

**AGENDA  
IRVINE RANCH WATER DISTRICT  
BOARD OF DIRECTORS  
REGULAR MEETING**

June 27, 2022

**CALL TO ORDER**      5:00 p.m.

**ROLL CALL**              Directors Reinhart, Withers, Swan, McLaughlin, and President LaMar

This meeting will be held in-person at the District’s headquarters located at 15600 Sand Canyon Avenue, Irvine, California. The meeting will also be broadcasted via Webex for those wanting to observe the meeting virtually.

To observe this meeting virtually, please join online using the link and information below:

Via Web: <https://irwd.webex.com/irwd/j.php?MTID=me94975bb693ac2a655576bb7e77f0db5>

Meeting Number (Access Code): 2492 147 4169

Meeting Password: TUhRPCip242

PLEASE NOTE: Webex observers of the meeting will be placed into the Webex lobby when the Board enters closed session. Participants who remain in the “lobby” will automatically be returned to the open session of the Board once the closed session has concluded. Observers joining the meeting while the Board 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.

**PUBLIC COMMENT NOTICE**

Public comments are limited to three minutes per speaker on each subject. If you wish to address the Board of Directors on any item, you may attend the meeting in person and submit a “speaker slip” to the Secretary. Forms are provided outside of IRWD’s Board Room. If attending via Webex, please submit your request to speak, or your comment, via the “chat” feature and your remarks will be read into the record at the meeting. You may also submit a public comment in advance of the meeting by emailing [comments@irwd.com](mailto:comments@irwd.com) before 12:00 p.m. on Monday, June 27, 2022.

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**COMMUNICATIONS TO THE BOARD**

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1.     A. Written:
2.     B. Oral:
3.     ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Recommendation: Determine the need to discuss and/or take immediate action on item(s).

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**BOARD WORKSHOP**

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4. MID-CYCLE CAPITAL BUDGET UPDATE FOR FISCAL YEARS 2021-22 AND 2022-23

Recommendation: That the Board receive and file the Mid-Cycle Capital Budget Update for Fiscal Years 2021-22 and 2022-23 and approve the recommended changes for the Fiscal Year 2022-23 Mid-Cycle Capital Budget project additions as proposed.

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**CONSENT CALENDAR, ITEMS 5-8**

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5. BOARD MEETING MINUTES

Recommendation: That the Minutes of the June 13, 2022 Regular Board Meeting be approved as presented.

6. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS IN 2022

Recommendation: That the Board ratify/approve the events for Steven LaMar, Douglas Reinhart, and John Withers as described herein.

7. MAY 2022 TREASURY REPORTS

Recommendation: That the Board receive and file the Treasurer's Investment Summary Report, the summary of fixed and variable rate debt, and disclosure report of reimbursements to Board members and staff, approve the May 2022 summary of payroll ach payments in the total amount of \$2,152,952, and approve the May 2022 accounts payable disbursement summary of warrants 426894 through 427728, workers' compensation distributions, wire transfers, payroll withholding distributions and voided checks in the total amount of \$13,677,593.

8. SEAWATCH RECYCLED WATER PRESSURE REDUCING STATION CONSTRUCTION AWARD

Recommendation: That the Board reject the bid of GCI Construction, Inc. as non-responsive and authorize the General Manager to execute a Construction Contract with T.E. Roberts, Inc. in the amount of \$383,155 for the Seawatch Recycled Water Zone G to G\_R Pressure Reducing Station, Project 11597.

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## **ACTION CALENDAR**

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9. SEWER SIPHON IMPROVEMENTS PHASE II CONSULTANT SELECTION

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Woodard & Curran in the amount of \$1,285,684 for Design Engineering Services for the Sewer Siphon Improvements Phase II, Project 11841.

10. CONDITION ASSESSMENT FOR PUMP STATIONS AND TANKS CONSULTANT SELECTION

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with HDR Engineering, Inc. in the amount of \$367,800 for the Condition Assessment for Pump Stations and Tanks, Projects 12252 and 12254.

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## **OTHER BUSINESS**

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Pursuant to Government Code Section 54954.2, members of the Board of Directors or staff may ask questions for clarification, make brief announcements, and make brief reports on his/her own activities. The Board or a Board member may provide a reference to staff or other resources for factual information, request staff to report back at a subsequent meeting concerning any matter, or direct staff to place a matter of business on a future agenda. Such matters may be brought up under the General Manager's Report or Directors' Comments.

11. General Manager's Report

12. Receive oral update(s) from District liaison(s) regarding communities within IRWD's service area and provide information on relevant community events.

13. Directors' Comments

14. Closed Session

1) CONFERENCE WITH LEGAL COUNSEL—EXISTING LITIGATION- Pursuant to Government Code Section 54956.9(d)(1):

*Graciela Montejano v. IRWD, Paul Cook and Does 1 through 50*, Case No. 30-2022-01251588-CU-OE-NJC

15. Open Session

16. Adjournment

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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 Board in connection with a matter subject to discussion or consideration at an open meeting of the Board 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 Board 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 Board 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](mailto: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.



June 27, 2022

Prepared by: M. Robinson / E. Akiyoshi

Submitted by: K. Burton

Approved by: Paul A. Cook 

## BOARD WORKSHOP

### MID-CYCLE CAPITAL BUDGET UPDATE FOR FISCAL YEARS 2021-22 AND 2022-23

#### SUMMARY:

IRWD's two-year Capital Budget for Fiscal Years (FY) 2021-22 and 2022-23 was approved by the Board on April 26, 2021. At the Board meeting, staff will provide a presentation on the Mid-cycle Capital Budget Update for FY 2021-22 and 2022-23. Staff recommends the Board receive and file the update for the IRWD Capital Budget and approve the recommended changes to the FY 2021-22 and 2022-23 Capital Budget.

#### BACKGROUND:

In April 2021, the Board-approved Capital Budget included forecasted expenditures (forecasted work completed) for FY 2021-22 and FY 2022-23 of \$116.7 million and \$107.5 million, respectively.

Since April 2021, there have been Board-approved increases, and updates to project schedules. Staff's presentation summarizing the Mid-cycle Capital Budget Update, provided as Exhibit "A", highlights these changes to the total budget and the forecasted expenditures for FY 2021-22. Exhibit "A" also shows the proposed budget increases and additions of \$6.5 million. The Capital Budget Project Additions list is provided as Exhibit "B".

#### FISCAL IMPACTS:

The following table presents the resulting total budget increase to the Capital Budget and forecasted expenditures for FY 2022-23 from the project additions.

Funding Source	Total Budget Increase (\$)
Replacement Fund	\$ 5.7 M
Developed Improvement Districts	\$ 0.4 M
Developing Improvement Districts	\$ 0.4 M
Total All Projects	\$ 6.5 M

#### ENVIRONMENTAL COMPLIANCE:

Not applicable.

#### COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on June 21, 2022.

RECOMMENDATION:

THAT THE BOARD RECEIVE AND FILE THE MID-CYCLE CAPITAL BUDGET UPDATE FOR FISCAL YEARS 2021-22 AND 2022-23 AND APPROVE THE RECOMMENDED CHANGES FOR THE FISCAL YEAR 2022-23 MID-CYCLE CAPITAL BUDGET PROJECT ADDITIONS AS PROPOSED.

LIST OF EXHIBITS:

Exhibit “A” – Mid-cycle Capital Budget Presentation

Exhibit “B” – Mid-cycle Capital Budget Project Additions for FY 2022-23

**FISCAL YEARS 2021-22 AND  
2022-23 MID-CYCLE CAPITAL  
BUDGET UPDATE**

**Irvine Ranch  
Water District**

BOARD WORKSHOP  
JUNE 27, 2022

Irvine Ranch  
Water District

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**PRESENTATION OUTLINE**

- Review FY 2021-22:
  - Approved Budget
  - Earned Value
  - Board Approved Increases
- Proposed Budget Increases and Additions
- FY 2022-23 Mid-Cycle Forecasted Expenditures

Irvine Ranch  
Water District

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### Original Forecast Expenditures Presented to the Board in April 2021

Capital Project Categories	2021-22 Forecast	2022-23 Forecast
Replacement - Facilities	\$40.1M	\$30.5M
Operational	\$21.0M	\$19.0M
Water Banking	\$14.4M	\$25.1M
OCSD - CORF - Solids Lease	\$9.3M	\$13.5M
Nonpotable Storage	\$8.7M	\$6.0M
Development	\$6.0M	\$2.1M
Property Management	\$5.0M	\$0.0M
Sewage Treatment	\$2.6M	\$5.4M
General Plant	\$2.4M	\$1.7M
Replacement-Business Software	\$2.3M	\$0.0M
Planning	\$2.3M	\$2.1M
Water Resources	\$1.6M	\$1.3M
OCWD Annexation	\$0.6M	\$0.6M
Baker WTP	\$0.2M	\$0.1M
Solids Handling	\$0.1M	\$0.0M
<b>Total</b>	<b>\$116.7M</b>	<b>\$107.5M</b>

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### Actual Capital Project Earned Value In FY 2021-22

Capital Project Categories	Original FY 21-22 Forecast	Actual Earned Value In FY 21-22	Difference in Forecast and Actual Earned Value
Replacement - Facilities	\$40.1M	\$36.4M	(\$3.7M)
Operational	\$21.0M	\$10.1M	(\$10.9M)
OCSD - CORF - Solids Lease	\$9.3M	\$8.9M	(\$0.4M)
Water Banking	\$14.4M	\$7.2M	(\$7.2M)
Property Management	\$5.0M	\$5.6M	\$0.6M
Nonpotable Storage	\$8.7M	\$5.3M	(\$3.4M)
Development	\$6.0M	\$4.6M	(\$1.4M)
Replacement-Business Software	\$2.3M	\$1.6M	(\$0.8M)
Planning	\$2.3M	\$1.2M	(\$1.2M)
General Plant	\$2.4M	\$1.1M	(\$1.4M)
OCWD Annexation	\$0.6M	\$0.2M	(\$0.4M)
Water Resources	\$1.6M	\$0.2M	(\$1.4M)
Baker WTP	\$0.2M	\$0.0M	(\$0.1M)
Sewage Treatment	\$2.6M	\$0.0M	(\$2.6M)
Solids Handling	\$0.0M	\$0.0M	(\$0.0M)
<b>Total</b>	<b>\$116.7M</b>	<b>\$82.4M</b>	<b>(\$34.3M)</b>

