to Energy Generation and Battery Energy Storage Projects: While these project types are not currently included in the Phase 2 scope, it is quite likely that generation projects such as solar PV will be selected for Phase 2. Our approach to conducting an investment-grade feasibility study for these projects is discussed below.

Once project goals are established, and energy efficiency measures and future energy usage requirements identified, the NV5 team will develop system design options and work with IRWD to determine appropriate equipment siting, considering clear heights for solar arrays, public sight lines, storage and electrical equipment footprints, fire access and safety issues, etc. We will produce detailed energy system designs using industry-leading design tools to develop conceptual layouts that make it easy for IRWD stakeholders to visualize and discuss the access requirements, physical footprint, logistics, and schedule of implementation of the project. The preliminary designs and implementation schedules are fine-tuned to ensure coordinated planning and clear, well-informed, and streamlined decision-making that align with public administration meeting schedules. The NV5 team will model financial outcomes for multiple financing and ownership options, such as cash purchase, leases, bonds, grants, and PPAs. Our financial modeling will include all upfront soft costs incurred and ongoing project costs such as insurance, maintenance, equipment replacement, asset management, and decommissioning.

To assess the impacts of key variables on the economic outcomes of projects, we conduct both a sensitivity analysis and a probability distribution risk analysis. The sensitivity analysis allows us to identify which variables have the most significant impact on the financial performance of the project. We then run a multivariable Monte Carlo analysis to establish a 90-percent-probability envelope for financial performance over the lifetime of the project.

The NV5 team will provide detailed findings on the cost of power to IRWD under multiple financing and build scenarios. After reviewing our feasibility study results, IRWD will have a clear understanding of the various options available for financing a renewable energy system, as well as the net costs of energy under each arrangement. We will clearly report the total lifetime cost of the system, as well as the energy and financial savings.

The value of behind-the-meter energy projects is highly dependent on tariff rates and structures. These tariffs are entering a period of rapid change that significantly impacts project economics. The NV5 Team is intimately familiar with the negotiations that are ongoing between SCE, the CPUC, and interested parties. Sage is providing expert testimony for the California Solar and Storage Industry Association (CALSSA), which represents the solar and storage industries, in these negotiations. We are at the cutting edge of these discussions and can advise IRWD about upcoming changes and represent IRWD's interests.

The feasibility study will clearly present options for conceptual systems, tariff arrangements, financing options, constraints, financial performance projections, and steps necessary to implement a successful project. For each of these project scenarios, we provide estimated industry pricing, schedules, financing options, and financial and risk modeling in a well-organized and understandable feasibility analysis. Our Feasibility Study is investment grade and will enable IRWD to make well informed decisions. Details provided in the feasibility study will form the basis of a competitive procurement RFP bid package. We will state anticipated returns in simple payback period, nominal dollars, net present value (NPV), and environmental impact in both numeric and graphical form to give a simple and accurate representations of the project outcomes.

As mentioned earlier, the level of detail in the basis of design NV5 provides in this section will vary depending on the implementation model IRWD selects for each project.

Task 4: 2021 Energy and GHG Master Plan Report

4.1 Prepare a Draft 2021 Energy and GHG Master Plan that summarizes the key results from previous tasks. Include appendices will as appropriate to provide supplemental detail.

4.2 Present results to District staff and incorporate comments into a final report. Deliver three hard copies and one digital copy in both pdf and Word formats of the final 2021 Energy and GHG Master Plan.

NV5'S PROPOSED TEAM

Name/% Project Contribution (%PC)	Project Roles and Responsibilities	Experience
NV5		
Chris Halpin, PE, CEM, CMVP, LEED AP USDOE PF Vice President, NV5EES %PC:	Assistant PIC for Energy Efficiency	36 years in energy efficiency 10 years in renewable energy and resilience 4 years experience as a Global Energy Manager for a Fortune 500 company 31 years experience in utility DSM 25 years experience in ESPC projects
Dave Wyllie, PE, CEM, CMVP, LEED AP BD+C, USDOE PF Senior Project Manager, NV5EES %PC: 6	Assistant PM focusing on energy efficiency project identification, development, and analysis.	25+ years experience in energy efficiency 10 years experience as electric utility EE Program Manager Managing $75+ M in wastewater ESPC projects for LA County Sanitation Districts
Francis Mahony Associate Principal, NV5EES %PC: 3	Building and process automation, and utility usage analysis. Application of AI analytics.	10 years experience in energy efficiency and controls PM for BAS and building analytics projects for Glendale College, CA Based in NV5's Irvine, CA office
Dan Kolimar Project Manager %PC: 5	Mechanical and energy systems analysis and report development.	8 years experience in mechanical systems and energy efficiency Repowering Santa Catalina Island Study for SCE with solar+BESS
Brad Willers, PE Electrical Engineer %PC: 17	Electrical Systems	17 years of Power Delivery experience
James Owens, PE, LEED AP Associate/Engineering Manager %PC: 2	Hydraulic Analysis and Design	19 years of water and wastewater projects
Julian Palacios, PE Senior Project Manager %PC: 2	Water and Infrastructure	20 years of water and wastewater treatment, water distribution, wastewater collection, and hydraulic modeling of water and wastewater systems
SAGE		
Brent Johnson, PE, LEED AP Managing Principal %PC: 6	Principal In Charge for Sage – Overall responsibility for Sage's work on the project	23 years in energy and water engineering Water engineering background
Ilan Fuss Associate Principal %PC: 19	Senior Project Manager for Sage– Directs project work; primary point of contact for the Sage team; primary responsibility for schedule and deliverables	12 years in renewable energy, PM for many of Sage's water clients, including ACWD, SFPUC, Rancho Water, Regional San
Tom Williard Managing Principal/CEO %PC: 1	Modeling Oversight and Regulatory Specialist	18 years in renewable energy 20 years in electrical & software engineering
Megan Dawe Senior Data Scientist %PC: 21	Data Analysis and Modeling – Data acquisition and modeling of energy data	8 years in building energy analysis 6 years in energy code research and consulting 3 years in quantitative analysis

**NV5 and Sage Analyst and Administrative Staff %PC: 16*

The qualities that make our team exceptionally qualified to guide and assist IRWD with their energy projects include:

- **Deep knowledge of the solar PV and battery storage/microgrid markets**. The NV5 team has managed projects with all of the major California market solar/battery contractors on public projects for contract negotiations, design, installation, and operation of these systems. No other consulting firm can match the NV5 Team's resume on California distributed generation projects. Our team provides industry-leading planning and evaluation services, identifying potential project challenges and unique opportunities. Our market knowledge extends from state policy level through detailed understanding of the financing mechanisms and grant opportunities available for advanced energy projects. This exceptionally broad knowledge informs our feasibility studies, project specifications and provides us a deep database of market pricing.
- **Highly vetted approach and process**. The NV5 team's approach to planning, procuring, and managing energy projects has been vetted and refined over many projects. Our innovative RFP templates and submittal forms provide the basis for a transparent comparison of proposals and are familiar to the major developers. Over the last two decades, our approach has been continually improved by our close working relationships with the legal, financial and construction management teams that serve our clients.
- **Full project management services**. The NV5 team provides a comprehensive suite of energy project management services, from feasibility assessments through operational phase asset management. Our services are tailored to the specific goals and requirements of each client, providing project controls and hands-on project management to move efficiently through the process of assessing, procuring, implementing and operating an energy project.
- **A focus on finance**. We are well versed in all forms of energy project finance and grant programs, providing the technical and conservative financial analysis needed for decision-makers to evaluate a project. Our team regularly evaluates and helps clients procure projects with CA Code Chapter 3.2. Energy Conservation Contracts [4217.10 - 4217.18], Power Purchase Agreements (PPAs), tax equity and debt financing, GO and muni bonds, Tax-Exempt Municipal Leases, and other financing mechanisms. Our financial analysis includes lifecycle cost and savings estimates, operating and finance costs, as well as detailed utility tariff analyses, including RES BCT, Community Renewables Programs, and storage/microgrid incentives.
- **Fleet Electrification**. With more than a dozen active large EV transition projects, ranging from passenger to light-duty to Class 8 trucks, the NV5 Team is at the forefront of fleet electrification across California. As part of these efforts, we are heavily involved in vehicle modeling and selection, identifying and leveraging incentives, assisting with charging infrastructure, pairing solar and storage with electrification efforts and assisting with LCFS credits.
- **We're team players**. The NV5 Team often works as part of a larger project development team to bring expertise and financial efficiency to the energy planning, procurement, and implementation of advanced energy systems. We work closely with engineers, architects, legal counsel, construction managers, and other project stakeholders to integrate energy projects that meet goals and reduce cost.
- **The NV5 Team is scrupulously independent**. We are not associated with equipment manufacturers, vendors or contractors. Our independence guarantees our objectivity, and we properly align our incentives to put our client's goals and interests first. We take deep pride in the objectivity, accuracy, and integrity of our work.

Christopher F. Halpin, PE, CEM, CMVP, DOE PF, LEED AP, Since 1985, Chris has worked for several premiere energy consulting firms and ESCOs in engineering, management, and sales, and is a former Global Energy Manager for NCR. He is a nationally known expert in, and acts as an Owner's Rep for ESPC, PPA, and P3 projects. Since 2003, he has managed over $2.5 Billion in energy projects for the Federal, MUSH, higher ed, and commercial markets. He is currently working on over $500 million of P3 energy/resilience projects for several clients. Chris has a BSME and is a registered P.E. in nine states. He is on the Society of American Military Engineers Energy and Sustainability Committee, Board of Directors of the Energy Services Coalition, and is a technical reviewer for the USDOE Solar Technology Office's Small Business Innovation and Technology Transfer grant program.

Dave Wyllie, PE, CEM, CMVP, LEED AP BD+C, Dave is a Senior Project Manager for NV5's Energy Efficiency Services Group. Recent project responsibilities include oversight of two ESPC projects for Los Angeles County Sanitation Districts (LACSD) totaling $75M+ focusing on process equipment renewal, a $165M ESPC project at military housing owned by Island Palm Communities at several U.S. Army facilities on the Island of Oahu, HI; managing ESPC projects at the Washoe County School District (Reno, NV) totaling $34M including interior and exterior lighting upgrades, HVAC equipment replacements and control system improvements.

Daniel Kolimar, Daniel Kolimar has seven years of engineering practice in the building services industry and has been responsible for the design of projects ranging from casinos, commercial retail properties, entertainment precincts and large residential complexes. Daniel's experience of complex projects has provided him with a broad knowledge of mechanical and technology systems. He has worked on numerous projects as part of a multi-disciplinary team which has provided him insight into other services and the opportunities associated with large teams. Daniel's recent experience is in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and control systems integration. This has led to a focus on cost effective measures to reduce his client's energy spend through the use of MBCx, and measurement and verification studies to confirm the achieved energy savings.

Francis Mahony, PE, PMP, Francis Mahony excels in providing custom turnkey energy and technology solutions and services. He has remarkable success working with building owners to optimize complex multi-functional systems including high-rise office buildings, hospitals, chemical and electronic laboratories, pharmaceutical facilities, K-12, colleges, high security federal and state facilities, and military level R&D and production clean rooms. Francis has extensive experience in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and control systems integration. His comprehensive knowledge of mechanical systems, controls architecture and sequence optimization, energy analysis and modeling, measurement & verification, and construction management have led to the successful identification and implementation of cost effective enhancements.

Brent Johnson, PE, LEED AP, is a Founding Principal at Sage and a Civil-Environmental P.E. with over 22 years of experience in the renewable energy and water sectors. Mr. Johnson brings years of experience scoping, designing, and managing projects for water agencies and currently serves as a board member of his local water and fire district. His past work includes analysis of solar, battery energy storage, wind, and hydropower projects. Mr. Johnson will have overall project responsibility for Sage, including strategy, work-product oversight, and interface with stakeholders. He is Principal in Charge for Sage's work with Alameda County Water District (6 MW solar), the City of Manteca Wastewater Facility (3 MW solar, 2 MWh battery) and the San Francisco Public Utilities Commission (SFPUC) on-call renewable energy consulting contract. Previous project leadership includes Regional San (4.2 MW solar), Las Gallinas Valley Sanitary District (7.5 MW solar/wind Feasibility), and Petaluma Recycled Water Feasibility (4 MW floating solar and battery). Mr. Johnson holds an M.S. in Civil-Environmental Engineering from UC Berkeley, is a registered Professional Engineer (PE) in California, and has his LEED accreditation from the U.S. Green Building Council. He also serves as a director for his local water and fire district.

Ilan Fuss is an Associate Principal at Sage and will serve as Project Manager, acting as the primary point of contact for all project work. He has managed over 20 projects at Sage, including several projects with water agency clients, and recently performed a forensic technical and financial analysis for Rancho California Water District's PV project, including a RES-BCT arrangement. Mr. Fuss has also been integral to the negotiation of several recent PPA contracts for Sage's clients and is currently the PM for the Alameda County Water District Project (6 MW solar) project. He earned his B.A. in Economics from the University of Washington at Seattle and he holds a PV Design & Installation certification from the Solar Living Institute.

Tom Williard is a Founding Principal at Sage and will contribute technical guidance, market insights, microgrid expertise, and financial modeling oversight. He has 16 years of experience in renewable energy and 20 years in electrical engineering and software. Tom has a background in hardware and software modeling and is Sage's in-house expert for financial and risk analysis. Tom has developed most of Sage's in-house models, including those that will be used to assess financial feasibility and complicated tariff arrangements, such as RES-BCT. Tom regularly presents to trade groups on advanced energy topics, including battery energy storage and microgrids.

Megan Dawe is a skilled data scientist with experience in energy savings analysis, model development, and energy efficiency. At Sage, she performs energy modeling, financial modeling, field assessments, and geospatial analysis, and also manages certain projects. Ms. Dawe also performs the analyses for feasibility studies, to assess the full range of technical and financial options for each energy project. She earned an M.S. in Architecture, Building Science, and Technology from the University of California at Berkeley and a B.S. in Environmental Studies from the University of California at Santa Barbara. She is also a LEED Green Associate.

NV5 - EES | ENERGY
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EDUCATION
University of South Florida, B.S., Mechanical Engineering

EXPERIENCE
36 Years

REGISTRATIONS
Registered Professional Engineer CT# PEN-0018200, AZ# 51620, ME# 13001, NC# 036672, NV# 020996, RI# 9502, AEE Certified Measurement and Verification Professional CMVP, Certified Energy Manager CEM, LEED Accredited Professional AP, DOE Approved & FEMP Certified, ESPC Project Facilitator

AFFILIATIONS
American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
Association of Energy Engineers (AEE)
Energy Services Coalition (ESC)

CHRIS HALPIN, PE, CEM, CMVP, LEED AP
VICE PRESIDENT | DOE APPROVED & FEMP CERTIFIED ESPC PROJECT FACILITATOR

Chris is the Vice President for NV5's Energy Efficiency Services Group (EES). With over 36years of experience in developing comprehensive energy management, renewable energy, and resilience programs, Chris succeeded at establishing a nationally recognized energy consulting firm, which was acquired by NV5 in 2018. He has focused on helping end-users, utility, and finance clients with their long-term goals of managing energy costs in today's highly volatile energy markets. He is also a nationally known expert, speaker, and trainer on multiple energy efficiency related subjects. In 2019 and 2020, he was selected by the US Department of Energy's Solar Energy Technologies Office as a technical reviewer for the SunShot Program.

PROJECT EXPERIENCE

LOS ANGELES COUNTY SANITATION DISTRICTS TWO PROJECT PILOT ESPC PROGRAMS
PRINCIPAL IN CHARGE
Los Angeles, CA

UNIVERSITY OF NEW HAVEN PPA REVIEW/NET METERING
PRINCIPAL IN CHARGE
West Haven, CT

U.S. NAVY/DLA, PPA REVIEW/150 MW WIND TURBINE
PRINCIPAL IN CHARGE
Grant County, WV

MICROGRID PROGRAM PLANNING PROJECT STATE OF RHODE ISLAND
PRINCIPAL IN CHARGE
Providence, RI

K-12 MICROGRID/RESILIENCE CITY OF STAMFORD
PM- ESPC OWNERS REP
Stamford, CT

DELAWARE DEPT. OF CORRECTIONS ESPC PROJECT
PRINCIPAL IN CHARGE
Various Locations, DE

UNIVERSITY OF MAINE SYSTEM WIDE ESPC PROGRAM
PRINCIPAL IN CHARGE
Orone, ME

PPA/VIRTUAL NET METERING CT STATE COLLEGES AND UNIVERSITIES
PRINCIPAL IN CHARGE
Hartford, CT

RESILIENT ENERGY DEMONSTRATION INITIATIVE U.S. AIR FORCE
ESPC PROJECT FACILITATOR
Multiple Bases Worldwide

ENERGY SURETY/MICROGRID CONSULTING USFDA
ESPC OR-FORESIC ANALYSIS
Silver Springs, MD

UMD IBBR ESPC PROJECT
PROJECT MANAGER
College Park, MD

NC DOT ESPC 1 AND 2 PROJECT
PRINCIPAL IN CHARGE
Various Locations, NC

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EDUCATION
Mechanical Engineering
University of Utah, UT

EXPERIENCE
28 Years

CERTIFICATIONS
Registered Professional Engineer
CA # 29119, NV # 014644
WA # 42259

AEE Certified Measurement and Verification Professional (CMVP)

DOE Approved and FEMP Certified ESPC Project Facilitator (PF)

Certified Energy Manager (CEM)

LEED Accredited Professional

AFFILIATIONS
American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), Northern Nevada Chapter Board of Governors, 2012-present

Association of Energy Engineers Board of Directors, NV Chapter 2012-2019

DAVID WYLLIE

SENIOR PROJECT MANAGER, DOE APPROVED & FEMP CERTIFIED ESPC PROJECT FACILITATOR

Dave is a Senior Project Manager for NV5's Energy Efficiency Services Group. Recent project responsibilities include oversight of a $165M ESPC project at military housing owned by Island Palm Communities at several U.S. Army facilities on the Island of Oahu, HI; managing ESPC projects at the Clark County School District totaling $20M including interior and exterior lighting upgrades, HVAC equipment replacements and control system improvements.

PROJECT EXPERIENCE

WASHOE COUNTY SCHOOL DISTRICTEDUCATION ESPC OWNERS REP ONGOING
SR. PROJECT MANAGER
Reno, NV

CLARK COUNTY SCHOOL DISTRICT EDUCATION ESPC OWNERS REP 2017
SR. PROJECT MANAGER
Clark County, NV

CARSON CITY SCHOOL DISTRICT EDUCATION ESPC ADVISORY-2017
SR. PROJECT MANAGER
Carson City, NV

ISLAND PALMS COMMUNITIES FEDERAL PROJECT FACILITATOR ONGOING
SR. PROJECT MANAGER
OAHU, HI

DEPARTMENT OF VETERAN AFFAIRS GOVERNMENT ESPC/UESC SERVICES-ONGOING
SR. PROJECT MANAGER
Various Locations

CITY OF PHOENIX MUNICIPALITY ESPC OWNERS REP 2019
SR. PROJECT MANAGER
Phoenix, AZ

LOS ANGELES COUNTY SANITATION DISTRICT MUNICIPALITY ESPC OWNERS REP 2018
SR. PROJECT MANAGER
Los Angeles, CA

CITY OF HENDERSON MUNICIPALITY ESPC OWNERS REP-2017
SR. PROJECT MANAGER
Henderson, NV

POWER DELIVERY
St. Paul, MN
Brad.Willers@NV5.com
651.634.7252

EDUCATION
BS, Electrical Engineering, University of Minnesota, 2004

EXPERIENCE
17 years

REGISTRATIONS
Registered Professional Engineer, Electrical: CT #PEN.0029006, IA #20564, MN #47192, NJ #24GE05135900, VT #018.0077116

AFFILIATIONS
Institute of Electrical and Electronics Engineers (IEEE)

Institute of Electrical and Electronics Engineers Power & Energy Society (IEEE PES)

BRAD WILLERS, PE
ELECTRICAL ENGINEER

Bradley brings more than 17 years of wide-ranging experience in the power delivery industry, including design, project management, owner's engineering, equipment procurement assistance, specification development, construction administration, commissioning and start-up activities, and EPC project delivery.

He has experience with substation and power plant control and relay protection design, protective relay settings, relay panel replacements, plus coordination, power flow, voltage drop, arc flash, grounding, and short circuit studies. His expertise also includes SCADA system, indoor substation, gas-insulated switchgear, medium- and high-voltage, and substation physical design in addition to wind and solar feasibility and design.

Project Experience

PUMP STATION 4 RELAY SETTINGS
MINNEAPOLIS WATER WORKS
ENGINEERING - DESIGN ENGINEER
Minneapolis, MN

PUMP STATION 5 RELAY SETTINGS
MINNEAPOLIS WATER WORKS
ENGINEERING - DESIGN ENGINEER
Minneapolis, MN

WIND TURBINE INSTALLATION
HENNEPIN COUNTY
ENGINEERING - DESIGN ENGINEER
Hennepin County, MN

PENTAGON
US DEPARTMENT OF DEFENSE
COMMISSIONING - COMMISSIONING AGENT
Arlington, VA

DIESEL ELECTRICAL GENERATORS
MINNEAPOLIS PUBLIC WORKS
ENGINEERING - PROJECT ENGINEER
Fridley, MN

ARTESIAN RANCH SUBSTATION 230 KV EXPANSION EPC
SAN DIEGO GAS & ELECTRIC
ENGINEERING - PROJECT ENGINEER
San Diego, CA

BAY BOULEVARD SUBSTATION TL23042 ADDITION
SAN DIEGO GAS & ELECTRIC
ENGINEERING - PROJECT ENGINEER
San Diego, CA

JAMACHA SUBSTATION 12 KV REBUILD
SAN DIEGO GAS & ELECTRIC
ENGINEERING - PROJECT ENGINEER
San Diego, CA

FREEMAN & MOUNTAIN VIEW SUBSTATION TRANSFORMER REPLACEMENTS
CITY OF RIVERSIDE PUBLIC UTILITIES DEPARTMENT
ENGINEERING - PROJECT ENGINEER
Riverside, CA

HARE - MILAGRO PRIMARY LINE RELAY REPLACEMENT
CITY OF FARMINGTON
ENGINEERING - PROJECT ENGINEER
Farmington, CA

SPRINGBROOK SUBSTATION ARC FLASH UPGRADE
PORTLAND GENERAL ELECTRIC
ENGINEERING - DESIGN ENGINEER
Portland, OR

WATER | INFRASTRUCTURE

San Diego, CA

james.owens@nv5.com

EDUCATION

Masters of Business Administration - University of California, Riverside, Palm Desert Graduate Center

BS Civil Engineering - California Polytechnic State University San Luis Obispo

Foreign Study - Universidad de Granada, Spain

EXPERIENCE

19 Years

REGISTRATIONS

Professional Engineer: CA #C66067

LEED Accredited Professional

JAMES OWENS, PE, LEED AP

Associate/Engineering Manager

James leads a variety of water and wastewater projects during the troubleshooting, conceptual design, planning, financing, and design phases. James is experienced in performing population and demand projections, hydraulic analysis and design, project, and system financial analysis, and planning and design of facilities. He has extensive knowledge of software tools such as AutoCAD, WaterCAD, SewerCAD, H2OMap, Flowmaster, and MS Office.

James is fluent in Spanish and has had great success in acquiring funding for small and rural communities to improve their water and wastewater systems. He has prepared numerous planning and design projects for CDBG, SRF, BECC, NADBank, Proposition 50, Proposition 84, and USDA for numerous communities along the California/Mexico border and elsewhere in Southern California.

Project Experience

WASTEWATER COLLECTION SYSTEM ANALYSIS

BISHOP PAIUTE TRIBE | BISHOP, INYO COUNTY, CA

Project manager. Project manager for the preliminary analysis, environmental documentation, and preliminary design of wastewater collection system improvements. The Bishop Paiute Tribe plans to construct a conference center and residential housing on the reservation. As a result of this development, the Tribe will generate additional wastewater, exceeding the existing excess capacity at the Eastern Sierra CSD wastewater treatment facility.

WASTEWATER TREATMENT FACILITY IMPROVEMENTS NAVAL AIR FACILITY, EL CENTRO

KELLOGG, BROWN AND ROOT| IMPERIAL COUNTY, CA

Lead engineer for two sets of construction plans and specifications for improvements to the existing wastewater treatment facility at the Naval Air Facility, El Centro. The first set of improvements included a chlorine contact chamber, pressure filtration system, submersible pump station, additional chlorine disinfection capacity, and sodium bisulfite addition for chlorine removal. The second set of improvements was for an equalization basin at the headworks of the plant to allow for an attenuated flow to enter the treatment processes, thereby eliminating the spikes in flows when the two main pump stations were activated.

The improvements were based on a design flow of 180,000 gallons per day, taking into consideration daily and seasonal flow variations due to the on-base population fluctuation, abnormal work schedules, and the large percentage of non-base residing employees.

PRELIMINARY ENGINEERING REPORT, FINANCIAL ANALYSIS, AND WASTEWATER DESIGN

SALTON COMMUNITY SERVICES DISTRICT | SALTON CITY/DESERT SHORES, IMPERIAL COUNTY, CA

Project Engineer. Developed a preliminary engineering report to address recurring wastewater treatment facility violations that impacted local groundwater quality. The report included geographic and demographic information on the community, data collection, and analysis on wastewater characteristics, creation and evaluation of solution alternatives to brackish groundwater discharges. James identified the sources of the violations and developed solutions to rectify the problem areas. Infiltration into the wastewater collection system from the adjacent Salton Sea contained high concentrations total dissolved solids,

WATER | INFRASTRUCTURE
SAN DIEGO, CA
julian.palacios@nv5.com

EDUCATION
MS Environmental Engineering - ITESM - Monterrey Tech – Mexico

BS Civil Engineering - ITESM - Monterrey Tech – Mexico

EXPERIENCE
20 Years

REGISTRATIONS
Professional Engineer - CA No. 67735

Professional Engineer (Mexico) Cedula Profesional - No. 2760774

Certificate Urban Water Management Plan Training

AFFILIATIONS
American Society of Civil Engineers (ASCE), Member

JULIAN PALACIOS, PE

Senior Project Manager

Julian provides planning, engineering design, construction services and feasibility studies for water and wastewater treatment, water distribution, wastewater collection, and hydraulic modeling of water and wastewater systems. Julian has 20 years of experience completing water and wastewater infrastructure projects for local public agencies, including the City of Oceanside, City of Carlsbad, City of Vista, Vallecitos Water District, Olivenhain Municipal Water District, Ramona Municipal Water District and the San Diego County Water Authority.

Project Experience

SAN VICENTE WASTEWATER TREATMENT PLANT IMPROVEMENTS
RAMONA MUNICIPAL WATER DISTRICT | RAMONA, CA
Project manager. Project manager for pre-design report and final construction documents to upgrade the headworks and two secondary clarifiers. The improvements included replacing the existing screenings conveyance system at the headworks with a washer/compactor unit to remove excess organics and water, including a continuous bagger accessory to minimize contact and exposure to the screenings. Upgrades to two of the existing secondary clarifiers include replacing a suction type sludge removal mechanism in Clarifier No. 1 with a scraper system to eliminate clogging and installation of a skimmer and scum baffle at the effluent weirs for both Clarifiers No. 1 and 2.

WASTEWATER TREATMENT FACILITY EVALUATION
NILAND SANITARY DISTRICT | NILAND, CA
Project engineer. Project engineer for the preliminary engineering report which evaluated the facility's performance and reliability. Developed alternatives and layouts for the lift stations, aeration ponds, and disinfection system. Worked with the Regional Water Quality Control Board to verify upcoming water quality requirements, including the California Toxics Rule and Ammonia requirements. Oversaw the sampling of wastewater within the collection system, treatment facility, and nearby water bodies to test ammonia and copper concentrations in an attempt to determine sources of each constituent.