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### Mid-Year Board Approved Changes Since April 2021

Project Number	Project Title	April 2021 Board Approved Total Budget	Mid-Year Board Approved Increases	Current Board Approved Budget
11123	LAKE FOREST WOODS SEWER ACCESS IMPROVEMENTS	\$0.4M	\$5.0M	\$5.3M
11168	LAKE FOREST ZONE C RECYCLED WATER PUMP STATION	\$3.8M	\$4.7M	\$8.5M
11571	WOODBIDGE RECYCLED WATER PIPELINE REPLACEMENT	\$11.0M	\$4.2M	\$15.2M
01398	SANTIAGO CANYON AREA PUMP STATION IMPROVEMENTS	\$6.6M	\$3.6M	\$10.2M
05761	15 MG ZONE 1 RESERVOIR INTERIOR COATING	\$2.7M	\$2.4M	\$5.2M
11122	HATS DIVERSION STRUCTURE REHABILITATION	\$0.7M	\$2.2M	\$2.9M
12053	IBC APPURTENANCE RELOCATION		\$0.9M	\$0.9M
07886	SEWER SIPHON REHABILITATION	\$9.7M	\$0.8M	\$10.5M
11869	SAND CANYON PROFESSIONAL CENTER - GENERAL OFFICE	\$5.4M	\$0.7M	\$6.0M
11746	SITES RESERVOIR PLANNING AND ENVIRONMENTAL REVIEW	\$0.7M	\$0.5M	\$1.2M
	Other	\$4.9M	(\$2.8M)	\$2.1M
<b>Total</b>		<b>\$45.9M</b>	<b>\$22.1M</b>	<b>\$68.0M</b>

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## PROPOSED CAPITAL BUDGET CHANGES



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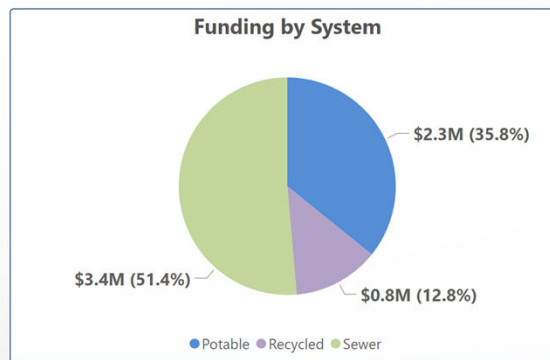
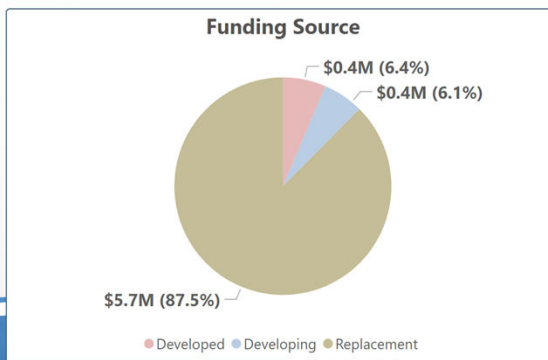
### Proposed Budget Increases and Project Additions

Project Number	Project Title	Proposed Increases
12125	36 INCH SS RELOCATION AT SR133/SD CREEK	\$1.2M
11845	WELL REHAB-DRWF 12	\$0.8M
12215	RIPARIAN VIEW PAVEMENT REHABILITATION	\$0.7M
12252	CIP AM - CONDITION ASSESSMENT DW	\$0.5M
12254	CIP AM - CONDITION ASSESSMENT RW	\$0.5M
12228	PA51 D5 HARRIER FROM CHINON TO LYNX 12DW CODE 7808	\$0.5M
12296	MAIN/CARTWRIGHT MH REHABILITATION	\$0.4M
12230	PA51 D5 D6 HARRIER FROM CHINON TO LYNX 10RW IRWD CODE 7808	\$0.3M
12294	EL TORO RD SMH RAISE TO GRADE	\$0.3M
11585	PUBLIC OUTREACH CAMPAIGN REPLACEMENTS	\$0.3M
11584	PA12 REGIONAL ZONE A RW IMPROVEMENTS	\$0.2M
12232	PA51 D5 D6 CHINON FROM HARRIER TO TREBLE 10RW IRWD CODE 7809	\$0.2M
12229	PA51 D5 D6 HARRIER FROM CHINON TO LYNX 12_15SS IRWD CODE 7808	\$0.2M
12289	NETWORK REDESIGN - DW	\$0.2M
12290	NETWORK REDESIGN - SS	\$0.2M
12278	MAXIMO UPGRADE DW	\$0.2M
12279	MAXIMO UPGRADE SS	\$0.2M
11939	PA51 MARINE AND BAKE 12DW	\$0.2M
12203	ORACLE EBS DIRECT LABOR BENEFITS COST ALLOCATION - DW	\$0.2M
12204	ORACLE EBS DIRECT LABOR BENEFITS COST ALLOCATION - SS	\$0.2M
12205	ORACLE EBS DATABASE UPGRADE - DW	\$0.1M
12206	ORACLE EBS DATABASE UPGRADE - SS	\$0.1M
12231	PA51 D5 D6 CHINON FROM HARRIER TO TREBLE 12DW IRWD CODE 7809	\$0.1M
01642	PA51 MASTER FACILITIES-SS	(\$0.2M)
01103	PA51 MASTER FACILITIES-RW	(\$0.4M)
01466	PA51 MASTER FACILITIES-DW	(\$0.6M)
<b>Total</b>		<b>\$6.5M</b>

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### Proposed Increases By Funding Source and System



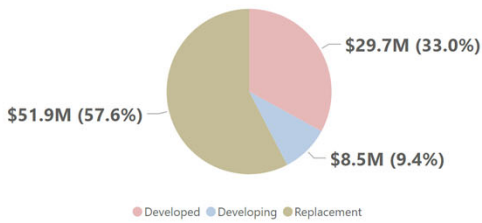
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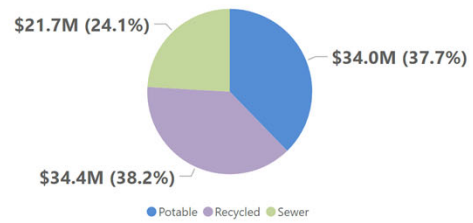
### Summary of Changes to Capital Projects Forecast Expenditures in FY 2022-23

Description	FY 2022-23 Mid-Cycle Forecast Expenditures
FY 22-23 Original Forecast	\$107.5M
FY 22-23 Board Increases	\$19.1M
FY 22-23 Schedule Changes	(\$30.2M)
FY 22-23 Proposed Increases	\$3.7M
Contingency Removal	(\$10.0M)
<b>FY 22-23 MC Forecast Total</b>	<b>\$90.1M</b>

**Funding Source**



**Funding by System**



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## RECOMMENDATION

That the Board receive and file the Mid-Cycle Capital Budget Update for Fiscal Years 2021-22 and 2022-23, and approve the Fiscal Year 2022-23 Mid-Cycle Capital Budget Project additions as shown in the attached Exhibit “B.”



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June 27, 2022  
Prepared and  
submitted by: L. Bonkowski  
Approved by: Paul A. Cook



CONSENT CALENDAR

BOARD MEETING MINUTES

SUMMARY:

Provided are the minutes of the June 13, 2022 Regular Board meeting for approval.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

Not applicable.

RECOMMENDATION:

THAT THE MINUTES OF THE JUNE 13, 2022 REGULAR BOARD MEETING BE APPROVED AS PRESENTED.

LIST OF EXHIBITS:

Exhibit "A" – June 13, 2022 Minutes

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## EXHIBIT “A”

### MINUTES OF REGULAR MEETING –JUNE 13, 2022

The regular meeting of the Board of Directors of the Irvine Ranch Water District (IRWD) was called to order at 5:00 p.m. by President LaMar on June 13, 2022 at the District offices, 15600 Sand Canyon Avenue, Irvine. This meeting was also held via teleconference with Director McLaughlin participating remotely, and due to noticing requirements, she abstained from voting.

Directors Present: Swan, Reinhart, Withers, McLaughlin and LaMar.

Directors Absent: None.

Written and Oral Communications: None.

Also Present: General Manager Cook, Executive Director of Technical Services Burton, Executive Director of Operations Chambers, Executive Director of Finance and Administration Clary, Director of Treasury and Risk Management Jacobson, Executive Director of Water Policy Weghorst, Director of Recycling Operations Zepeda, Director of Water Resources Sanchez, Director of Human Resources Mitcham, Director of Strategic Communications and Advocacy/Deputy General Counsel Compton, Acting Director of Maintenance Manning, Director of Safety and Security Choi, Director of Information Services Kaneshiro, Director of Water Quality and Regulatory Compliance Colston, Secretary Bonkowski, Assistant Secretary Swan, General Counsel Collins, Consultant Newell, and members of the staff and public.

### WORKSHOP

#### MID-CYCLE OPERATING AND NON-OPERATING REVIEW THROUGH FISCAL YEAR 2022-23

Executive Director of Finance and Administration Clary reported that the two-year operating and non-operating budgets for Fiscal Year (FY) 2021-22 and FY 2022-23 were approved by the Board in April 2021, and rates based on cost-of-service through June 30, 2023 were adopted by the Board in January 2022. Ms. Clary said that staff conducted a detailed review of the second year of the two-year approved budgets for FY 2022-23 and using a PowerPoint presentation, reviewed the mid-cycle operating and non-operating budgets noting that forecasted expense variance is \$6.0 million, and that staff is recommending that the Rate Stabilization Fund be used to cover any shortfalls in operating expenses. She further said that Proposition 218 rules allow for recalculation of rates to include pass-through costs and that rates may be increased with notification of at least 30 days and without a public hearing or any additional action by the IRWD Board of Directors.