SEELEY WASTEWATER TREATMENT FACILITY IMPROVEMENTS
SEELEY COUNTY WATER DISTRICT OR BORDER ENVIRONMENT COOPERATION COMMISSION | SEELEY, CA
Project engineer. Project engineer for new 250,000 gpd wastewater treatment facility. Prepared grading plans for the treatment lagoons, demolition plans, filtration/UV disinfection facility, hydraulic profile, and mechanical drawings for two pumping stations. Coordinated efforts with geotechnical and electrical subconsultants and approvals from USDA Rural Development, Imperial County Community and Economic Development Department, and the Regional Water Quality Control Board.

EL CENTRO WWTP UPGRADES
CITY OF EL CENTRO | EL CENTRO, CA
Project manager. Project manager for preparing final construction documents to install a new bar screen, replace existing constant speed aeration blowers,

EDUCATION
BS, Mechanical Engineering
University of Technology Sydney

EXPERIENCE
9 years

DANIEL KOLIMAR
PROGRAM MANAGER

Daniel Kolimar has nine years of engineering practice in the building services industry and has been responsible for the design of projects ranging from casinos, commercial retail properties, entertainment precincts and large residential complexes. Daniel's recent experience is in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and control systems integration. This has led to a focus on cost effective measures to reduce his client's energy spend through the use of MBCx, and measurement and verification studies to confirm the achieved energy savings.

Project Experience

GLENDALE COMMUNITY COLLEGE
EDUCATION
Glendale, CA

LOS ANGELES VALLEY COLLEGE
EDUCATION
Valley Glen, CA

CITY OF HENDERSON
CONTROLS UPGRADE
Henderson, NV

LA MESA POLICE STATION
GOVERNMENT | PUBLIC WORKS
ENERGY EFFICIENCY/DEMAND RESPONSE
La Mesa, CA

EDUCATION
BSc in Mechanical Engineering and Material Science, University of California, Los Angeles

MSc in Mechanical Engineering, University of California, Irvine

EXPERIENCE
10 years

FRANCIS MAHONY BS, MS, PM, PMP
PROJECT MANAGER/LEAD TECHNICIAN

Francis Mahony excels in providing custom turnkey energy solutions. He has remarkable success working with building owners to optimize complex multi-functional systems including high-rise office buildings, hospitals, chemical and electronic laboratories, pharmaceutical facilities, K-12, colleges, high security federal and state facilities, and military level R&D and production clean rooms. Francis has extensive experience in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and enhancement of employee productivity. His comprehensive knowledge of mechanical systems, design review, controls architecture and sequence optimization, energy analysis and modeling, and construction management have led to the successful identification and implementation of cost effective enhancements.

Project Experience

GLENDALE COMMUNITY COLLEGE
EDUCATION
Glendale, CA

CITY OF HENDERSON
GOVERNMENT
Henderson, NV

UNIVERSITY OF IOWA BOWEN BUILDING
EDUCATION
Iowa City, IA

CAESARS ENTERTAINMENT
CASINO
Various Locations

Brent Johnson PE, LEED AP

Managing Principal

PROFESSIONAL HISTORY

- 11 Years Renewable Energy
- 22 Years Civil Environmental Engineering

Sage Energy Consulting
Founder
2009 — Present

EDUCATION

M.S. Civil Environmental Engineering
University of California, Berkeley

B.S. Civil Environmental Engineering
Worcester Polytechnic Institute (WPI)

REGISTRATIONS

Professional Engineer (PE)
Civil Engineering, CA Reg. No. C62137

LEED AP
U.S. Green Building Council

AFFILIATIONS

California Solar and Storage Association (CalSSA)

Association of California Water Agencies (ACWA)

Center for Transportation and the Environment (CTE)

CALSTART

UC Berkeley Guest Lecturer

Mr. Johnson has 22 years of experience as a Civil-Environmental Engineer, with 11 years in the renewable energy sector. During his time at Sage, he has developed custom financial and energy modeling tools and managed all aspects of renewable generation and storage projects including feasibility studies, system design, project bids and construction, commissioning, asset management, and environmental credits management. Brent has worked on over 200MW of renewable projects encompassing a number of technologies such as solar PV, energy storage, EV infrastructure, microgrids, wind, and hydropower.

His previous experience in the U.S. and overseas includes design of large municipal facilities, computer modeling, construction management, operational support, and environmental permitting. He has overseen all aspects of project development from concept to commissioned facilities, including serving as a construction manager on a complex, $170M multi-year linear project. Brent holds an M.S. in Civil-Environmental Engineering from UC Berkeley, is a registered Professional Engineer (PE) in California and has his LEED certification from the US Green Building Council. He also currently serves as a director for his local water and fire district.

AREAS OF EXPERTISE

Planning/Feasibility for Solar, Batteries, Microgrids and Electric Vehicles
Energy Usage and Generation Modeling
Financial and Tariff Modeling
Renewable Energy Incentives Management
Design, Construction and Commissioning of Energy Projects
Environmental Permitting

REPRESENTATIVE PROJECT EXPERIENCE

Sacramento Regional County Sanitation District (Regional San)
Elk Grove, CA • 2015 - 2019

- 4 MWp Solar Single-Axis Tracker
- Multi-Site PV/Wind Analysis
- Green Tariff Financial Analysis

Mr. Johnson has overseen all work for Regional San, including full project services for a 4-MWp solar PPA project. The project was sized to meet environmental mitigation targets as part of a $1.6B plant upgrade. Sage also assisted with reviewing other District sites for renewable generation and assessed the financial performance of a green tariff with the local utility, SMUD.

Steve Nebozuk, Program Manager, 916.876-6118, nebozuks@sacsewer.com

SAGE ENERGY CONSULTING

Ilan Fuss

Associate Principal

PROFESSIONAL HISTORY

11 Years Renewable Energy

WORK EXPERIENCE

Sage Energy Consulting
Associate Principal
2015 — Present

Sun Light & Power
Finance and Business Development Executive
2013 — 2014

Sungevity
Solar Consultant
2012 — 2013

Sunergy Systems
Senior Solar Design Consultant
2009 — 2011

EDUCATION

B.A. Economics
University of Washington, Seattle

CERTIFICATIONS

Solar Living Institute
PV Design & Installation

Mr. Fuss has 11 years of experience in renewable energy with a focus on project management, solar asset management, project finance, and financial modeling. Mr. Fuss joined Sage in 2015 and has led the development of Sage's Solar Asset Management division, which focuses on auditing and improving the operational and financial performance of existing renewable energy projects. Mr. Fuss manages large and complex energy projects for clients including Alameda County Water District, Brentwood Unified School District, Vista Unified School District, and San Mateo County.

Prior to joining Sage, Mr. Fuss worked for a leading solar contractor and focused on providing financing solutions for his clients through a network of strategic relationships and managed the RFP response team. His previous work experience includes several years of solar design and project development. As a Sage Associate Principal, he leads Solar Asset Management, manages projects in multiple phases, and provides oversight and review for the project management team.

AREAS OF EXPERTISE

Renewable Energy Project Management
Solar Asset Management
Utility Tariff Modeling
Financial Modeling & Project Finance
Renewable Energy Resource Assessments & Feasibility Studies
Design & Construction Oversight

REPRESENTATIVE PROJECT EXPERIENCE

Rancho California Water District — Solar PV Asset Management

Temecula, CA • 2015 - Present

- 7.9 MW Solar PV at 4 Sites

In 2017, Sage was selected by the Rancho California Water District to provide asset management of 8 MW of existing solar energy generation systems at 4 District sites, including a RES-BCT analysis of benefiting accounts. Sage performed a comprehensive assessment of the technical and financial performance of these systems and compared the findings against the original projections. For sites where the realized savings did not meet the projections, Sage conducted a forensic analysis to determine the root cause of the discrepancies. Sage also modeled multiple tariff scenarios and determined that tariff optimization at two sites would lead to an immediate increase in savings. Sage reviewed the O&M activities provided by the vendor and made recommendations to improve system performance, which resulted in a significant increase in utility savings.

Eva Plajzer, PE, Assistant GM, 951.296.6910, plajzere@ranchowater.com

SAGE ENERGY CONSULTING

Tom Williard

Managing Principal and CEO

PROFESSIONAL HISTORY

- 18 Years Renewable Energy
- 8 Years Engineering Management
- 20 Years Electrical Engineering

WORK EXPERIENCE

Sage Energy Consulting
Founder, CEO
2009 — Present

SolEd Benefit Corporation
Founder, COO/CTO
2013 — 2014

Solmetric Corporation
Founder, Director of Engineering
2005 — 2008

Sustainergy Systems
Renewable Energy Consultancy
Principal
2005 — 2009

System Design
Renewable Energy Consultancy
Founder and Principal
2001 — 2005

Engineering Management Consultant
2000 — 2002

Electrical Engineering:
Ascend Communications
Hayes Microcomputer /
Softcom Digital Microsystems
Dunn Instruments
Senior Electronics Hardware and Software Engineer, Director of Engineering, Senior Technologist
1980 — 2000

Mr. Williard has more than 18 years of experience in energy consulting and development of energy sector businesses, with a focus on the development of technical and financial models to predict potential energy asset allocation and financial performance, and has served as CEO since Sage's inception. In 2013, Mr. Williard cofounded SolEd Benefit Corporation and wrote the project financial models used to structure PPA and lease financings that reduced the cost of renewable energy projects for public schools. In 2005, he cofounded Solmetric, a company that developed the SunEye, a high precision instrument now widely used in the solar industry to measure shade characteristics. In 2001 he cofounded System Design, a renewable energy system design and due diligence company.

Prior to 2001, Mr. Williard worked in electronics engineering in senior hardware and software engineering positions, as senior technologist, and in engineering management. Mr. Williard also provided engineering management consulting to startup and early stage companies and served for seven years as an elected public school trustee in Marin County. As a Sage Principal, he provides financial, policy, and technical oversight for all company projects, and provides expert testimony for clients and industry groups.

AREAS OF EXPERTISE

Modeling Tool Development for Solar PV, Wind, Biogas, and Microgrids
Financial Modeling & System Finance
Engineering & Business Development
Renewable Energy Resource Assessments & Feasibility Studies
Renewable Energy Systems Commissioning Certification & Support
Renewable Energy Policy Support and Expert Testimony

REPRESENTATIVE PROJECT EXPERIENCE

County of Santa Clara

San Jose, CA • 2010-2017

- Zero Net Energy (ZNE) Study
- 2.4 MWp Fuel Cells
- 11.4 MWp Solar PV PPA RES-BCT
- CPUC Policy Guidance

As a leader in implementing ZNE and renewable energy policies, the County's work with Sage included a 400,000 sq.ft. government building retrofit. Over 7 years, Tom led a team providing planning, analysis and advisory support for the County's successful projects.

SAGE ENERGY CONSULTING

Megan Dawe LEED GA

Senior Data Scientist

PROFESSIONAL HISTORY

8 years in building energy analysis
6 years in energy code research and consulting
3 years in quantitative analysis

WORK EXPERIENCE

Sage Energy Consulting
Senior Data Scientist
2020–present

Carbon Lighthouse, Inc.
Quantitative Research Engineer
2019–2020

Center for the Built Environment, University of California, Berkeley
Graduate Student Researcher
2017–2019

TRC Companies, Inc.
Research Associate,
Associate Project Manager
2012–2018

EDUCATION

MS, Architecture, Building Science, and Technology
University of California, Berkeley

BS, Environmental Studies
University of California, Santa Barbara

CERTIFICATIONS AND LICENSES

LEED Green Associate

Megan Dawe is a skilled data scientist with experience in energy savings analysis, model development, and energy efficiency. At Sage, she performs energy modeling, financial modeling, field assessments, and geospatial analysis, and also manages certain projects.

Before starting at Sage, Ms. Dawe performed energy savings analyses and developed models for commercial building energy efficiency. She evaluates the effectiveness of energy efficiency measures using system data and utility bills. She also contributed to cost-effectiveness analyses for building energy code development, including Title 24 and local zero net energy codes. She has published research quantifying and analyzing outdoor and indoor air quality data gathered during California wildfires; evaluating industry claims about thermal comfort in commercial buildings; and assessing trends in commercial zero net energy buildings and integrated design processes.

AREAS OF EXPERTISE

Energy Savings Analysis
Model Development
Energy Efficiency
Quantitative Research

REPRESENTATIVE EXPERIENCE

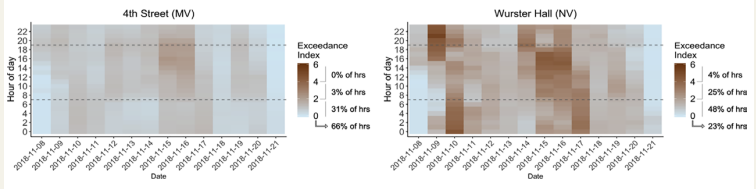
Building Resilience to Fire-Generated $PM_{2.5}$

This project evaluated the ability of buildings to protect occupants from exposure to unhealthy concentrations of small particulate matter ($PM_{2.5}$) during the 2018 Camp Fire in Northern California. Ms. Dawe analyzed 15-minute $PM_{2.5}$ data across different spatial and temporal scales, comparing levels to the World Health Organization's guideline for human exposure (below). The two buildings under study had differing ventilation strategies, one being primarily naturally ventilated and the other being mechanically ventilated with three stages of filtration, including MERV 8 and MERV 13 filters.

Wurster Hall

Ms. Dawe developed visualizations to convey the temporal patterns of $PM_{2.5}$ concentration in each building throughout the wildfire. The study's findings point to the need to balance energy-efficient natural ventilation and mechanical ventilation with sufficient filtration, which continues to be an engineering challenge. Building designers and operators need to have flexible systems in order to maintain healthy indoor air quality under changing conditions, while minimizing the use of fossil fuels.

1608 4th Street



SAGE ENERGY CONSULTING

Sage's Water-Related Experience and References

- Assisting Alameda County Water District implement their clean energy plan, including over 6MW of solar (and potentially battery) on ground, roof, canopy and floating utilizing RES-BCT tariff structures and third-party finance.
- Providing asset management services to Rancho California Water District on their 6+ MW of installed solar, including forensic savings analysis, tariff optimization, and battery addition.
- Performed District-wide greenhouse gas emissions analysis and provided energy planning assistance for West County Wastewater District.
- Provided portfolio analysis of distributed solar projects for multiple San Francisco Public Utility Commission (SFPUC) properties, including assistance to the local CCA in developing a feed-in-tariff for distributed projects. Currently providing owner's representative services for the procurement of approximately 8 MW of solar PV + BESS on four SFPUC Water reservoir sites.
- Procured and managed the implementation of a 4.2 MW solar PPA for Sacramento Regional County Sanitation District (Regional San), including analysis of multiple other sites for solar and wind, as well as an economic analysis of the local utility's green tariff.
- Performed a detailed solar feasibility study and lifecycle cost analysis, inclusive of structural analysis of five water tank roofs, for the City of Bakersfield Water Resources Department.
- Performed a wind and solar feasibility study, both front and back-of-meter, for Las Gallinas Sanitary District, inclusive of wind resource modeling and turbine placement.
- Produced a detailed feasibility study and lifecycle cost analysis of a third-party financed 4 MW floating solar and battery PPA for the City of Petaluma's Water Recycling Facility.
- Performed feasibility, interconnect, procurement, and design review services for an approximately 3 MWp ground-mounted solar PV system and a potential battery energy storage system (BESS) at the City of Manteca's Wastewater Control Facility (WCF). Included securing Equity SGIP incentives for a 3 MWh battery.
- Performed analysis, negotiation, and contracting support for solar PPA project at the Coachella Valley Water District's Palm Desert Facility Campus.
- Provided solar PPA contract review/negotiations, review of battery, negotiations and ongoing owner's representation during design/construction of a solar project for the San Elijo Joint Powers Authority. Providing evaluation of backup emergency power system.

PERFORMANCE ANALYSIS, ASSET MANAGEMENT

RANCHO CALIFORNIA WATER DISTRICT | RANCHO, CA

- Developing district-wide energy strategy
- Solar, battery storage, and EV charging
- Brent Johnson (Principal In Charge)
- Emissions evaluation and carbon accounting

In 2017, Sage was selected by the Rancho California Water District to provide asset management of 8 MW of existing solar energy generation systems at 4 District sites, including a RES-BCT analysis of benefitting accounts. Sage performed a comprehensive assessment of the technical and financial performance of these systems and compared the findings against the original projections. For sites where the realized savings did not meet the projections, Sage conducted a forensic analysis to determine the root cause of the discrepancies.

Sage also modeled multiple tariff scenarios and determined that tariff optimization at two sites would lead to an immediate increase in savings to the District. Sage reviewed the operations and maintenance activities provided by the vendor and made recommendations to improve system performance, which resulted in a significant increase in utility savings.

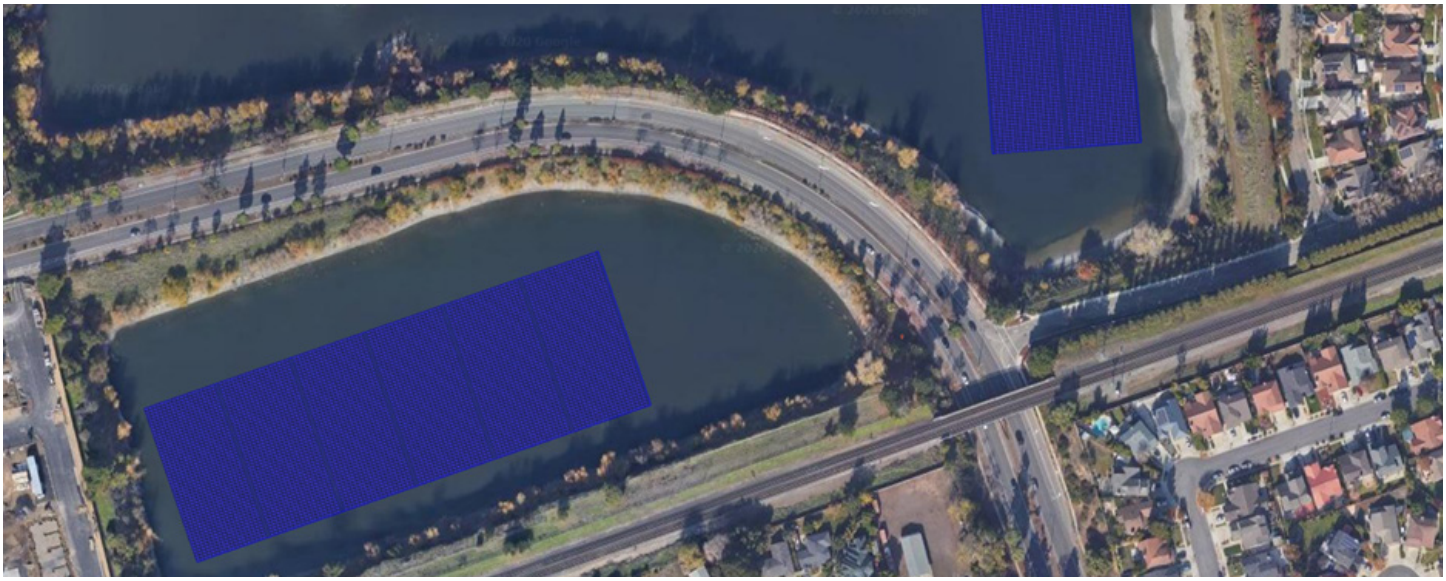
Sage is performing battery savings modeling for BESS being added to a site with existing solar, and assisting with contract negotiations for the energy storage services agreement.

SERVICES

- Technical and Financial Performance Assessments
- Tariff Modeling
- O&M Review
- Forensic Analysis
- Asset Management
- RES-BCT Analysis

CONTACT REFERENCE

Eva Plajzer, PE
Assistant General Manager
Engineering and Operations
(951) 296-6910
plajzere@ranchowater.com



ALAMEDA COUNTY WATER DISTRICT PROJECT

ALAMEDA COUNTY WATER DISTRICT | ALAMEDA COUNTY, CA

- 6 MW Solar PV PPA on 7 Potential Sites, Optional BESS
- PV sites on reservoir roofs, ground-mount, canopy, and optional floating solar
- RES-BCT and NEM
- Project dates: 2019–present
- Project value: $23.9M

Sage is assisting ACWD with implementation of a 6 MW PV/BESS energy project. Sage performed feasibility assessment of 9 District sites to conceptualize sizing and siting of PV systems, determine the preferred interconnection approach, map the target benefitting accounts to generating accounts under RES-BCT, and estimate financial performance of the PV systems under a PPA scenario. Sage interfaced with the local CCA to evaluate tariffs available through the CCA versus PG&E, and oversaw a structural evaluation of reservoir roofs and has been interfacing with the District's environmental consultant on CEQA notices. Sage has also considered generation from the existing in-conduit hydropower system in developing the RES-BCT arrangement.

Sage developed an RFP in collaboration with the District and their legal counsel and managed the procurement process to find a vendor to build, own, and operate the solar PV project under a power purchase agreement (PPA). Sage is currently supporting the District with proposal review and vendor selection. As the project progresses, Sage will support the District by providing design review, construction management, and commissioning. After the project is built, Sage will provide asset management services to the District, to ensure that the project is operating as designed and yielding the expected financial outcomes.

SERVICES

- Feasibility Analysis
- Complex Tariff Analysis
- RFP, Procurement, and Contracting
- Design and Construction Support
- Commissioning
- Asset Management

CONTACT REFERENCE

Shane O'Nesky
Project Engineer
510-668-4489
shane.onesky@acwd.com

ENERGY AND WATER EFFICIENCY

CITY OF MODESTO AND COUNTY OF STANISLAUS | MODESTO, CA

- City and County Energy Action Plans and Energy Services Procurement
- Wastewater Treatment Plant Solar PV PPA Analysis
- Project Dates: 2020–ongoing
- Sage Fee: $230,000

Sage, as part of a team with the Center for Transportation and the Environment (CTE) and Stockton Unified School District (SUSD), was awarded a $4.8M Clean Mobility in Schools Grant from the California Air Resources Board. Sage's role, which began in April 2020, includes Equity SGIP incentive applications; developing District-wide energy strategy; assisting with solar, battery storage, and EV charging implementation; and performing carbon accounting and ongoing emissions evaluation. Charging strategy includes pairing onsite solar and stationary storage with a charge management platform to optimize the cost and carbon content of electricity used to charge the buses.

The grant allows SUSD to develop a zero-emissions roadmap and explore emission-reducing strategies across the District. The program includes electric school purchase and deployment, charging infrastructure, a charge management platform, student and staff transportation, zero-emissions ground maintenance and fleet vehicles, as well as generation and energy storage. The team will undertake outreach and education activities aimed at SUSD students, teachers and staff, the Stockton community and other school districts. The project also includes comprehensive data collection and reporting to measure the impact of the project components.

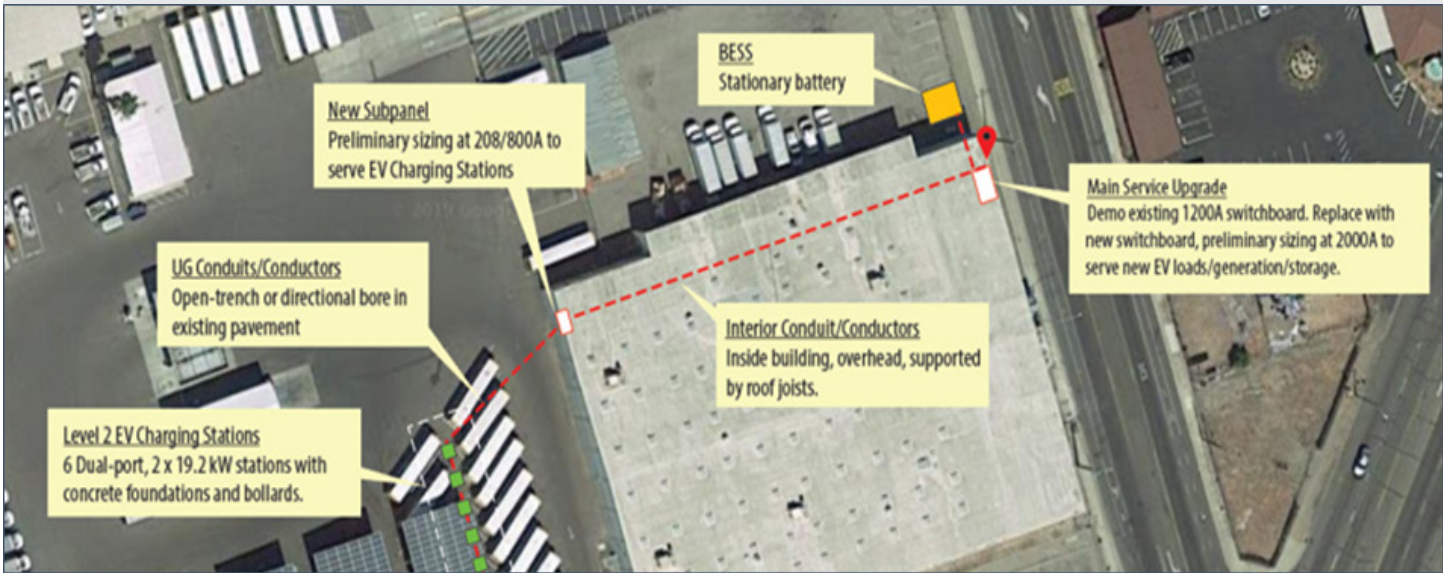
SERVICES

- Feasibility Studies
- Financial and Performance Modeling
- RFP Development
- Proposal Analysis
- Vendor Selection Support
- Interconnection
- PPA Analysis

CONTACT REFERENCE

Patrick Crowley, P.E., FMP,
Facility Manager / Building Administration
Public Works Building Services
City of Modesto
209.402.6812
pcrowley@modestogov.com

Mark Loeser
Deputy Director
Stanislaus County General Services Agency
209.525.6554
loeserm@stancounty.com



CARB CLEAN MOBILITY IN SCHOOLS AT STOCKTON USD

STOCKTON UNIFIED SCHOOL DISTRICT | STOCKTON, CA

- Asset management of 8 MW of solar PV at 4 sites
- Technical and financial performance assessments
- RES-BCT analysis
- Project dates: 2017–present
- Project value: $21.3M
- Sage's fees: $85,000

Sage, as part of a team with the Center for Transportation and the Environment (CTE) and Stockton Unified School District (SUSD), was awarded a $4.8M Clean Mobility in Schools Grant from the California Air Resources Board. Sage's role, which began in April 2020, includes Equity SGIP incentive applications; developing District-wide energy strategy; assisting with solar, battery storage, and EV charging implementation; and performing carbon accounting and ongoing emissions evaluation. Charging strategy includes pairing onsite solar and stationary storage with a charge management platform to optimize the cost and carbon content of electricity used to charge the buses.

The grant allows SUSD to develop a zero-emissions roadmap and explore emission-reducing strategies across the District. The program includes electric school purchase and deployment, charging infrastructure, a charge management platform, student and staff transportation, zero-emissions ground maintenance and fleet vehicles, as well as generation and energy storage. The team will undertake outreach and education activities aimed at SUSD students, teachers and staff, the Stockton community and other school districts. The project also includes comprehensive data collection and reporting to measure the impact of the project components.

SERVICES

- District-Wide Energy Strategy
- Solar/Stationary Storage Feasibility
- EV Infrastructure Recommendations
- Emissions Evaluation
- Carbon Accounting
- LCFS Modeling

CONTACT REFERENCE

Erik Bigelow
Senior Engineering Consultant
Center for Transportation and the Environment
erik@cte.tv
404.376.5390
635 Fairview Ave N,
St Paul, MN 55104

CATALINA ISLAND MICROGRID FEASIBILITY STUDY

SOUTHERN CALIFORNIA EDISON | SANTA CATALINA, CA

Southern California Edison is required by the state of California to reduce its NOx emissions from its power generation fleet. The island of Santa Catalina is off the coast of Southern California and within SCE's service territory. It is currently powered by six diesel generators, 23, 65 kW propane microturbines, and a 1MW/7.2MWh NaS battery storage system. NV5 provided a feasibility study to explore three solutions to repower the island consisting of the island's existing electrical system, power generation resources, and top locations for renewable development and deployment including wind, solar, battery storage, and ocean power technologies. NV5 also evaluated the role of energy efficiency and demand response to achieve these goals, via metrics enabling an all-source common basis for evaluation of both supply and demand reduction options. The results of this study provided SCE a guide on how to update their existing power generation sources into an emissions-compliant system.