Following a brief discussion, Director Swan reported that this item was reviewed by the Finance and Personnel Committee on June 7, 2022.

CONSENT CALENDAR

General Manager Cook asked that Item No. 7, 2022 Legislative and Regulatory Update, be moved to the Action Calendar for an update on SB 1157 (Hertzberg).

Mr. Cook further said that each June, the Board is typically asked to consider changes to the salary schedules for District employees. He said that pursuant to Government Code 9495.3(c)(3), prior to taking final action on changes to salary schedules that include salary ranges for local agency executives, a summary of the recommended action for Item No. 8 is required. He said the recommendation for this item is to revise the District Salary Grade Schedules for FY 2022-23 in order to incorporate a revised Salary Grade Schedule and adopt a resolution superseding resolution No. 2022-9 revising Schedule of Positions and Salary Rate Ranges for the General Unit, the non-exempt Supervisor Unit, and for Managers, and exempt Supervisors, Confidential and Exempt Employees. He said that the revision to the salary grade scheduled is based on a cost-of-living adjustment of 7.9% for FY 2022-23.

On MOTION by Swan, seconded by Withers and carried (Swan, Withers, LaMar and Reinhart voting aye, and McLaughlin abstaining (4-0-1 vote), THE BOARD APPROVED CONSENT CALENDAR ITEMS 5, 6, AND 8 THROUGH 11 AS FOLLOWS:

5. BOARD MEETING MINUTES

Recommendation: That the minutes of the May 23, 2022 Regular Board meeting be approved as presented.

6. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS IN 2022

Recommendation: That the Board ratify/approve the events for Steven LaMar, Douglas Reinhart, Peer Swan, and John Withers, as described.

8. ADOPTION OF REVISED IRWD SCHEDULE OF POSITIONS AND SALARY RATE RANGES FOR FISCAL YEAR 2022-23

Recommendation: That the Board approve the revised Salary Grade Schedule and adopt the following resolution by title superseding Resolution No. 2022-8 and adopting a revised Schedule of Positions and Salary Rate Ranges for the General Unit, Non-exempt Supervisor Unit, and for Managers, Exempt Supervisors, Confidential and Exempt Employees.

RESOLUTION NO. 2022-9

RESOLUTION OF THE BOARD OF DIRECTORS OF IRVINE RANCH WATER DISTRICT, SUPERSEDING RESOLUTION NO. 2022-8 AND ADOPTING A REVISED SCHEDULE OF POSITIONS AND SALARY RATE RANGES

## CONSENT CALENDAR (Continued)

### 9. LUMP SUM PAYMENT OPTION FOR EMPLOYER CONTRIBUTIONS FOR FISCAL YEAR 2022-23 TO THE CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Recommendation: That the Board approve the lump sum payment for employer contributions to the California Public Employees' Retirement System by making a one-time contribution of \$7,828,346 for IRWD's Fiscal Year 2022-23 employer Unfunded Accrued Liability contribution.

### 10. IRVINE BUSINESS COMPLEX APPURTENANCE RELOCATIONS CONSTRUCTION AWARD

Recommendation: That the Board authorize the addition of Project 12053 to the Fiscal Year 2021-22 Capital Budget in the amount of \$908,000 and authorize the General Manager to execute a construction contract with T.E. Roberts, Inc. in the amount of \$557,303 for the Irvine Business Complex Appurtenance Relocations, Project 12053.

### 11. REHABILITATION OF DYER ROAD WELLFIELD WELLS 1, 11, AND 13 FINAL ACCEPTANCE

Recommendation: That the Board accept construction of the Rehabilitation of Dyer Road Wellfield Wells 1, 11, and 13, authorize the General Manager to file a Notice of Completion, and authorize the payment of retention 35 days after recording the Notice of Completion for Projects 07092, 07088, and 10098.

## ACTION CALENDAR

### IRWD GUIDING PRINCIPLES SCORECARD

Executive Director of Finance and Administration Clary reported that staff has provided operational performance measures to the Board on a quarterly basis since February 2015 and now recommends a refresh of the current measures. Ms. Clary said that the new Guiding Principles Scorecard is intended to reflect the critical performance measures that gauge the District's key business objectives and reflect the Board-adopted Guiding Principles.

Using a PowerPoint presentation, Financial Analyst Pardee reviewed the District's vision and guiding principles, the previously used operational performance measures, and the proposed guiding principles scorecard. Following discussion, staff will make adjustments to this document and also continue with some previous trends as requested by the Board.

### 2022 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT

Using a PowerPoint presentation, Director of Water Resources Sanchez reported that IRWD's 2022 Annual Water Supply and Demand Assessment (AWSDA) is an assessment of the near-term outlook for supplies, demands and identification of any expected water shortage that may prompt response actions in the current year. Ms. Sanchez said that available supplies are assessed through

staff coordination with Orange County Water District and regional wholesalers including Municipal Water District of Orange County and the Metropolitan Water District. She said that MWDOC's 2022 AWSDA shows that there is no imported water shortage affecting IRWD.

Ms. Sanchez then reviewed the Key Criteria and Assumptions for IRWD's 2022 AWSDA: 1) The AWSDA is based on IRWD's annual water budget and therefore considers the previous year's demands and projected future demands; 2) The AWSDA is based on a projected single dry year of unconstrained demands, which are defined as demands absent any water supply or demand restrictions; 3) Projected water supplies for the AWSDA include IRWD's supplemental water banking supplies that would be available for use on an emergency basis, if needed; and 4) IRWD can access additional imported supplies in Southern California and has the potential to pump additional groundwater, if needed. She said that as shown in the 2022 AWSDA, IRWD has no projected water shortage. IRWD has an overall surplus of 25% for potable supplies and a 2% surplus for non-potable supplies, with no shortage gap. The AWSDA demonstrates that the District's supplies are reliable and are in surplus.

Director Withers reported that this item was reviewed by the Water Resources Policy and Communications Committee on June 2, 2022. On MOTION by Withers, seconded by Reinhart, and carried (Swan, Withers, LaMar and Reinhart voting aye, and McLaughlin abstaining (4-0-1 vote), **THE BOARD APPROVED THE 2022 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT FOR SUBMITTAL TO THE DEPARTMENT OF WATER RESOURCES PRIOR TO THE JULY 1, 2022, DEADLINE.**

#### IRWD CUSTOMER ENGAGEMENT AND ANALYTICS PROGRAM

Using a PowerPoint presentation, Director of Water Resources Sanchez provided background on the WaterSmart Software program implemented as a pilot program in 2012 which developed into a full-scale program in 2013 to present. She said that this web-based portal has 82,032 current active recipients that receive a 57% email open. She reviewed the program benefits some of which includes water use information and tips, alerts, and also contains a leak resolution and bill explainer section to assist customers to resolve issues online.

Ms. Sanchez said that the current Customer Engagement and Analytical Program services contract with WaterSmart expires on June 30, 2022, so in March 2022, staff issued a request for proposal (RFP) to 12 companies to provide Customer Engagement and Analytical Program services for the next five years. She said that in response to the RFP, proposals were received from five firms: AquaTrax, Open Channel Systems, Smart Energy Water, Util360, and WaterSmart. She said that staff completed a thorough evaluation of the written proposals, conducted interviews with each of the five companies, checked references, and evaluated cybersecurity measures. Based on this evaluation, staff recommends the selection of WaterSmart to provide program software and services for FY 2022-23, with annual options to extend the contract for up to five years.

She said that WaterSmart's software and services for IRWD's Customer Engagement and Analytical Program will provide IRWD with a customer portal, data analytics, and powerful customer communication tools. These tools provide IRWD with the ability to monitor and evaluate program marketing effectiveness and customer engagement with the portal as well as tailor other outreach messaging.



Director Withers reported that this item was reviewed by the Water Resources Policy and Communications Committee on June 2, 2022. On MOTION by Withers, seconded by Swan and carried (Swan, Withers, LaMar and Reinhart voting aye, and McLaughlin abstaining (4-0-1 vote), THE BOARD AUTHORIZED THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH WATERSMART TO PROVIDE CUSTOMER ENGAGEMENT AND ANALYTICS PROGRAM SOFTWARE AND SERVICES FOR FISCAL YEAR 2022-23 IN THE AMOUNT OF \$191,101, WITH AN OPTION TO EXTEND THIS AGREEMENT ANNUALLY FOR UP TO FIVE YEARS WITH A 3% ANNUAL ESCALATOR FOR A TOTAL POTENTIAL COST OF \$1,014,600 OVER THE FIVE YEARS.

#### FUNDING FOR EXPANSION OF IRWD TURF REBATE AND LANDSCAPE TUNE-UP PROGRAMS

On MOTION by Withers, seconded by Reinhart and carried (Swan, Withers, LaMar and Reinhart voting aye, and McLaughlin abstaining (4-0-1 vote), THE BOARD AUTHORIZED ADDITIONAL FUNDING IN THE AMOUNT OF \$1,000,000 FOR THE TURF REBATE PROGRAM AND \$131,000 FOR THE LANDSCAPE TUNE-UP PROGRAM AND APPROVED VARIANCE NO. 3 WITH CONSERV CONSTRUCTION INC. IN THE AMOUNT OF \$131,000.

#### 2022 LEGISLATIVE AND REGULATORY UPDATE

Using a PowerPoint presentation, Director of Strategic Communications and Advocacy/Deputy General Counsel Compton provided an update on SB 157 (Hertzberg). She noted that all urban retail water users have to submit an annual water use report to the State Board pursuant to Water Code 10609.24 and described its objective. She then reviewed the proposed changes for lowering residential indoor standards.