CHALLENGES & SOLUTIONS

The immense nature of the project scope led to a large project team with expertise in many different fields. Keeping these studies organized and consistent in a format that could be easily digested and referenced was a major challenge for this project. Another challenge involved the sheer number of stakeholders involved in the study process. Many different groups with various levels of expertise had to come together and provide input and information to the project narrative. It was an organizational and logistical challenge to receive, summarize, and digest input from the various parties involved in the project. To work through these challenges, NV5 coordinated closely with, and took in feedback from, all the team members and stakeholders involved. We stayed highly organized to control the incoming data and input from all involved. Most importantly, NV5 made sure that everyone felt heard and that all comments, suggestions, and requests were responded to. Ultimately, NV5 produced a detailed, cohesive report that took in input from a variety of stakeholders and a range of data sources.

SERVICES

- Environmental Services & Permitting
- Microgrid Optimization & Design
- Electric Distribution Impact Study
- Master Planning Infrastructure & Utilities
- Renewable Energy Facilities Siting & Design

CONTACT REFERENCE

Erik Bigelow
Senior Engineering Consultant
Center for Transportation and the Environment
erik@cte.tv
404.376.5390
635 Fairview Ave N,
St Paul, MN 55104

PROJECT SIZE: 15 MW, 12 KV
CONSTRUCTION COST: TBD
VALUE OF CONSULTANT SERVICES: $448,610
YEAR COMPLETED: 2020 (EST)

ENERGY SAVINGS PERFORMANCE CONTRACTS

LOS ANGELES COUNTY SANITATION DISTRICTS | LOS ANGELES, CA

In 2019 NV5EES was hired by LACSD to act as an Owner's Rep for their pilot ESPC projects at the Valencia Water Reclamation Plant and the Carson Water Reclamation Plant (CWRP). NV5 started by educating the LACSD management, finance, and engineering staff on the ESPC process, and how to comply with CA GS 4217. NV5 then worked with LACSD to develop the ESCO RFP, evaluated proposals, assisted with the shortlisting and interviews, and selection of Schneider Electric. The energy conservation measures (ECMS) include blower and air compressor replacements, premium efficiency motors, VFDs, lighting, and SCADA controls upgrades, worth over $31 million.

NV5 helped the process run so smoothly that another LACSD plant wanted to start an ESPC project three months later. We followed the same process, and AECOM was selected as the ESCO for the $45M+ ESPC project to replace obsolete oxygen generation systems at the Carson Joint Water Pollution Control Plant (JWPCP) with Vacuum Pressure Swing Adsorption (VPSA) technology. It is an excellent first step in reducing the energy consumption and carbon footprint of the facility, without compromising treatment capacity. The VPSA project will significantly reduce energy consumption as well as reduce operation and maintenance costs.

We then provided quality assurance services on the Investment Grade Audit, and Energy Services Agreement developed by the ESCO. We are currently providing QA services on the final design and construction of both projects

SERVICES

- Educate LACSD stakeholders on ESPC process
- Developed RFP in 10 days to meet fast-track project schedule
- Reviewed proposals, assisted in ESCO selection
- QA of Investment Grade Audits, energy services agreements, design, CX, M&V, and project acceptance

CONTACT REFERENCE

Joseph Chang
Supervising Engineer
Water Reclamation Plants
562-908-4288 ext. 3509
jchang@lacsd.org

SCHEDULE

The proposed schedule for Phases 1 and 2 of this project is shown in the Gantt chart below. The schedule for Phase 2 includes the three preliminary projects that are described in the scope. The schedule for additional projects will be developed once we are under contract and working closely with IRWD. This schedule is based on the following assumptions. If these conditions are not met, the schedule and budget may be impacted.

PHASE 1

- Combined Phase 1 and Phase 2 duration will be 14 months
- IRWD's personnel and sites are readily available for interviews and site visits
- IRWD's historic energy use data and GHG estimates are readily available
- IRWD provides comments on draft documents within one week of receipt
- Data collection will be conducted for 20 sites

PHASE 2

MWRP Electric Load Study

- Assumes up to 50 electrical buses. Models will be modeled down to 50hp. All other loads on panelboards will be modeled as block loads

SCE Billing Rates and Demand Response Participation

- SCE billing rates and demand response participation will be evaluated for 20 sites

Developing a Real-Time and Historic Energy Use Database

- A real-time and historic energy use database will be planned for 20 sites

Energy Generation and Battery Energy Storage Project Development

- Solar PV + BESS will be evaluated at up to 10 sites

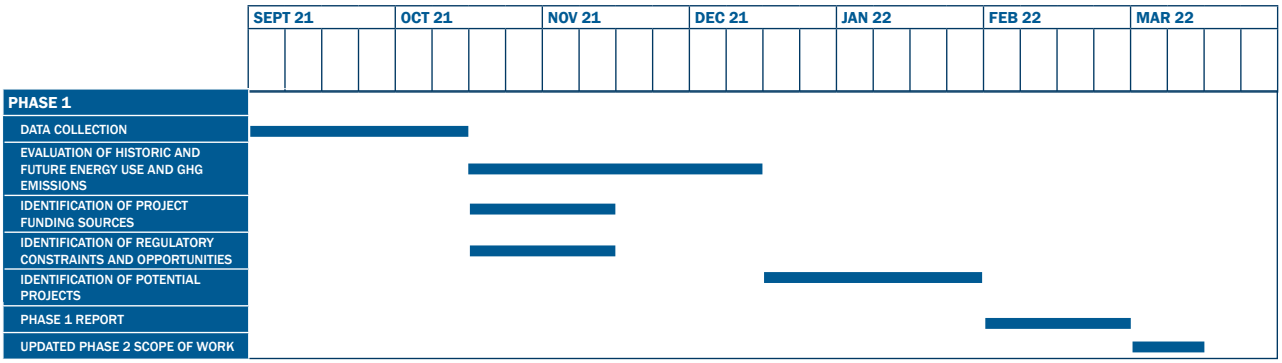
Fleet Electrification Project Development

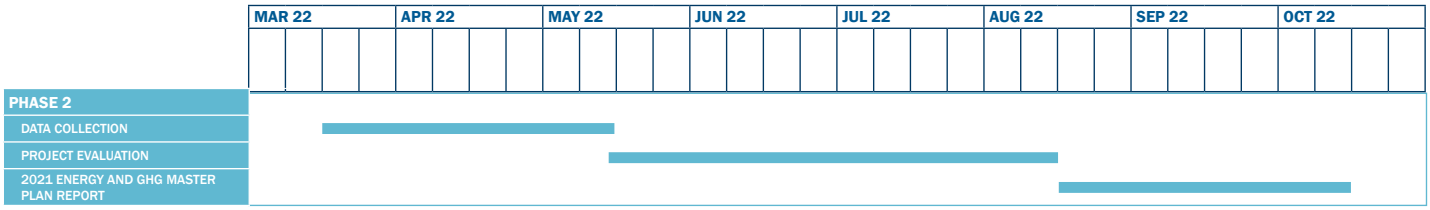
- Vehicle fleet electrification will consider planning for EV charging infrastructure at up to 2 sites

Energy Efficiency Project Identification, Analysis, and Development

- Portfolio utility spend is ~$22 million in 2020
- Estimated 20% savings from EE projects, or $4.4 million
- Typical fee for technical support (2%) of EE project costs, estimate our effort for IRWD will be about 2/3 of normal support
- Included $6,000 in travel costs for our Nevada based staff for several on-site meetings, data collection, and site inspections. (Assuming the pandemic does not prevent in-person meetings)
- We have included only minimal time for Phase 2 for potential energy efficiency projects, as those budgets will be developed in Phase 1
- Since the Electrical Load Study is not a two phase endeavor, we have split it into a 20%/80% assumed effort to match the format of the rest of the total budget for Phases 1 and 2

SCHEDULE


SEPT 21
OCT 21
NOV 21
DEC 21
JAN 22
FEB 22
MAR 22
PHASE 1
DATA COLLECTION
EVALUATION OF HISTORIC AND FUTURE ENERGY USE AND GHG EMISSIONS
IDENTIFICATION OF PROJECT FUNDING SOURCES
IDENTIFICATION OF REGULATORY CONSTRAINTS AND OPPORTUNITIES
IDENTIFICATION OF POTENTIAL PROJECTS
PHASE 1 REPORT
UPDATED PHASE 2 SCOPE OF WORK


MAR 22
APR 22
MAY 22
JUN 22
JUL 22
AUG 22
SEP 22
OCT 22
PHASE 2
DATA COLLECTION
PROJECT EVALUATION
2021 ENERGY AND GHG MASTER PLAN REPORT

The scope of this project includes a wide range of potential projects at up to twenty sites. The breadth of this potential scope and the level of effort needed to assess the different project types is not possible to predict without the investigations that will be performed in Phase 1 and the first few projects listed in Table 1.2 of the RFP. The NV5 team has put considerable thought into the expected hours and budget necessary to complete the proposed scope of work and has included key schedule and budget assumptions in the Schedule section of this proposal, above. If project scope or duration varies significantly from those assumptions, the NV5 team may request adjustments to the budget commensurate with the change in scope.

		Sage						NV5											
Role		Principal	Principal	Sr. PM	Sr. Data Scientist	Analyst	Admin	Asst PIC	Asst PM	Sr Data Scientist	Sr PM	Electrical Engineer	Water/WWTP Expert	Water/WWTP Expert	Admin. Assistance	Energy Analyst		Total	Total
Name		Brent Johnson	Tom Williard	Ilan Fuss	Megan Dawe	TBD	Mary West	Chris Halpin	Dave Wyllie	Francis Mahony	Dan Kolimar	Brad Willers	James Owen	Julian Palacios	TBD	TBD		Hours	Fee
2021 Hourly Rates		$250	$250	$230	$205	$145	$80	$300	$210	$180	$190	$195	$225	$225	$100	$89		Total	Total
2022 Hourly Rates		$265	$265	$235	$215	$155	$85	$300	$215	$185	$195	$201	$230	$230	$105	$95	Travel		
Tasks		Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours		Hours	$
Task 1	**Phase 1**	58	20	170	84	48	18	19	54	41	73	50	32	34	64	10	$ 8,000	775	$162,400
1.1	Phase 1 Project Management			26			14	2	12		7	2	2	2				67	$12,840
1.2	Phase 1 Meetings	14		24				4	24	4	10	4	4	4	2	2	$4,000	96	$24,838
1.3	Data Collection	16		40	32	8			2	15	24	2	8	8	24	8	$4,000	187	$39,702
1.4	Evaluation of Historic and Future Energy Use and GHG Emissions								2	10	16	4			8			40	$6,840
1.5	Identification of Project Funding Sources		4	8	8			2	2			1	2					27	$6,145
1.6	Identification of Regulatory Contraints and Opportunities		16	8				1				1		4				30	$7,235
1.7	Identification of Potential Projects	16		32	40	40		2	4			24	8	8	24			198	$37,480
1.8	Phase 1 Report	8		24	4			4	4	12	8	8	4	4	4			84	$17,820
1.9	Updated Phase 2 Scope of Work	4		8			4	4	4		8	4	4	4	2			46	$9,500
Task 2	**Phase 2**	27	0	102	224	80	14	10	32	0	0	200	0	0			$ 4,000	689	$145,595
2.1	Phase 2 Project Management			20			14		4			16						54	$9,850
2.2	Phase 2 Meetings	7		18				6	18			16					$2,000	65	$16,785
2.3	Project Evaluation	4		32	208	80			2			160						486	$97,320
2.4	2021 Energy and GHG Master Plan Report	16		32	16			4	8			8					$2,000	84	$21,640
Total Estimated Project Hours		**85**	**20**	**272**	**308**	**128**	**32**	**29**	**86**	**41**	**73**	**250**	**32**	**34**	**64**	**10**	**$12,000**	**1,464**	**$307,995**

JOINT VENTURE

NV5 will be the Prime firm for this contract. Sage Energy Consulting will be the subcontractor to NV5.

CONFLICTS OF INTEREST PLAN

NV5 has no known conflicts of interest. Additionally, the following is an excerpt from NV5's employee Manual, which is signed by each employee and will be followed by our team on this project. This shows that NV5 takes this issue very seriously.

All employees, officers and directors must avoid any investments, business interests or other associations with third parties which interfere with or influence, or even appear to interfere with or influence, their objective judgment in furtherance of their responsibility to act in the Company's best interests. A conflict of interest arises when an employee's, officer's or director's judgment in acting on the Company's behalf is or may be influenced by an actual or potential personal benefit for the employee, officer or director, or a member of the employee's, officer's or director's family or household, from such an investment, business interest or some other association.

The benefits may be direct or indirect, financial or non-financial, through family connections, personal associations or otherwise. It is not possible to describe all the circumstances where a conflict of interest involving an employee, officer, director or a member of his or her family or household exists. The following examples are given only to guide employees, officers and directors in making judgments about possible sources of such conflicts:

- Owning an interest in the business of a supplier, competitor or customer.
- Acting as a consultant, employee, officer or director for a supplier, competitor or customer.
- Competing with, or aiding others in competing with, the Company in connection with the purchase, sale or other disposition of its property or products, or in connection with the Company's provision of products or services.
- Acting on behalf of the Company in any transaction with any supplier, competitor or customer in which a member of one's family or household is a principal, officer or representative.

If any employee, officer or director finds himself or herself in a situation where a conflict of interest exists, he or she immediately should bring the matter to the attention of his or her supervisor, or other directors or officers who will be responsible for contacting the Company's General Counsel or the Company's outside legal counsel for appropriate guidance.