On MOTION by Swan, seconded by Withers and carried (Swan, Withers, LaMar and Reinhart voting aye, and McLaughlin abstaining (4-0-1 vote), THE BOARD ADOPTED A “NEUTRAL IF AMENDED” POSITION ON SB 1157 WITH THE ASM. WATER, WILDLIFE AND PARKS AMENDMENTS.

#### GENERAL MANAGER’S REPORT

General Manager Cook provided an update on the COVID-19 activity at the District and noted that it is calming down and may be able to implement optional masking next week.

#### DIRECTORS’ COMMENTS

Director McLaughlin reported on her attendance at a WACO meeting and an IRWD Business Outreach luncheon.

Director Reinhart reported on his attendance at a South Orange County Agencies’ Group meeting, an OCWD Board meeting, an OCWD Communications and Legislative Liaison Committee meeting, a WACO meeting, a MWDOC Planning and Operations Committee meeting, an OCWD Water Issues Committee meeting, a MWDOC Administration and Finance Committee meeting, and an OCWD Administration and Finance Issues Committee meeting.

Director Swan reported that he attended all of the meetings listed.

Director Withers reported that he attended all of the meetings listed and that next Monday he will be attending a VerdeXchange meeting in LA. He also noted that Mr. Mike Stockstille and Mr. Pike Oliver wrote a book on the history of the Irvine Ranch, and that one chapter mentioned IRWD.

Director LaMar reported on his attendance at a Southern California Water Dialogue meeting, an NCC Executive Committee meeting, ACWA Executive Committee and Board meetings, an IRWD Business Outreach Luncheon, and a CCEEB Search Committee meeting in San Francisco.

ADJOURNMENT

There being no further business, President LaMar adjourned the meeting at 6:29 p.m.

APPROVED and SIGNED this 27th day of June 2022.

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President, IRVINE RANCH WATER DISTRICT


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Secretary IRVINE RANCH WATER DISTRICT

APPROVED AS TO FORM:

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Claire Hervey Collins, General Counsel  
Hanson Bridgett LLP

June 27, 2022  
Prepared and  
submitted by: K. Swan  
Approved by: Paul A. Cook 

CONSENT CALENDAR

RATIFY/APPROVE BOARD OF DIRECTORS’  
ATTENDANCE AT MEETINGS AND EVENTS IN 2022

SUMMARY:

Pursuant to Resolution 2014-38 adopted on August 25, 2014, the following events and meetings require approval by the Board of Directors:

Steve LaMar

June 23                      Chapman University’s Virtual Economic Forecast  
August 2-4                 9<sup>th</sup> Annual Forecast Informed Reservoir Operations Workshop, La Jolla

Douglas Reinhart

July 8                        Lake Forest Chamber of Commerce 7<sup>th</sup> Annual Legislative Luncheon

John Withers

July 8                        Lake Forest Chamber of Commerce 7<sup>th</sup> Annual Legislative Luncheon

RECOMMENDATION:

THAT THE BOARD RATIFY/APPROVE THE EVENTS FOR STEVEN LAMAR,  
DOUGLAS REINHART, AND JOHN WITHERS AS DESCRIBED HEREIN.

LIST OF EXHIBITS:


None.

Note: This page is intentionally left blank.

June 27, 2022

Prepared by: O. Mendoza / J. Davis

Submitted by: R. Jacobson / C. Clary

Approved by: Paul A. Cook 

## CONSENT CALENDAR

### MAY 2022 TREASURY REPORT

#### SUMMARY:

The following is submitted for the Board's information and approval:

- A. The May 2022 Investment Summary Report. This Investment Summary Report conforms with the 2022 Investment Policy and provides sufficient liquidity to meet estimated expenditures during the next six months, as outlined in Exhibit "A";
- B. The Summary of Fixed and Variable Rate Debt as of May 31, 2022, as outlined in Exhibit "B";
- C. The Monthly Interest Rate Swap Summary as of May 31, 2022, as outlined in Exhibit "C";
- D. The May 31, 2022 Disbursement Summary of warrants 426894 through 427728, wire transfers, Workers' Compensation distributions, payroll withholding distributions, and voided checks in the total amount of \$13,677,593, as outlined in Exhibit "D";
- E. The Summary of Payroll ACH payments in the total amount of \$2,152,952 as outlined in Exhibit "E"; and
- F. The Disclosure Report of Reimbursements to Board members and staff for May 2022, detailing payments or reimbursements for individual charges of \$100 or more per transaction, as outlined in Exhibit "F".

#### FISCAL IMPACTS:

As of May 31, 2022, the book value of the investment portfolio was \$398,732,671, with a 0.72% rate of return and a market value of \$395,808,624. Based on IRWD's March 31, 2022, quarterly real estate investment rate of return of 12.41%, the weighted average return for the fixed income and real estate investments was 3.04%.

As of May 31, 2022, the outstanding principal amount of fixed and variable rate debt was \$623,195,000. The monthly weighted average all-in variable rate was 0.94%. Including IRWD's weighted average fixed rate bond issues of 3.71% and the negative cash accruals from fixed payer interest rate swaps, which hedge a portion of the District's variable rate debt, the total average debt rate was 3.16%.

Payroll ACH payments totaled \$2,152,952 and wire transfers, all other ACH payments, and checks issued for debt service, accounts payable, payroll, and water purchases for May totaled \$13,677,593.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act Code of Regulations, Title 14, Chapter 3, Section 15378.

COMMITTEE STATUS:

This item was not submitted to a Committee; the investment and debt reports are submitted to the Finance and Personnel Committee monthly.

RECOMMENDATION:

THAT THE BOARD RECEIVE AND FILE THE TREASURER'S INVESTMENT SUMMARY REPORT, THE SUMMARY OF FIXED AND VARIABLE RATE DEBT, AND DISCLOSURE REPORT OF REIMBURSEMENTS TO BOARD MEMBERS AND STAFF, APPROVE THE MAY 2022 SUMMARY OF PAYROLL ACH PAYMENTS IN THE TOTAL AMOUNT OF \$2,152,952, AND APPROVE THE MAY 2022 ACCOUNTS PAYABLE DISBURSEMENT SUMMARY OF WARRANTS 426894 THROUGH 427728, WORKERS' COMPENSATION DISTRIBUTIONS, WIRE TRANSFERS, PAYROLL WITHHOLDING DISTRIBUTIONS AND VOIDED CHECKS IN THE TOTAL AMOUNT OF \$13,677,593.

LIST OF EXHIBITS:

Exhibit "A" – Investment Summary Report

Exhibit "B" – Summary of Fixed and Variable Debt

Exhibit "C" – Monthly Interest Rate Swap Summary

Exhibit "D" – Monthly Summary of District Disbursements

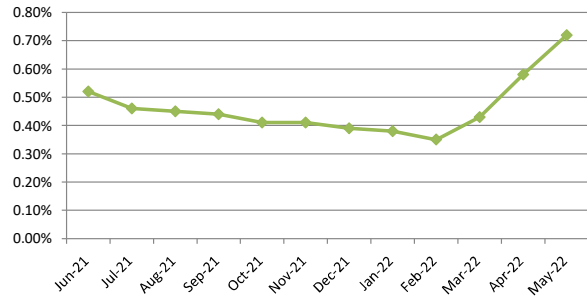
Exhibit "E" – Monthly Payroll ACH Summary

Exhibit "F" – Disclosure of Reimbursements to Board Members and Staff

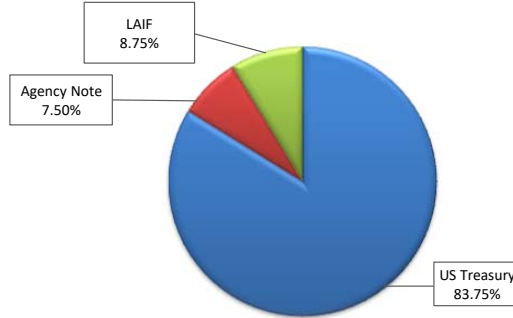
# Exhibit "A"

## Irvine Ranch Water District Investment Portfolio Summary May 2022

**Monthly Fixed Income Yield**



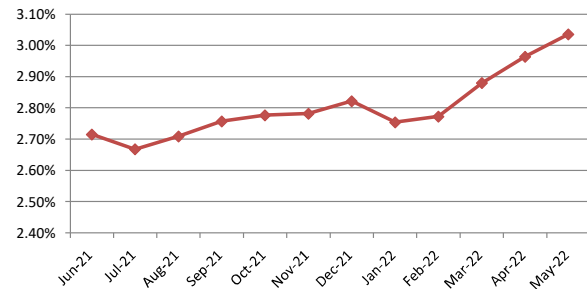
**Portfolio Distribution**



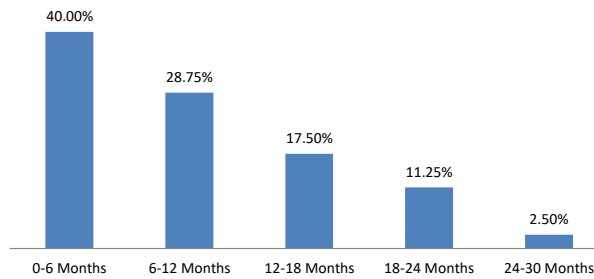
**Investment Summary**

Type	PAR	Book Value	Market Value
US Treasury	335,000,000	333,681,773	331,397,250
LAIF	35,000,000	35,000,000	34,606,374
Agency Note	30,000,000	30,050,898	29,805,000
<b>Grand Total</b>	<b>400,000,000</b>	<b>398,732,671</b>	<b>395,808,624</b>

**Weighted Average Return Including Real Estate Portfolio**



**Maturity Distribution**



**Top Issuers**

Issuer	PAR	% Portfolio
US Treasury	335,000,000	83.75%
State of California Tsy.	35,000,000	8.75%
Fed Farm Credit Bank	15,000,000	3.75%
Fed Home Loan Bank	15,000,000	3.75%
<b>Grand Total</b>	<b>400,000,000</b>	<b>100.00%</b>