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

5/1/2021

DATE (MM/DD/YYYY) 10/22/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Lockton Companies 3280 Peachtree Road NE, Suite #250 Atlanta GA 30305 (404) 460-3600	**CONTACT NAME:** **PHONE (A/C, No, Ext):** **FAX (A/C, No):** **E-MAIL ADDRESS:**
INSURED 1484318 Sebesta, Inc., an NV5 Company 1450 Energy Park Drive, Suite 300 St. Paul MN 55108	**INSURER(S) AFFORDING COVERAGE** — **NAIC #** **INSURER A :** Valley Forge Insurance Company — 20508 **INSURER B :** Continental Casualty Company — 20443 **INSURER C :** The Continental Insurance Company — 35289 **INSURER D :** National Fire Insurance Co of Hartford — 20478 **INSURER E :** Berkley Insurance Company — 32603 **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 17072789 **REVISION NUMBER:** XXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR X Contractual Liab X Cross Liab Incl GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY X PRO-JECT X LOC OTHER:	N	N	6057040530	5/1/2020	5/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 1,000,000 $ 15,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
B	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY	N	N	6057040575	5/1/2020	5/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ XXXXXXX $ XXXXXXX $ XXXXXXX
C	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $ $0	N	N	CUE6076054554	5/1/2020	5/1/2021	EACH OCCURRENCE AGGREGATE	$ 20,000,000 $ 20,000,000
D	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	N	WC657040561	5/1/2020	5/1/2021	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
E	Professional Liability	N	N	AEC903639504	5/1/2020	5/1/2021	Each Claim: $10M Aggregate: $20M	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

17072789
Specimen Certificate

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

NV5 does not have any substantial contract concerns.

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September 22, 2021
Prepared and
submitted by: P. Weghorst
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

THIRD AMENDED AGREEMENT BETWEEN IRWD AND CITY OF ORANGE
TO FACILITATE PFAS REMOVAL FROM GROUNDWATER

SUMMARY:

IRWD and Orange County Water District (OCWD) are currently designing treatment facilities at IRWD's Well OPA-1 that will be used to remove per- and poly-fluoroalkyl substance (PFAS) contamination in the Orange County Groundwater Basin. OCWD is also designing PFAS treatment facilities for two new wells to be constructed by the City of Orange. IRWD, the City of Orange, and OCWD have a common interest in removing PFAS from the basin. To facilitate this objective using a mutually beneficial approach, a third amendment to the existing agreement between IRWD and the City of Orange has been jointly prepared. Staff recommends the Board authorize the General Manager to execute the Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service, and Natural Treatment System Service between IRWD and the City of Orange, subject to non-substantive changes.

BACKGROUND:

IRWD owns and operates Well OPA-1, located within the City of Orange. IRWD proposes to increase pumping at Well OPA-1 from 900 acre-feet per year (AFY) to approximately 3,200 AFY, or anther amount approved by a joint IRWD and City technical staff committee or an amount that is demonstrated through environmental review that does not impact the City's Well No. 23. This will facilitate achieving OCWD's objective to construct and maximize groundwater treatment facilities to remove PFAS contamination from the Basin. The increased pumping would be used to serve IRWD's customers outside the City's sphere of influence and within IRWD's service area. To provide for the environmental review of the increased pumping and PFAS treatment at Well OPA-1, staff has prepared a final addendum to the Initial Study / Mitigated Negative Declaration (IS/MND) that was adopted by the Board in June 2012 for the Orange Park Acres Well Replacement Project.

The City of Orange is currently planning to construct two new wells in its service area. OCWD would construct PFAS treatment facilities at these new wells, which would then be operated by the City of Orange. The City's environmental review of the construction and operation of the new City wells and treatment facilities is anticipated to occur later this year.

OCWD Groundwater Modeling:

OCWD has modeled the well drawdown impacts of the proposed increased pumping at Well OPA-1. OCWD's modeling results demonstrate that the groundwater drawdown resulting from increased pumping of Well OPA-1 will have a less-than-significant impact on the City's wells. OCWD expects that modeling would demonstrate that the drawdown impacts from the City's new wells will also have a less-than-significant impact on Well OPA-1.

IRWD and City of Orange Agreement:

IRWD and the City entered into an agreement dated November 5, 1984, entitled "Water Supply and Service Agreement," for the purpose of creating a joint water supply arrangement for areas within the City's sphere of influence. The November 1984 agreement was superseded in its entirety in November 1994 through a First Amended Agreement which modified the joint water supply arrangements and incorporated arrangements concerning sewer and non-potable water service. The First Amended Agreement was amended and superseded in its entirety in August 2006 by a Second Amended Agreement.

Third Amended Agreement to Facilitate PFAS Treatment:

To facilitate the mutual interests of IRWD, the City, and OCWD of treating groundwater to remove PFAS contamination from the Basin, staff and IRWD's legal counsel have worked with the City and its legal counsel to prepare the Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service and Natural Treatment System Service that is provided as Exhibit "A". The revisions incorporated into the Third Amended Agreement include the following:

1. Pumping of the wells with PFAS treatment will have a less-than-significant impact;
2. The agencies will not challenge any aspect of their respective well and treatment projects or related CEQA documents;
3. Provisions to ensure that pumping of the wells and PFAS treatment can occur uninterrupted;
4. IRWD will pay to make certain feasible improvements at the City's Well No. 23;
5. If the improvements at the City's Well No. 23 are determined not to be feasible, then pumping from IRWD's OPA Well-1 and the City's Well No. 23 would be reduced incrementally at the same rate; and
6. IRWD's additional pumping at Well OPA-1 could be used to serve water outside the sphere of influence of the City of Orange and inside IRWD's service area.

FISCAL IMPACTS:

OCWD will pay for the capital facilities to treat for PFAS at Well OPA-1. IRWD and OCWD will share equally in the operations and maintenance costs of the treatment facilities. In accordance with the Third Amended Agreement, IRWD will pay for and conduct the preparation of a Feasibility Study regarding lowering the pump bowls on the City's Well No. 23. If it is determined that the improvements are feasible, then IRWD will be pay for and conduct the preparation of a 30% design of the improvements. IRWD would then pay for the engineers' estimate for the improvements in accordance with the terms of the agreement.

ENVIRONMENTAL COMPLIANCE:

To provide for the environmental review of the increased pumping and PFAS treatment at Well OPA-1, staff, with the assistance of environmental consultants, have prepared a final addendum to the IS/MND that was adopted by the Board in June 2012 for the Orange Park Acres Well Replacement Project.

RECOMMENDATION:

That the Board authorize the General Manager to execute the Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service, and Natural Treatment System Service between IRWD and the City of Orange, subject to non-substantive changes.

LIST OF EXHIBITS:

Exhibit "A" – Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service, and Natural Treatment System Service

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EXHIBIT "A"

THIRD AMENDED AGREEMENT

WATER, SUPPLY AND SERVICE
SEWER AND RECLAIMED WATER
SUPPLY AND SERVICE
NATURAL TREATMENT SYSTEM SERVICE

THIS THIRD AMENDED AGREEMENT ("**Agreement**") is made as day of October 12, 2021, by and between the CITY OF ORANGE, a California municipal corporation ("**ORANGE**"), and the IRVINE RANCH WATER DISTRICT, a California water district formed and existing pursuant to Section 34000 et seq. of the California water code ("**IRWD**").

A. ORANGE and IRWD entered into an agreement dated November 5, 1984, entitled "Water Supply and Service Agreement," for the purpose of creating a joint water supply arrangement for that certain real property (the "**Property**") located in Orange County, California, consisting of approximately 9,300 acres, as depicted on Exhibit "A" attached hereto. The November 5, 1984 agreement was amended and superseded in its entirety by the November 21, 1994 agreement between the Parties entitled "First Amended Water Supply and Service Agreement and Sewer and Reclaimed Water Supply and Service Agreement," which provided for a modified joint water supply arrangement and also incorporated arrangements concerning sewer and nonpotable water service to the Property. The First Amended Agreement was amended and superseded in its entirety by the August 28, 2006 "Second Amended Agreement [regarding] Water Supply and Service, Sewer and Reclaimed Water Supply and Service[, and] Natural Treatment System Service" ("**Second Amended Agreement**.")

B. It continues to be the Parties' intent to provide for separate service and supply arrangements to apply to the areas depicted on Exhibit "B" as "**Santiago Hills I**" (comprising the portion of the Property referred to in the First Amended Agreement as the "Developed Area") and in Exhibit "C" as "**Santiago Hills II**," "**East Orange Area I**," and "**East Orange Area II**."

C. It is acknowledged that Santiago Hills I essentially comprises the portions of the Property which are within ORANGE's 736 foot elevation zone (such 736 Zone is equivalent to IRWD's Zone 5), for water service purposes, and the portions of the Property which are within the Consolidated Revenue Area of the Orange County Sanitation District ("**OCSD**") (successor to the County Sanitation Districts of Orange County), for sewer service purposes. Similarly, it is acknowledged that Santiago Hills II, East Orange Area I and East Orange Area II are within elevation zones higher than the ORANGE 736 Zone (IRWD's Zone 5) for water service purposes and are within (or subject to IRWD-SCWD consolidation, will be within) Revenue Area 14 of OCSD for sewer service purposes. The definitions of "Property," "Santiago Hills I," "Santiago Hills II," "East Orange Area I," "East Orange Area II," "Future Development Area" and "SHII/East Orange Area" and Exhibits B and C notwithstanding, it is intended that the Joint Engineering and Management Committee described herein may make minor adjustments between the respective areas where appropriate to achieve efficiency in service arrangements.

D. Existing subarea service master planning for the Future Development Area has proceeded and reflects various changes to development and service plans that have occurred since the date of the Second Amended Agreement. In response to these changes, as well as the need to

modify the Second Amended Agreement to address areas adjacent to the Future Development Area that have become included in IRWD through consolidation, the Parties desire to implement the modified joint water, sewer and nonpotable water supply and service arrangements and natural treatment system service arrangements set forth herein, in order to maintain the most effective use of the Parties' sources of supply, facilities, financing and service and payment structure in the provision of services to the ultimate consumer.

E. The Parties, together with Orange County Water District ("**OCWD**"), have mutual interests relating to remediating per- and poly-fluoroalkyl substances ("**PFAS**") contamination in the Orange County Groundwater Basin, including coordinating and supporting the environmental review of the Parties' proposed well and PFAS treatment projects.

F. Each Party has near-term plans to construct wells or increase groundwater pumping and install PFAS treatment in areas that are hydrogeologically interconnected and impacted by PFAS contamination, as follows:

- IRWD plans to increase pumping at its Well OPA-1 from 900 acre feet per year ("**AFY**") to approximately 3,200 AFY for use in IRWD's service area, and to add wellhead PFAS treatment at this well ("**IRWD Project**").

- ORANGE plans to construct two additional wells in its service area ("**City Project**") to facilitate increased pumping at which the City will add PFAS treatment.

- Together the IRWD Project and the City Project are the "**Well Projects**".

G. OCWD has modeled the well drawdown impacts of the proposed increased pumping under the IRWD Project demonstrating that the groundwater drawdown resulting from the IRWD Project will have a less-than-significant impact on the City's existing wells. The Parties anticipate that the proposed City Project will have a less-than-significant impact on the IRWD Project.

H. The Parties intend by this Third Amended Agreement to facilitate the Parties' mutual interests in effectively pumping and treating groundwater under the Well Projects and thereby the Second Amended Agreement is superseded in its entirety.

NOW, THEREFORE, in consideration of the foregoing recitals and of the following mutual covenants and conditions, IRWD and ORANGE agree as follows:

1. Design Criteria. The Parties acknowledge that design criteria for developing and implementing the provision of water, sewer, nonpotable water and natural treatment system service to the "SHII/East Orange Area" will be as established by IRWD through its subarea master planning. The "SHII/East Orange Area" is depicted on Exhibit "C".

2. Potable Water, Sewer, Nonpotable Water and Natural Treatment System Service for SHII/East Orange Area.

a. Potable Water: IRWD will provide all retail and wholesale potable water service to the SHII/East Orange Area.

b. Nonpotable Water: IRWD will provide all nonpotable water service to the SHII/East Orange Area, to the extent the provision of such service to the SHII/East Orange Area is determined to be feasible by IRWD. Portions of the on-site water systems in the SHII/East Orange Area may be designed with dual-system capability so that it will be possible in the future to provide potable or nonpotable water for irrigation of parks, greenbelts, golf courses and such other uses as may be approved from time to time under applicable laws and regulations.

c. Sewage Collection, Treatment, and Disposal: The SHII/East Orange Area is tributary to and will receive service from IRWD by means of IRWD's Harvard Avenue Trunk Sewer ("**HATS**"). The collection systems within the SHII/East Orange Area shall be designed to deliver sewage to HATS. The SHII/East Orange Area is within Revenue Area 14 of OCSD, such that the SHII/East Orange Area may be served by the facilities of OCSD in addition to those of IRWD. Agreements among IRWD and OCSD provide that IRWD shall be the local sewering agency within Revenue Area 14.

d. Natural Treatment System ("**NTS**"): IRWD will own, operate and maintain six NTS water quality basin facilities on four sites in Santiago Hills II and East Orange Area I. In addition, IRWD will conduct periodic inspections, and may perform maintenance and repairs subject to reimbursement by the homeowners' association in the event the association fails to perform the same, on up to 20 water quality basin facilities to be owned by homeowners' associations in Santiago Hills II and East Orange Area.

e. General: Subject to Section 8(b), IRWD will provide the retail services described in this Section under its rules and regulations applicable to each respective class of customers.

f. Re-Opener: In the event IRWD fails to provide adequate water, sewer, and non-potable water service to the SHII/East Orange Area consistent with applicable regulations, laws and industry standards, ORANGE shall notify IRWD in writing of the inadequacy. IRWD agrees to correct the inadequacy within 180 days of such notice or explain why the service level is consistent with applicable regulations, laws and industry standards. If IRWD fails to make the correction or provide such explanation, ORANGE may initiate negotiations to amend this Agreement such that ORANGE would become the service provider for the SHII/East Orange Area.

3. Potable Water, Sewer, and Nonpotable Water Service to Santiago Hills I.

a. Potable Water, Sewer, and Nonpotable Water Service: ORANGE will provide all retail and wholesale potable water and sewer service and all retail nonpotable water service to Santiago Hills I.

b. Nonpotable Water Supply: IRWD will provide all wholesale nonpotable water service to Santiago Hills I, to the extent the provision of such service to Santiago Hills I is determined to be feasible by IRWD.

c. General: ORANGE will provide the retail services described in this Section under its rules and regulations applicable to each respective class of customers.