IRVINE RANCH WATER DISTRICT  
INVESTMENT SUMMARY REPORT

05/31/22

SETTLMT	Call Schedule	Initial Call	Maturity Date	Rating	INVESTMENT TYPE	INSTITUTION / ISSUER	PAR Amount	COUPON DISCOUNT	YIELD	ORIGINAL COST	CARRY VALUE	MARKET VALUE <sup>(1)</sup> 5/31/2022	UNREALIZED <sup>(2)</sup> GAIN/(LOSS)
04/29/22			06/01/22		LAIF	State of California Tsy.	\$35,000,000		0.750%	\$35,000,000.00	\$35,000,000.00	34,606,373.83	(393,626.17)
04/22/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.082%	10,005,078.13	10,000,339.32	9,993,800.00	(6,539.32)
04/30/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.082%	5,002,539.06	5,000,172.85	4,996,900.00	(3,272.85)
05/28/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.064%	5,003,320.31	5,000,241.93	4,996,900.00	(3,341.93)
05/20/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	1.750%	0.065%	5,093,750.00	5,006,696.43	5,003,400.00	(3,296.43)
01/15/20	NA	NA	07/15/22	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.600%	1.594%	5,000,750.00	5,000,036.18	5,003,800.00	3,763.82
12/23/21	NA	NA	07/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.157%	9,998,046.88	9,999,467.33	9,985,400.00	(14,067.33)
04/28/21	NA	NA	08/31/22	Aaa/NR/NR	Treasury - Note	US Treasury	5,000,000	0.125%	0.102%	5,001,562.50	5,000,290.18	4,987,450.00	(12,840.18)
12/15/21	NA	NA	08/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	1.875%	0.188%	5,059,570.31	5,020,930.11	5,008,700.00	(12,230.11)
01/13/22	NA	NA	08/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.312%	4,994,140.63	4,997,681.73	4,987,450.00	(10,231.73)
02/15/22	NA	NA	08/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.776%	4,982,617.19	4,991,970.38	4,987,450.00	(4,520.38)
02/15/22	NA	NA	08/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.769%	4,982,812.50	4,992,060.60	4,987,450.00	(4,610.60)
04/28/21	NA	NA	09/09/22	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	2.000%	0.112%	5,128,632.30	5,025,778.02	5,010,100.00	(15,678.02)
12/03/21	NA	NA	09/30/22	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.210%	4,996,484.38	4,998,586.74	4,979,700.00	(18,886.74)
01/10/22	NA	NA	09/30/22	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.332%	4,992,578.13	4,996,585.38	4,979,700.00	(16,885.38)
02/28/22	NA	NA	09/30/22	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.742%	4,982,031.25	4,989,840.10	4,979,700.00	(10,140.10)
03/23/22	NA	NA	09/30/22	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.937%	9,957,812.50	9,973,273.89	9,959,400.00	(13,873.89)
04/22/21	NA	NA	10/31/22	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.110%	10,002,343.75	10,003,373.97	9,944,500.00	(58,873.97)
12/23/21	NA	NA	10/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.253%	9,989,062.50	9,994,671.47	9,944,500.00	(50,171.47)
04/11/22	NA	NA	10/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	1.235%	9,939,062.50	9,954,371.92	9,944,500.00	(9,871.92)
05/20/21	NA	NA	11/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.103%	5,001,647.15	5,000,536.28	4,964,250.00	(36,286.28)
12/20/21	NA	NA	11/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.266%	9,986,718.75	9,992,993.66	9,928,500.00	(64,493.66)
01/07/22	NA	NA	11/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.401%	4,987,695.31	4,993,151.52	4,964,250.00	(28,901.52)
10/15/21	NA	NA	12/15/22	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	1.625%	0.140%	10,173,046.88	10,080,024.03	10,003,100.00	(76,924.03)
11/30/21	NA	NA	12/31/22	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.216%	9,990,234.38	9,994,747.28	9,909,800.00	(84,947.28)
09/30/21	NA	NA	01/31/23	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.143%	4,998,828.13	4,999,414.07	4,944,350.00	(55,064.07)
12/30/21	NA	NA	01/31/23	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.417%	9,968,359.38	9,980,553.37	9,888,700.00	(91,853.37)
02/28/22	NA	NA	01/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	1.070%	4,956,640.63	4,968,606.27	4,944,350.00	(24,256.27)
11/18/21	NA	NA	02/10/23	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	10,000,000	0.160%	0.285%	9,984,690.00	9,991,339.11	9,894,000.00	(97,339.11)
10/07/21	NA	NA	02/28/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.181%	9,992,187.50	9,995,825.15	9,867,200.00	(128,625.15)
09/09/21	NA	NA	03/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.153%	9,995,703.13	9,997,707.83	9,847,300.00	(150,407.83)
11/02/21	NA	NA	03/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.308%	4,987,109.38	4,992,401.05	4,923,650.00	(68,751.05)
09/30/21	NA	NA	04/30/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.202%	9,987,890.63	9,993,011.40	9,822,300.00	(170,711.40)
10/19/21	NA	NA	04/30/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.307%	9,972,265.63	9,983,448.84	9,822,300.00	(161,148.84)
11/16/21	NA	NA	05/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.385%	9,960,156.25	9,974,147.73	9,802,700.00	(171,447.73)
12/29/21	NA	NA	06/30/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.563%	4,967,187.50	4,976,408.53	4,891,000.00	(85,408.53)
04/21/22	NA	NA	06/30/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	1.375%	2.107%	9,914,062.50	9,922,162.36	9,915,200.00	(6,962.36)
01/11/22	NA	NA	07/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.710%	4,954,882.81	4,966,122.25	4,881,250.00	(84,872.25)
02/28/22	NA	NA	07/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	1.408%	4,909,960.94	4,926,126.25	4,881,250.00	(44,876.25)
01/13/22	NA	NA	08/15/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.769%	9,898,437.50	9,922,819.52	9,753,900.00	(168,919.52)
02/15/22	NA	NA	08/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	1.473%	4,898,046.88	4,917,276.47	4,871,300.00	(45,976.47)
11/26/21	NA	NA	09/30/23	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	0.250%	0.572%	9,941,015.63	9,957,405.05	9,739,800.00	(217,605.05)
03/31/22	NA	NA	10/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	1.625%	2.155%	4,958,984.38	4,963,376.38	4,952,550.00	(10,826.38)
04/21/22	NA	NA	10/31/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	1.625%	2.380%	4,943,750.00	4,947,883.06	4,952,550.00	4,666.94
03/31/22	NA	NA	11/30/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.500%	2.210%	4,860,742.19	4,874,919.50	4,864,650.00	(10,269.50)
04/21/22	NA	NA	11/30/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.500%	2.462%	4,846,093.75	4,856,825.31	4,864,650.00	7,824.69
04/14/22	NA	NA	12/15/23	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	2.213%	4,829,687.50	4,843,089.14	4,833,400.00	(9,689.14)
03/22/22	NA	NA	01/31/24	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	0.875%	2.013%	4,896,484.38	4,907,292.63	4,875,000.00	(32,292.63)
03/22/22	NA	NA	02/29/24	Aaa/AA/AAA	Treasury - Note	US Treasury	5,000,000	1.500%	2.020%	4,950,781.25	4,955,710.07	4,921,100.00	(34,610.07)
03/10/22	NA	NA	03/08/24	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	10,000,000	1.875%	1.680%	10,038,080.00	10,033,744.42	9,897,100.00	(136,644.42)
04/21/22	NA	NA	04/30/24	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	2.000%	2.600%	9,882,421.88	9,888,936.34	9,908,600.00	19,663.66
05/31/22	NA	NA	05/31/24	Aaa/AA/AAA	Treasury - Note	US Treasury	10,000,000	2.500%	2.560%	9,988,281.25	9,988,297.28	9,991,400.00	3,102.72



IRVINE RANCH WATER DISTRICT  
INVESTMENT SUMMARY REPORT

05/31/22

SETTLMT	Call Schedule	Initial Call	Maturity Date	Rating	INVESTMENT TYPE	INSTITUTION / ISSUER	PAR Amount	COUPON DISCOUNT	YIELD	ORIGINAL COST	CARRY VALUE	MARKET VALUE <sup>(1)</sup> 5/31/2022	UNREALIZED <sup>(2)</sup> GAIN/(LOSS)
SUB-TOTAL							<u>\$400,000,000</u>			<u>\$398,734,268.29</u>	<u>\$398,732,670.67</u>	<u>\$395,808,623.83</u>	<u>(\$2,924,046.84)</u>
<u>TOTAL INVESTMENTS</u>							<u>\$400,000,000</u>			<u>\$398,734,268.29</u>	<u>\$398,732,670.67</u>	<u>\$395,808,623.83</u>	<u>(\$2,924,046.84)</u>
					Petty Cash Ck Balance	Bank of America		ECR	0.19%	3,400.00 10,450,181.68			
										<u>\$409,187,849.97</u>			

<sup>(1)</sup> LAIF market value is as of the most recent quarter-end as reported by LAIF.  
Security market values are determined using Bank of New York ("Trading Prices"), Bloomberg and/or broker dealer pricing.  
<sup>(2)</sup> Gain (loss) calculated against carry value using the trading value provided by Bank of New York/or Brokers  
<sup>(3)</sup> Real estate rate of return is based on most recent quarter end return

Outstanding Variable Rate Debt	\$237,300,000
Net Outstanding Variable Rate Debt (Less \$60 million fixed-payer swaps)	\$177,300,000
Investment Balance:	\$409,187,850
Investment to Variable Rate Debt Ratio:	231%
Portfolio - Average Number of Days To Maturity	268

	Investment Portfolio	Real Estate <sup>(3)</sup> Portfolio	Weighted Avg. Return
May	0.72%	12.41%	3.04%
April	0.58%	12.41%	2.96%
Change	0.14%		0.08%

This Investment Summary Report is in conformity with the 2022 Investment Policy and provides sufficient liquidity to meet the next six months estimated expenditures.

IRVINE RANCH WATER DISTRICT  
SUMMARY OF MATURITIES

05/31/22

DATE	TOTAL	%	LAIF	Agency Notes	Agency Discount Notes	Municipal Bonds	US Treasury
05/22	35,000,000	8.75%	35,000,000				
06/22	25,000,000	6.25%					25,000,000
07/22	15,000,000	3.75%		5,000,000			10,000,000
08/22	25,000,000	6.25%					25,000,000
09/22	30,000,000	7.50%		5,000,000			25,000,000
10/22	30,000,000	7.50%					30,000,000
11/22	20,000,000	5.00%					20,000,000
12/22	20,000,000	5.00%					20,000,000
1/23	20,000,000	5.00%					20,000,000
2/23	20,000,000	5.00%		10,000,000			10,000,000
3/23	15,000,000	3.75%					15,000,000
4/23	20,000,000	5.00%					20,000,000
<b>SUB-TOTAL</b>	<b>\$275,000,000</b>	<b>68.75%</b>	<b>\$35,000,000</b>	<b>\$20,000,000</b>			<b>\$220,000,000</b>

13 Months - 3 YEARS							
05/01/2023 - 07/31/2023	\$35,000,000	8.75%					35,000,000
08/01/2023 - 10/31/2023	\$35,000,000	8.75%					35,000,000
11/01/2023 - 01/31/2024	\$20,000,000	5.00%					20,000,000
02/01/2024 - 04/30/2024	\$25,000,000	6.25%		10,000,000			15,000,000
5/01/2024 +	\$10,000,000	2.50%					10,000,000
<b>TOTALS</b>	<b>\$400,000,000</b>	<b>100.00%</b>	<b>\$35,000,000</b>	<b>30,000,000</b>	<b>-</b>		<b>335,000,000</b>

% OF PORTFOLIO

8.75%

7.50%

83.75%

Irvine Ranch Water District  
Summary of Real Estate - Income Producing Investments  
3/31/2022

	ACQUISITION DATE	PROPERTY TYPE	OWNERSHIP INTEREST	ORIGINAL COST	MARKET VALUE 6/30/2021	ANNUALIZED RATE OF RETURN QUARTER ENDED 3/31/2022
Sycamore Canyon	Dec-92	Apartments	Fee Simple	\$ 43,550,810	\$ 170,000,000	22.20%
Wood Canyon Villas	Jun-91	Apartments	Limited Partner	\$ 6,000,000	\$ 32,258,924	8.51%
ITC (230 Commerce)	Jul-03	Office Building	Fee Simple	\$ 5,739,845	\$ 12,000,000	9.95%
Waterworks Business Pk.	Nov-08	Research & Dev.	Fee Simple	\$ 8,630,577	\$ 11,600,000	8.82%
Sand Canyon Professional Center - Medical Office	Jul-12	Medical Office	Fee Simple	\$ 8,648,594	\$ 11,900,000	9.64%
Sand Canyon Professional Center - General Office	Sep-20	Office Building	Fee Simple	\$ 25,985,968	\$ 33,250,000	-0.44%
<b>Total - Income Properties</b>				<b>\$ 98,555,794</b>	<b>\$ 271,008,924</b>	<b>12.41%</b>

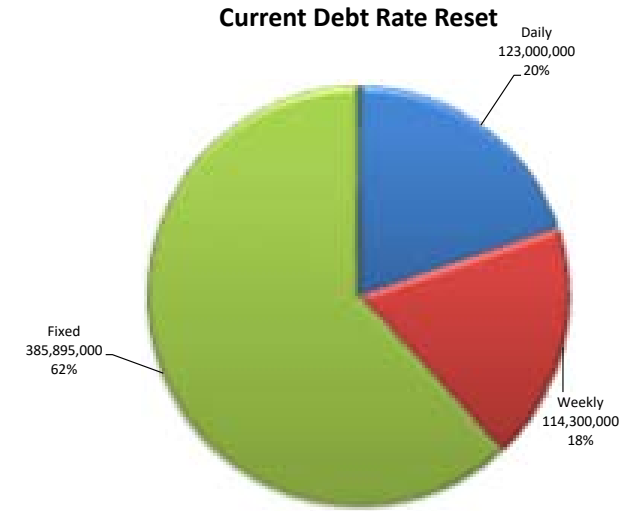
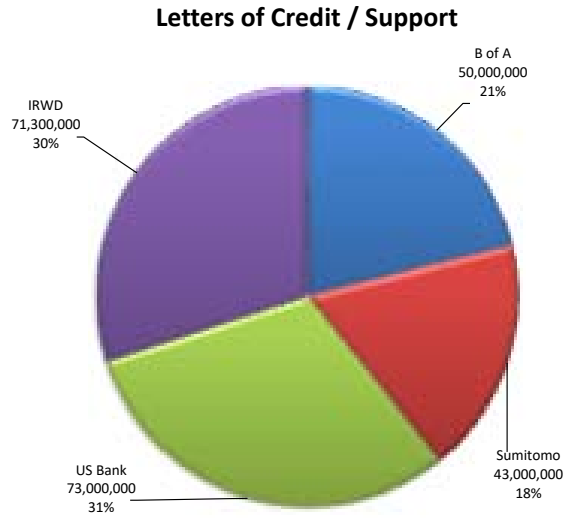
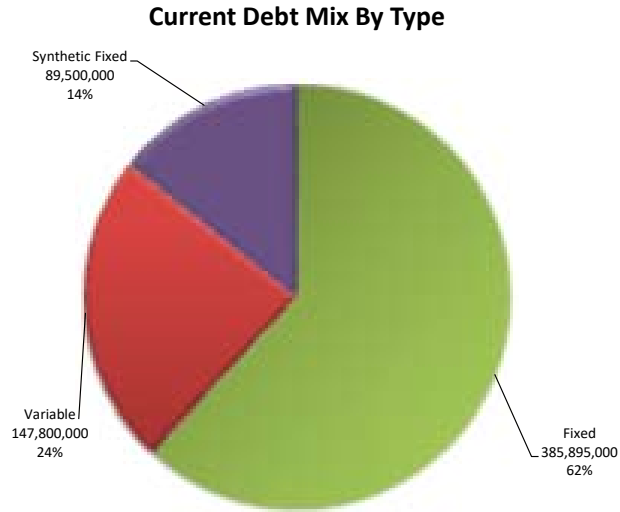
**IRVINE RANCH WATER DISTRICT INVESTMENT SUMMARY REPORT**  
**INVESTMENT ACTIVITY**  
 May-22

**MATURITIES/SALES/CALLS**

**PURCHASES**

DATE	SECURITY TYPE	PAR	YIELD	Settlement Date	Maturity Date	SECURITY TYPE	PAR	YIELD TO MATURITY
5/31/2022	Treasury - Note	\$10,000,000	0.06%	5/31/2022	5/31/2024	Treasury - Note	\$10,000,000	2.56%

Exhibit "B"  
**Irvine Ranch Water District**  
**Summary of Fixed and Variable Rate Debt**  
**May 2022**



**Outstanding Par by Series**

Series	Issue Date	Maturity Date	Remaining Principal	Percent	Letter of Credit/Support	Rmkt Agent	Mode	Reset
Series 1993	05/19/93	04/01/33	\$23,000,000	3.69%	US Bank	BAML	Variable	Daily
Series 2008-A Refunding	04/24/08	07/01/35	\$43,000,000	6.90%	Sumitomo	BAML	Variable	Weekly
Series 2011-A-1 Refunding	04/15/11	10/01/37	\$42,780,000	6.86%	IRWD	Goldman	Variable	Weekly
Series 2011-A-2 Refunding	04/15/11	10/01/37	\$28,520,000	4.58%	IRWD	Goldman	Variable	Weekly
Series 2009 - A	06/04/09	10/01/41	\$50,000,000	8.02%	US Bank	US Bank	Variable	Daily
Series 2009 - B	06/04/09	10/01/41	\$50,000,000	8.02%	B of A	Goldman	Variable	Daily
2016 COPS	09/01/16	03/01/46	\$109,650,000	17.59%	N/A	N/A	Fixed	Fixed
2010 Build America Taxable Bond	12/16/10	05/01/40	\$175,000,000	28.08%	N/A	N/A	Fixed	Fixed
Series 2016	10/12/16	02/01/46	\$101,245,000	16.25%	N/A	N/A	Fixed	Fixed
<b>Total</b>			<b>\$623,195,000</b>	<b>100.00%</b>				