4. Services to Other Areas.

a. Irvine Regional Park: The property owned by the County of Orange and known as "Irvine Regional Park" shall not be deemed included in Santiago Hills I or the Property for purposes of this Agreement. Potable water service to Irvine Regional Park shall be provided by ORANGE, and sewer service and nonpotable water service to Irvine Regional Park shall be provided by IRWD.

b. Nonpotable Water Service to Other Areas of ORANGE: IRWD agrees to cooperate with ORANGE to develop a source of nonpotable water (reclaimed or untreated water) for retail distribution within areas of ORANGE not addressed in Sections 2, 3 or 4(a) hereof.

5. Mutual Consent for Service. Each of the Parties hereby consents to service by the other within the consenting Party's territory in accordance with this agreement.

6. Customer Service. Notwithstanding the above-described service structure or the provisions of Section 7, the Parties agree that the service structure is not intended to delay or encumber response to customer matters involving the Parties' systems. Accordingly, the Party first contacted by a customer concerning, or otherwise learning of, a repair or other facilities situation needing attention will determine as soon as reasonably possible which Party is the responsible Party for the service requested and, if such contacted Party is not the responsible Party, will immediately inform the responsible Party. If the Party contacted deems the service request to be of such an emergency nature that the time taken in determining who is the responsible Party and/or informing that Party may be detrimental to the public's health, safety or welfare, then the contacted Party may perform the necessary work or otherwise respond. If the responding Party is not the Party responsible under the service structure or Section 7, the responding Party will seek reimbursement of the costs incurred in responding, and the responsible Party shall promptly reimburse such amount within 30 days of receipt of an invoice from the responsible Party. Any disagreement regarding the amount of or entitlement to such reimbursement shall be resolved by the Parties pursuant to Section 10.

7. Financing, Construction and Ownership of Facilities.

a. SHII/East Orange Area: IRWD will finance and construct (or cause to be donated by the developer or property owner), and will own, operate and maintain, all facilities (other than regional water wholesaler or OCSD facilities) for provision of potable water, sewage collection, treatment and disposal, and nonpotable water service to the SHII/East Orange Area. IRWD's financing will be provided through its Improvement District Nos. 105 and 250, and Nos.153 and 253, as applicable.

(i) Santiago Hills I: ORANGE will own, operate and maintain all facilities (other than regional water wholesaler or OCSD facilities) for provision of potable water and sewage collection, treatment and disposal service to Santiago Hills I; IRWD has financed and constructed (or caused to be donated by the developer) a portion of such water facilities through its Improvement District No. 105. IRWD will finance and construct (or cause to be donated by the developer or property owner), and will own, operate and maintain the wholesale and retail nonpotable water facilities to supply nonpotable water to Santiago Hills I. IRWD's financing of

such nonpotable water facilities will be provided through its Improvement District No. 252. IRWD will use the existing tax receipts (ad valorem assessments levied for debt service on bonds of Improvement District No. 250) collected within Improvement District No. 252 to construct nonpotable water facilities or capacity therein serving only Santiago Hills I. IRWD will preserve and maintain its existing authority to collect ad valorem debt service taxes within Improvement District 252; provided no future taxes will be levied or collected by IRWD for Improvement District No. 252 without the explicit written consent of ORANGE. The subject non-potable facilities shall be constructed prior to issuance of the first Certificate of Occupancy issued by ORANGE in the Santiago Hills II development. If IRWD fails to construct the subject nonpotable facilities by the date of the first Certificate of Occupancy, then IRWD will refund the existing tax receipts.

b. Irrespective of facility ownership, all reasonable interconnections between ORANGE and IRWD facilities for operational efficiency and/or emergency purposes shall be allowed as determined by the Joint Engineering and Management Committee.

c. Design of all developer-donated facilities for potable water, sewage collection, non-potable water and natural treatment system service shall be in accordance with applicable design criteria of IRWD, and prior to construction thereof, ORANGE will require the developer to obtain IRWD's approval of the design. Following completion and prior to use of developer-donated facilities, ORANGE will require the developer to obtain IRWD's approval of the facilities.

8. Fees and Charges.

a. Connection Charges; Standby Charges; Taxes: IRWD will be entitled to collect all of its customary water and sewer connection charges from developers of the SHII/East Orange Area. Prior to issuance of certificates of occupancy, ORANGE will require the receipt from IRWD of an occupancy release letter in the form attached as Exhibit "D", as evidence of the payment of such connection charges to IRWD. In addition, IRWD will be entitled to collect taxes (ad valorem assessments for debt service on bonds) from property owners within Improvement District Nos. 105, 250, 252, 153 and 253, as applicable, and also will be entitled to collect potable and nonpotable water and sewer standby charges from property owners within the SHII/East Orange Area. No general tax rate (except for such assessments for debt service and IRWD's share of the general 1% property tax levy) is to be imposed by IRWD on the ultimate water or sewer service consumer.

b. User Rates: The rates collected by IRWD for water (including natural treatment system), sewer and non-potable water service in the SHII/East Orange Area shall be set in a manner consistent with the principles used in setting rates generally applicable in IRWD under its rules and regulations applicable to all classes of customers. (For this purpose, "rates generally applicable in IRWD" shall mean rates that IRWD sets generally, plus applicable pumping surcharges based on actual cost of pumping, but shall not mean the rates determined under special rate agreements governing all or portions of former service areas of water agencies that have become part of IRWD through reorganization). The foregoing notwithstanding, the cumulative total of IRWD water charges in the SHII/East Orange area, including fixed and water commodity charges but not including any pumping surcharges, sewer, natural treatment system, or non-potable

water charges, for an average residential customer using the IRWD median amount of water ("**Cumulative IRWD Charges**") shall not exceed the cumulative total charges that would have been paid by an identical customer under the prevailing ORANGE water rate structure ("**Cumulative Cap**"). For purposes of making the foregoing comparison between the Cumulative IRWD Charges and the Cumulative Cap, the water charges for such average SHII/East Orange Area residential customer shall be aggregated for the most recently concluded IRWD billing period and all prior IRWD billing periods since the date of this Third Amended Agreement, using the applicable IRWD and ORANGE rate structures that were in effect during each such billing period. The ORANGE and IRWD water rates will be reviewed by the Joint Engineering and Management Committee as requested by ORANGE, but no more frequently than once per year. If the Committee finds that the Cumulative IRWD Charges have exceeded the Cumulative Cap, then prospective adjustments to the fixed and/or commodity water rates in the SHII/East Orange area will be applied by IRWD at the time of its next annual budget approval. Adjustments applied by IRWD to future fixed and/or commodity water charges shall be the sole method of bringing such charges back into conformance with the Cumulative Cap, and no retroactive adjustments or refunds for any period prior to adjustment will be required hereunder.

c. ORANGE Rates and Charges: ORANGE will not impose any connection charges or other rates and charges with respect to potable or nonpotable water service or sewer service to the SHII/East Orange Area.

d. OCSD Fees: IRWD shall be responsible for collecting and remitting any OCSD fees in the SHII/East Orange Area and shall defend and indemnify ORANGE against any claims by OCSD made after the date hereof that fees due OCSD from the SHII/East Orange Area have not been paid.

e. Collection of Rates and Charges: IRWD may, as permitted by law and upon taking proceedings as appropriate, collect sewer rates and charges within the SHII/East Orange Area by means of property tax bills. IRWD agrees to coordinate with ORANGE to include ORANGE's fees for municipal services such as paramedic billing, trash collection and tree trimming, in IRWD's retail water service bills for the SHII/East Orange Area.

9. Annexations.

a. ORANGE agrees not to oppose, or support any proposal inconsistent with, the annexation to OCWD of that portion of the SHII/East Orange area not currently within OCWD, for the purpose of supplying groundwater to the residents thereof.

b. If the Local Agency Formation Commission proposes a reorganization of the East Orange County Water District ("**EOCWD**") and ORANGE seeks to retain the portion of the EOCWD service area that is currently within ORANGE's city limits, IRWD agrees not to oppose ORANGE's request or support any request inconsistent with ORANGE's request.

10. Joint Engineering and Management Committee. The Parties shall continue in existence the Joint Engineering and Management Committee (the "**Joint Committee**"), and shall each continue to appoint one representative and one alternate representative to the Joint Committee. The primary purpose of the Joint Committee shall be to facilitate communication

between the Parties and aid in the administration of this Agreement. The Parties shall give full consideration to all recommendations of the Joint Committee. The Joint Committee shall meet periodically, but at least once a year, to perform such tasks as may be assigned to it by the Parties from time to time, including, but not limited to, the following:

a. Make minor adjustments between Santiago Hills I and the SHII/East Orange Area as may be necessary or appropriate from time to time to achieve the most efficient service arrangements based on facilities, system looping, continuity of neighborhoods, gravity flow and similar factors. Any such adjustments shall be depicted in addenda to Exhibits B and C or new exhibits which shall, upon approval by the Parties, supersede such exhibits;

b. Review the effect of the groundwater pumping by IRWD's OPA Well 1 and ORANGE Well 23 on groundwater levels, and suggest mitigation measures as necessary to provide for the continued pumping and treatment of PFAS at the Well Projects.

c. Resolve disagreements pursuant to Section 6 this Agreement;

d. Perform such other tasks as may be assigned by the Parties hereto.

11. CEQA. Each Party has determined that the other Party's Well Project and pumping as described above will have a less-than-significant impact on that Party's own project(s) and pumping identified above. Each Party will comply with the California Environmental Quality Act ("**CEQA**") in connection with its own project(s), including responding to all comments submitted by the other Party on CEQA documentation. The Parties acknowledge that each of their projects will proceed on different timelines, and in an effort to ensure both Parties' compliance with this provision and in order to discourage breach, the Parties hereby agree to toll the statute of limitations in connection with challenging any of the projects under CEQA until 36 days following the last Notice of Exemption or Notice of Determination filed for any of the projects.

12. Cooperation. ORANGE and IRWD will review and evaluate cooperative groundwater production opportunities. ORANGE hereby consents to and authorizes IRWD to serve additional water produced as part of the IRWD Project, to customers inside the IRWD service area but outside of the Sphere of Influence of ORANGE, subject to the following limitations:

a. Well OPA-1. The authorization is applicable to water produced from Well OPA-1 only.

b. Production Capacity. The authorization is for pumping approximately 3,200 AFY from Well OPA1, or such other substantially greater amount (i) approved by the Joint Committee or (ii) determined under a technical study or CEQA document that demonstrates no significant impacts on ORANGE Well 23.

c. Feasibility Study/Design. In order to facilitate both Parties' continued pumping and PFAS treatment, IRWD shall prepare a feasibility study of lowering the pump bowls in the Orange Well 23 without replacing the well. IRWD shall complete the feasibility study within one year of the Effective Date, using a consultant approved by the Joint Committee. IRWD shall provide the draft feasibility study to ORANGE, which will provide comments on the draft within 30 calendar days after receipt.

d. If Feasible: Design & Cost Estimate. If the Joint Committee determines that lowering the pump bowls is feasible, then IRWD shall prepare a 30% design and develop an engineer's estimate for finalizing design and construction for lowering the pump bowls in ORANGE Well 23. The Joint Committee shall review and approve the 30% design and engineer's estimate (which approval shall not be unreasonably withheld by the Joint Committee or either Party's members of the committee). Within 90 days of that approval, IRWD shall pay ORANGE the amount of the engineer's estimate of the costs to design and construct the improvements to lower the pump bowls of ORANGE Well 23 to facilitate ORANGE's continued extraction and treatment of groundwater when the pumping level is below 320 feet, as described in the feasibility study.

(i) If the bids received by ORANGE are more than one hundred ten percent (110%) of the engineer's estimate, ORANGE has the right to immediately confer with IRWD regarding additional contribution from IRWD for those costs exceeding one hundred ten percent (110%) of the engineer's estimate. If the Parties cannot reach mutual agreement on payment for those additional costs, ORANGE has the unilateral right to reject all bids and refund the amount paid by IRWD. In this event, the Parties will adhere to the provisions of Subsection e, below.

(ii) If the bids received, and amounts paid for completion of the project, are less than the engineer's estimate, ORANGE shall refund the difference to IRWD.

(iii) Lowering the pump bowls in ORANGE Well 23 is not intended to guarantee a flow rate at which the well will operate.

e. If Infeasible: Cooperative Pumping Reduction. If the Joint Committee determines that lowering the pump bowls is infeasible, then when the pumping water level in ORANGE Well 23 reaches 320 feet below ground surface, both Parties shall incrementally reduce pumping at the same rate to ensure that both PFAS systems may remain operational. Incrementally reduce means, for example, that both Parties would reduce pumping by 100 gallons per minute, or such other equal measurement as agreed to by the Parties that would ensure continued PFAS treatment but minimize adverse impacts to the Parties' facilities. The determination of incrementally reduced pumping rates will be determined by the Joint Committee.

f. Staff Costs. Each Party will pay all costs associated with its own staff time in connection with the Joint Committee, the feasibility study, or other actions contemplated in this Section 12.

g. Other Limitations. The Parties each acknowledge that their groundwater well pumping is subject to OCWD's Basin Production Limitation, Basin Production Percentage, any assessment and surcharge validly imposed by OCWD and other contractual obligations.

13. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original.

14. Modifications. This Agreement cannot be changed, amended, modified or supplemented except in writing signed by the Parties hereto.

15. Entire Agreement. This Agreement and its exhibits constitute the entire agreement between the Parties hereto pertaining to the subject matter hereof, and the final, complete and exclusive expression of the terms and conditions thereof. All prior agreements, representations, negotiations and understandings of the Parties hereto, oral or written, express or implied, including specifically the Second Amended Agreement, are hereby superseded and merged herein.

16. Notices. All notices and other communications given hereunder shall be in writing and shall be delivered or mailed by registered or certified mail, return receipt requested, and postage prepaid, addressed as follows:

If to IRWD: IRVINE RANCH WATER DISTRICT
ATTENTION: GENERAL MANAGER
P.O. Box 57000
15600 Sand Canyon Avenue
Irvine, California 92619-7000

If to ORANGE: CITY OF ORANGE
ATTENTION: WATER MANAGER
189 South Water
Orange, California 92666

17. Term of Agreement. This Agreement shall continue in effect until terminated by mutual agreement of the Parties.

18. Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns.

19. Attorneys' Fees. In the event any declaratory or other legal or equitable action is instituted between ORANGE and IRWD in connection with this Agreement, then 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.