**IRVINE RANCH WATER DISTRICT**  
**SUMMARY OF FIXED & VARIABLE RATE DEBT**

May-22

ITN
Daily
Weekly

GENERAL BOND INFORMATION							LETTER OF CREDIT INFORMATION										TRUSTEE INFORMATION									
VARIABLE RATE ISSUES	Issue Date	Maturity Date	Principal Payment Date	Payment Date	Original Par Amount	Remaining Principal	Letter of Credit	Reimbursement Agreement Date	L/C Exp. Date	MOODY'S	S&P	FITCH	LOC Stated Amount	LOC Fee	Annual LOC Cost	Rmkt Agent	Reset	Rmkt Fees	Annual Cost	Trustee						
SERIES 1993	05/19/93	04/01/33	Apr 1	5th Bus. Day	\$38,300,000	\$23,000,000	US BANK	05/07/15	05/01/25	Aa3/VMIG1	AA-/A-1+	N/R	\$23,310,027	0.3000%	\$69,930	BAML	DAILY	0.10%	\$23,000	BANK OF NY						
SERIES 2008-A Refunding	04/24/08	07/01/35	Jul 1	5th Bus. Day	\$60,215,000	\$43,000,000	SUMITOMO	04/01/11	05/28/25	A1/P-1	A/A-1	A/F1	\$43,636,164	0.3150%	\$137,454	BAML	WED	0.07%	\$30,100	BANK OF NY						
SERIES 2011-A-1 Refunding	04/15/11	10/01/37	Oct 1	1st Bus. Day	\$60,545,000	\$42,780,000	N/A	N/A	N/A	Aa1/VMIG1	A-1+	AAA/F1+	N/A	N/A	N/A	Goldman	WED	0.13%	\$53,475	BANK OF NY						
SERIES 2011-A-2 Refunding	04/15/11	10/01/37	Oct 1	1st Bus. Day	\$40,370,000	\$28,520,000	N/A	N/A	N/A	Aa1/VMIG1	A-1+	AAA/F1+	N/A	N/A	N/A	Goldman	WED	0.13%	\$35,650	BANK OF NY						
SERIES 2009 - A	06/04/09	10/01/41	Oct 1	1st Bus. Day	\$75,000,000	\$50,000,000	US BANK	04/01/11	05/01/25	Aa2/VMIG 1	AA-/A-1+	AA/F1+	\$50,558,904	0.3000%	\$151,677	US Bank	DAILY	0.07%	\$35,000	US BANK						
SERIES 2009 - B	06/04/09	10/01/41	Oct 1	1st Bus. Day	\$75,000,000	\$50,000,000	B of A	04/01/11	04/21/25	Aa2/VMIG 1	A/A-1	A1/F1+	\$50,558,904	0.2800%	\$141,565	Goldman	DAILY	0.10%	\$50,000	US BANK						
					<b>\$349,430,000</b>	<b>\$237,300,000</b>	<b>SUB-TOTAL VARIABLE RATE DEBT</b>										<b>\$168,064,000</b>		<b>0.2979%</b>		<b>\$500,626</b>		<b>0.10%</b>		<b>\$227,225</b>	
																	(Wt. Avg)				(Wt. Avg)					
FIXED RATE ISSUES																										
2010 GO Build America Taxable Bonds	12/16/10	05/01/40	May (2025)	May/Nov	\$175,000,000	\$175,000,000	N/A	N/A	N/A	Aa1	AAA	NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	US BANK						
2016 COPS	09/01/16	03/01/46	Mar 1	Mar/Sept	\$116,745,000	\$109,650,000	N/A	N/A	N/A	NR	AAA	AAA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	US BANK						
SERIES 2016	10/12/16	02/01/46	Feb 1	Feb/Aug	\$103,400,000	\$101,245,000	N/A	N/A	N/A	NR	AAA	AAA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	BANK OF NY						
					<b>\$395,145,000</b>	<b>\$385,895,000</b>	<b>SUB-TOTAL FIXED RATE DEBT</b>																			
					<b>\$744,575,000</b>	<b>\$623,195,000</b>	<b>TOTAL- FIXED &amp; VARIABLE RATE DEBT</b>																			

Remarketing Agents			GO VS COP's		
Goldman	121,300,000	51%	GO:	513,545,000	82%
BAML	66,000,000	28%	COPS:	109,650,000	18%
US Bank	50,000,000	21%	Total	<u>623,195,000</u>	
	<u>237,300,000</u>				

LOC Banks		Breakdown Between Variable & Fixed Rate Mode	
SUMITOMO	43,000,000	Daily Issues	123,000,000 20%
BANK OF AMERICA	50,000,000	Weekly Issues	43,000,000 7%
US BANK	73,000,000	ITN Issues	71,300,000 11%
	<u>166,000,000</u>	Sub-Total	<u>237,300,000</u>
		Fixed Rate Issues	\$385,895,000 62%
		Sub-Total - Fixed	<u>385,895,000</u>
		TOTAL DEBT	
		FIXED & VAR.	<u>623,195,000</u> 100%

SUMMARY OF DEBT RATES

May-22

Rmkt Agent Mode	GOLDMAN DAILY	GOLDMAN WEEKLY	GOLDMAN WEEKLY	MERRILL LYNCH DAILY	MERRILL LYNCH WEEKLY	US BANK DAILY
Bond Issue	2009 - B	2011 A-1	2011 A-2	1993	2008-A	2009-A
Par Amount	50,000,000	42,780,000	28,520,000	23,000,000	43,000,000	50,000,000
LOC Bank	BOFA	(SIFMA + 6)	(SIFMA + 6)	US BANK	Sumitomo	US BANK
Reset		Wednesday	Wednesday		Wednesday	
5/1/2022	0.25%	0.50%	0.50%	0.27%	0.40%	0.32%
5/2/2022	0.22%	0.50%	0.50%	0.25%	0.40%	0.27%
5/3/2022	0.22%	0.50%	0.50%	0.23%	0.40%	0.25%
5/4/2022	0.22%	0.50%	0.50%	0.23%	0.40%	0.25%
5/5/2022	0.38%	0.66%	0.66%	0.41%	0.57%	0.32%
5/6/2022	0.38%	0.66%	0.66%	0.39%	0.57%	0.39%
5/7/2022	0.38%	0.66%	0.66%	0.39%	0.57%	0.39%
5/8/2022	0.38%	0.66%	0.66%	0.39%	0.57%	0.39%
5/9/2022	0.39%	0.66%	0.66%	0.39%	0.57%	0.40%
5/10/2022	0.38%	0.66%	0.66%	0.41%	0.57%	0.43%
5/11/2022	0.60%	0.66%	0.66%	0.44%	0.57%	0.51%
5/12/2022	0.65%	0.82%	0.82%	0.65%	0.70%	0.62%
5/13/2022	0.75%	0.82%	0.82%	0.74%	0.70%	0.75%
5/14/2022	0.75%	0.82%	0.82%	0.74%	0.70%	0.75%
5/15/2022	0.75%	0.82%	0.82%	0.74%	0.70%	0.75%
5/16/2022	0.73%	0.82%	0.82%	0.74%	0.70%	0.76%
5/17/2022	0.67%	0.82%	0.82%	0.73%	0.70%	0.74%
5/18/2022	0.66%	0.82%	0.82%	0.71%	0.70%	0.71%
5/19/2022	0.65%	0.88%	0.88%	0.66%	0.78%	0.72%
5/20/2022	0.64%	0.88%	0.88%	0.64%	0.78%	0.68%
5/21/2022	0.64%	0.88%	0.88%	0.64%	0.78%	0.68%
5/22/2022	0.64%	0.88%	0.88%	0.64%	0.78%	0.68%
5/23/2022	0.60%	0.88%	0.88%	0.62%	0.78%	0.67%
5/24/2022	0.60%	0.88%	0.88%	0.60%	0.78%	0.66%
5/25/2022	0.59%	0.88%	0.88%	0.59%	0.78%	0.65%
5/26/2022	0.60%	0.85%	0.85%	0.57%	0.72%	0.64%
5/27/2022	0.57%	0.85%	0.85%	0.59%	0.72%	0.63%
5/28/2022	0.57%	0.85%	0.85%	0.59%	0.72%	0.63%
5/29/2022	0.57%	0.85%	0.85%	0.59%	0.72%	0.63%
5/30/2022	0.57%	0.85%	0.85%	0.59%	0.72%	0.63%
5/31/2022	0.52%	0.85%	0.85%	0.49%	0.72%	0.62%
Avg Interest Rates	0.53%	0.77%	0.77%	0.54%	0.65%	0.57%
Rmkt Fee	0.10%	0.13%	0.13%	0.10%	0.07%	0.07%
LOC Fee	0.28%			0.30%	0.32%	0.30%
<b>All-In Rate</b>	<b>0.91%</b>	<b>0.90%</b>	<b>0.90%</b>	<b>0.94%</b>	<b>1.04%</b>	<b>0.94%</b>
Par Amount	92,780,000		28,520,000	66,000,000		50,000,000

Interest Rate Mode	Percent of Total Variable Rate Debt	Par Outstanding	Weighted All-In Average Rate	Base Rate Average
Daily	51.83%	123,000,000	0.93%	0.55%
Weekly	48.17%	114,300,000	0.95%	0.73%
	100.00%	<b>\$ 237,300,000</b>	0.94%	0.63%
<b>Fixed</b>				
COPS 2016	28.41%	109,650,000	2.90%	
BABS 2010	45.35%	175,000,000	4.44%	(1)
SERIES 2016	26.24%	101,245,000	3.32%	
	100.00%	<b>\$ 385,895,000</b>	3.71%	
All-In Debt Rate Including \$60 Million Notional Amount of Swaps				<b>3.16%</b>

(1) Rate adjusted up from 4.35% as a result of sequestration reducing BAB's subsidy by 5.7%

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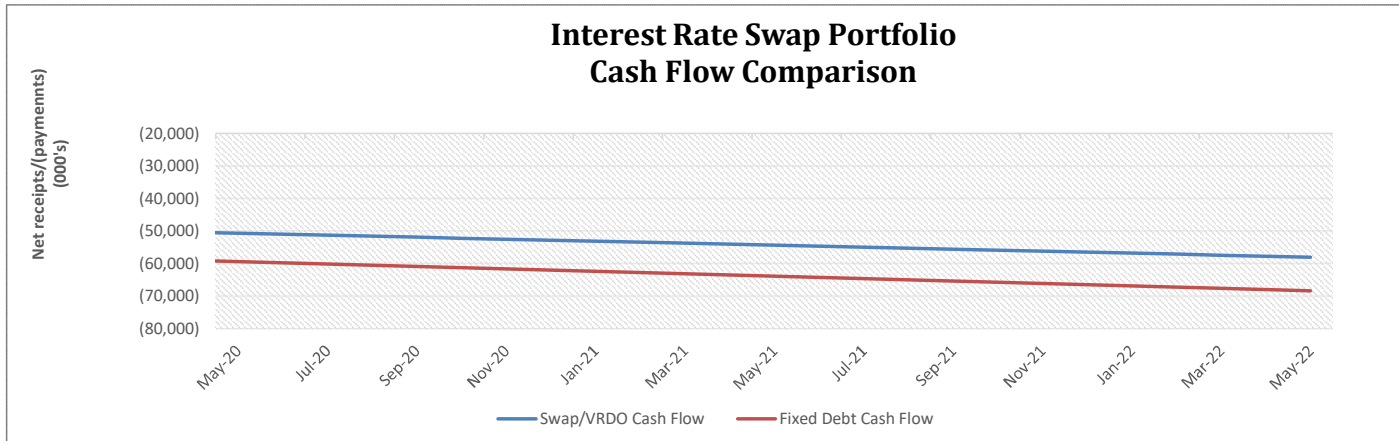
Exhibit "C"  
**Irvine Ranch Water District**  
**Interest Rate Swap Summary**  
**May 2022**