20. Exhibits. The following exhibits are incorporated into this Agreement by this reference:

Exhibit "A" - Property
Exhibit "B" - Santiago Hills I
Exhibit "C" - SHII/East Orange Area
Exhibit "D" - Form of Occupancy Release [Section 8a]

[Signatures appear on following page.]

The Parties hereto cause this Agreement to be executed on the day and year first above written.

CITY OF ORANGE

_____
Mark A. Murphy, Mayor

ATTEST

_____
Pamela A. Coleman, City Clerk

APPROVED AS TO FORM:

_____
Mary E. Binning, Sr. Asst. City Attorney

IRVINE RANCH WATER DISTRICT

By: _____
Paul A. Cook, General Manager

ATTEST

_____
Secretary

APPROVED AS TO FORM:
HANSON BRIDGETT LLP

By: _____
District Counsel

EXHIBITS

A: Property
B: Santiago Hills I
C: SHII/East Orange Area
D: Form of Occupancy Release

EXHIBIT "A"

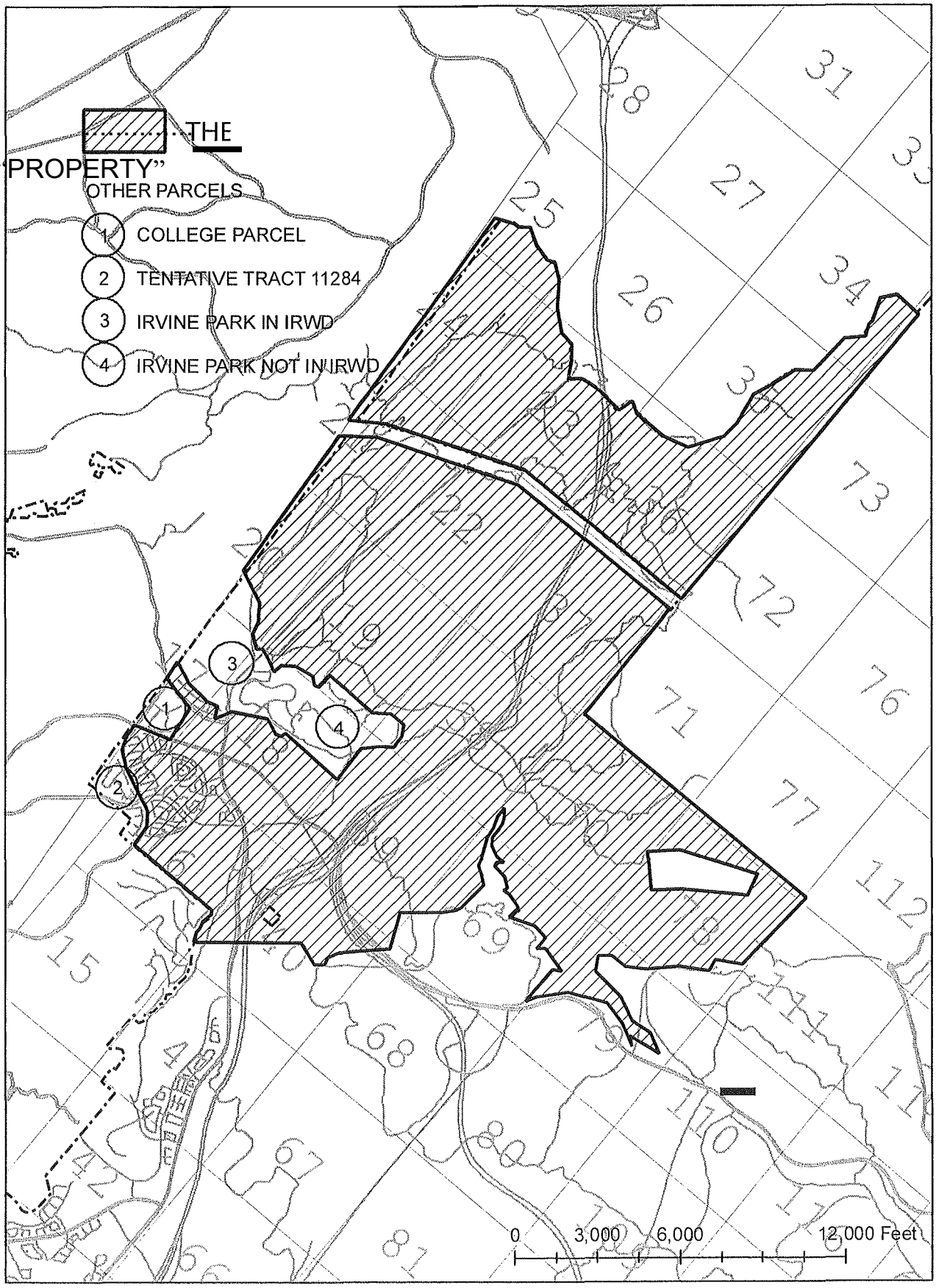
THE "PROPERTY"
OTHER PARCELS
1 COLLEGE PARCEL
2 TENTATIVE TRACT 11284
3 IRVINE PARK IN IRWD
4 IRVINE PARK NOT IN IRWD
0 3,000 6,000 12,000 Feet

EXHIBIT "B"

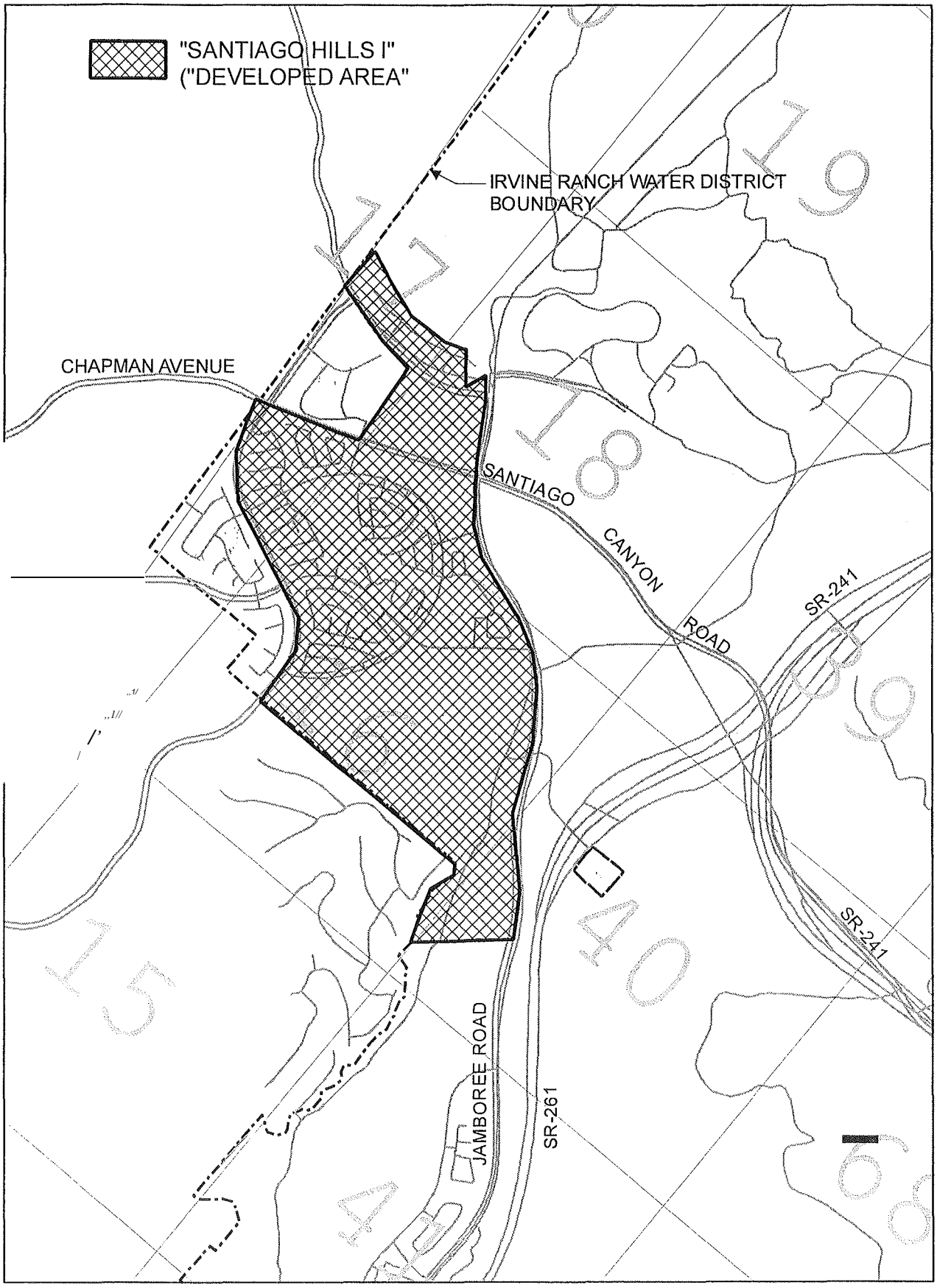
"SANTIAGO HILLS I"
("DEVELOPED AREA"
IRVINE RANCH WATER DISTRICT
BOUNDARY
CHAPMAN AVENUE
SANTIAGO CANYON ROAD
SR-241
SR-241
JAMBOREE ROAD
SR-261

EXHIBIT "C"

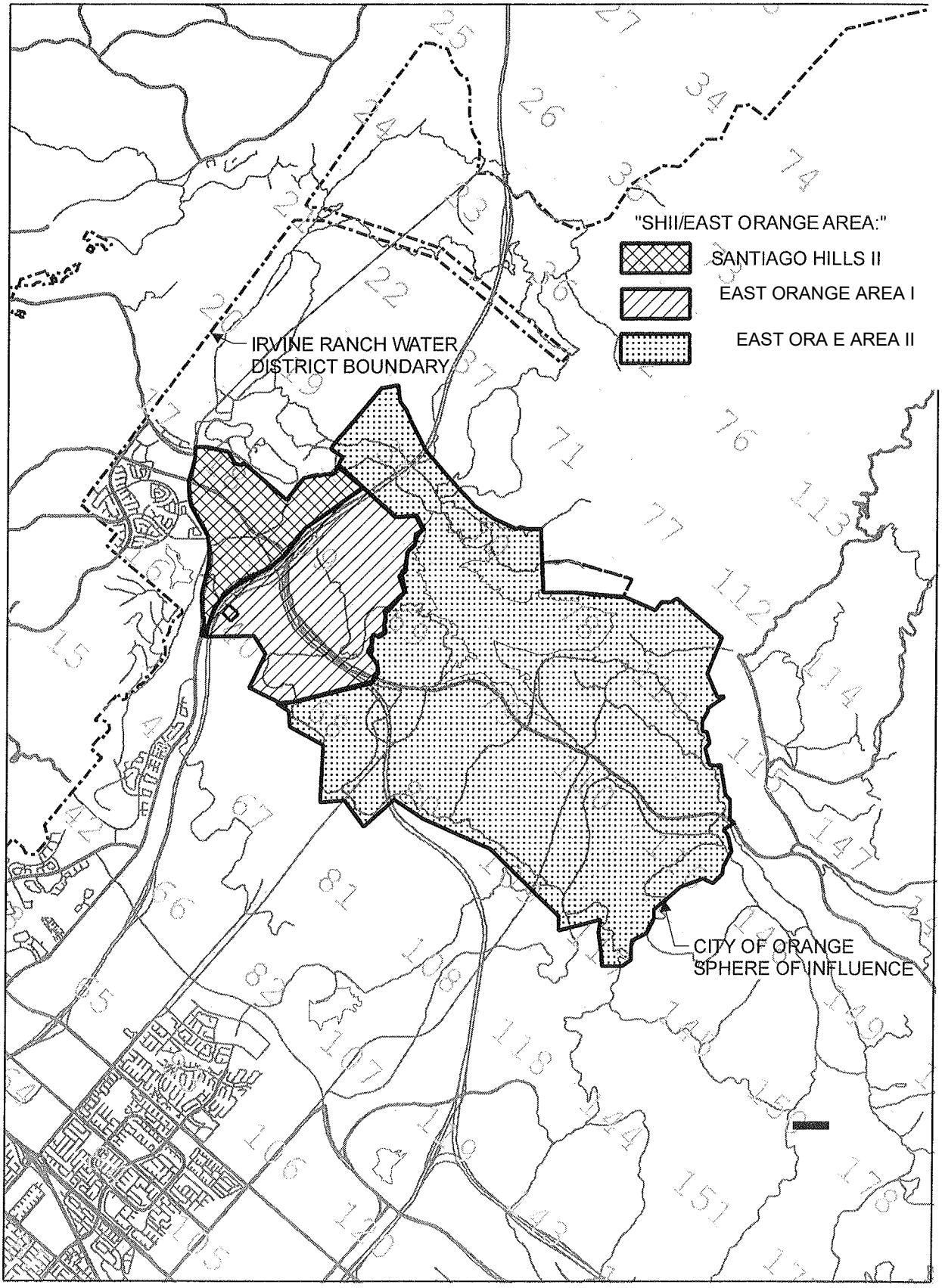
"SHII/EAST ORANGE AREA:"
SANTIAGO HILLS II
EAST ORANGE AREA I
EAST ORA E AREA II
IRVINE RANCH WATER DISTRICT BOUNDARY
CITY OF ORANGE SPHERE OF INFLUENCE

EXHIBIT D

FORM OF OCCUPANCY RELEASE

IRVINE RANCH WATER DISTRICT *15600 Sand Canyon Ave., P.O. Box 57000, Irvine, CA 92619-7000 (949) 453-5300*

Name
Building Official
City of Orange
300 East Chapman Avenue
Orange, CA 92866

Subject: Release for Residential Use

Dear Mr. Nguyen:

Irvine Ranch Water District hereby releases Lot Nos. _____ of Tract No. _____ for the following:

RELEASE FOR OCCUPANCY - Sewage can be accepted in sewer system. Water meter has been installed by developer.

Yours truly,

Mike Jack
Construction Inspection Manager

MJ/

cc: Developer -
IRWD Inspector -
IRWD Developmental Services
IRWD Customer Service (2)
IRWD Greg Springman FAX# 949-476-2854
Chron

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