	Prior Mo.	Current Mo.	12-Mo Avg
LIBOR Avg %	0.60%	0.94%	0.24%

Current Fiscal Year Active Swaps								Cash Flow				Mark to Market	
Effective Date	Maturity Date	Years to Maturity	Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Net Accrual	Current Mark to Market	Notional Difference
<b>Fixed Payer Swaps - By Effective Date</b>													
3/10/2007	3/10/2029	6.8	ML	30,000,000	FXP	LIBOR	5.687%	(122,292)	(132,441)	(1,512,874)	(21,272,141)	24,469,338	(5,530,662)
3/10/2007	3/10/2029	6.8	CG	30,000,000	FXP	LIBOR	5.687%	(122,292)	(132,441)	(1,512,874)	(21,272,141)	24,467,395	(5,532,605)
<b>Totals/Weighted Avgs</b>				<b>6.8</b>	<b>\$ 60,000,000</b>		<b>5.687%</b>	<b>\$ (244,584)</b>	<b>\$ (264,882)</b>	<b>\$ (3,025,748)</b>	<b>\$ (42,544,281)</b>	<b>\$ 48,936,733</b>	<b>\$ (11,063,267)</b>
<b>Total Current Year Active Swaps</b>				<b>\$ 60,000,000</b>				<b>\$ (244,584)</b>	<b>\$ (264,882)</b>	<b>\$ (3,025,748)</b>	<b>\$ (42,544,281)</b>	<b>\$ 48,936,733</b>	<b>\$ (11,063,267)</b>

Current Fiscal Year Terminated Swaps								Cash Flow				Mark to Market	
Effective Date	Maturity Date		Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Net Accrual	Current Mark to Market	Notional Difference
<b>Total Current Year Terminated Swaps</b>								<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

Current Fiscal Year - Total Swaps								Cash Flow				Mark to Market	
								Prior Month	Current Month	Fiscal YTD	Cumulative Net Accrual	Current Mark to Market	Notional Difference
<b>Total Current Year Active &amp; Terminated Swaps</b>				<b>\$ 60,000,000</b>				<b>\$ (244,584)</b>	<b>\$ (264,882)</b>	<b>\$ (3,025,748)</b>	<b>\$ (42,544,281)</b>	<b>\$ 48,936,733</b>	<b>\$ (11,063,267)</b>



Cash Flow Comparison Synthetic Fixed vs. Fixed Rate Debt	
<u>Cash Flow to Date</u>	
Synthetic Fixed =	\$58,031,273
Fixed Rate =	\$68,333,234
<b>Assumptions:</b>	
- Fixed rate debt issued at 4.93% in Mar-07 (estimated TE rate - Bloomberg)	
- 'Synthetic' includes swap cash flow + interest + fees to date	

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## Exhibit "D"

IRVINE RANCH WATER DISTRICT  
AP DISBURSEMENTS AND VOIDS FOR MAY 2022

CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
426894	5-May-22	Lin, Eileen (Eileen)	1,820.00	IRWD Check	Reconciled
426895	5-May-22	Moeder, Jacob J (Jacob)	180	IRWD Check	Reconciled
426896	5-May-22	Nash, Joel	68.46	IRWD Check	Reconciled
426897	5-May-22	Oldewage, Lars D (Lars)	102.37	IRWD Check	Reconciled
426898	5-May-22	Zamora, Victor A	64.52	IRWD Check	Reconciled
426899	5-May-22	ACCUSOURCE, INC.	715.87	IRWD Check	Reconciled
426900	5-May-22	ACE INDUSTRIES, INC.	1,425.33	IRWD Check	Reconciled
426901	5-May-22	AECOM TECHNICAL SERVICES, INC.	18,800.28	IRWD Check	Reconciled
426902	5-May-22	AFLAC	2,087.42	IRWD Check	Reconciled
426903	5-May-22	AHDOOT, MORRIS	40.15	IRWD Check	Reconciled
426904	5-May-22	AIRGAS, INC.	396.59	IRWD Check	Reconciled
426905	5-May-22	ALCOR SOLUTIONS, INC	38,808.00	IRWD Check	Reconciled
426906	5-May-22	ALL AMERICAN ASPHALT	361.05	IRWD Check	Reconciled
426907	5-May-22	ALLIANT INSURANCE SERVICES, INC	86,877.65	IRWD Check	Reconciled
426908	5-May-22	AMAZON CAPITAL SERVICES, INC.	2,740.00	IRWD Check	Reconciled
426909	5-May-22	ANA KARINA PARSONS AND THOMAS PARSONS	44.62	IRWD Check	Reconciled
426910	5-May-22	ANDERSON, SHIRLY	94.61	IRWD Check	Reconciled
426911	5-May-22	ANNETT, JENNIFER	62.57	IRWD Check	Reconciled
426912	5-May-22	ANTHONY N. LARSEN	550	IRWD Check	Reconciled
426913	5-May-22	APCO GRAPHICS INC	235.11	IRWD Check	Reconciled
426914	5-May-22	AQUA-AEROBIC SYSTEMS INC	22,103.50	IRWD Check	Reconciled
426915	5-May-22	AQUA-METRIC SALES COMPANY	687.82	IRWD Check	Reconciled
426916	5-May-22	ARAG NORTH AMERICA, INC.	408.75	IRWD Check	Reconciled
426917	5-May-22	AT&T	200.03	IRWD Check	Reconciled
426918	5-May-22	AT&T	55.97	IRWD Check	Reconciled
426919	5-May-22	AT&T	3,378.27	IRWD Check	Reconciled
426920	5-May-22	AUTOMATIONDIRECT.COM INC.	555.99	IRWD Check	Reconciled
426921	5-May-22	AUTOZONE PARTS, INC.	543.47	IRWD Check	Reconciled
426922	5-May-22	B & K ELECTRIC WHOLESALE	5,427.89	IRWD Check	Reconciled
426923	5-May-22	BAE, SO YOUNG	15.81	IRWD Check	Reconciled
426924	5-May-22	BANTA, BRAD	66.1	IRWD Check	Reconciled
426925	5-May-22	BEAVER, REGINA	35.36	IRWD Check	Reconciled
426926	5-May-22	BOHLSON, STEVEN	62.81	IRWD Check	Reconciled
426927	5-May-22	BONEFISH GRILL, LLC	184.96	IRWD Check	Reconciled
426928	5-May-22	BOTTOM LINE UTILITY SOLUTIONS, INC.	5,772.00	IRWD Check	Reconciled
426929	5-May-22	BROOKFIELD EASTWOOD TRIPLEX LLC	23.07	IRWD Check	Negotiable
426930	5-May-22	BROWN AND CALDWELL	3,283.99	IRWD Check	Reconciled
426931	5-May-22	BROWN, CHRISTHOPI	28.41	IRWD Check	Negotiable
426932	5-May-22	BSI SERVICES AND SOLUTIONS (WEST) INC.	26,075.00	IRWD Check	Reconciled
426933	5-May-22	C WELLS PIPELINE MATERIALS INC	5,655.67	IRWD Check	Reconciled
426934	5-May-22	CALIFORNIA BARRICADE RENTAL, INC.	1,366.00	IRWD Check	Reconciled
426935	5-May-22	CANON SOLUTIONS AMERICA, INC.	6.93	IRWD Check	Reconciled
426936	5-May-22	CANON SOLUTIONS AMERICA, INC.	448.22	IRWD Check	Reconciled
426937	5-May-22	CAO, YIFANG	24.4	IRWD Check	Reconciled
426938	5-May-22	CDB INVESTMENTS, L.P.	94.12	IRWD Check	Reconciled
426939	5-May-22	CDW GOVERNMENT LLC	56,720.05	IRWD Check	Reconciled
426940	5-May-22	CENTURY PAVING, INC.	47,096.00	IRWD Check	Negotiable
426941	5-May-22	CHANG, SHIHAO	102.2	IRWD Check	Negotiable
426942	5-May-22	CHEM SERVICE INC.	227	IRWD Check	Reconciled
426943	5-May-22	CHENG, ZHONG	24.46	IRWD Check	Negotiable
426944	5-May-22	CHO DESIGN ASSOCIATES, INC	5,600.00	IRWD Check	Reconciled
426945	5-May-22	CITY OF NEWPORT BEACH	4,226.32	IRWD Check	Reconciled
426946	5-May-22	CITY OF ORANGE	249.33	IRWD Check	Reconciled
426947	5-May-22	CLARK, STEPHEN D	125.61	IRWD Check	Negotiable
426948	5-May-22	CLEAN ENERGY	5,662.10	IRWD Check	Reconciled
426949	5-May-22	COLONIAL LIFE & ACCIDENT INSURANCE CO.	652.98	IRWD Check	Reconciled
426950	5-May-22	CONSTELLATION NEWENERGY, INC.	198,093.94	IRWD Check	Reconciled
426951	5-May-22	CORO SOUTHERN CALIFORNIA	1,500.00	IRWD Check	Reconciled
426952	5-May-22	CUESTA CONSTRUCTION COMPANY	2,139.79	IRWD Check	Reconciled
426953	5-May-22	CULLIGAN OF SANTA ANA	15,000.00	IRWD Check	Reconciled
426954	5-May-22	D & H WATER SYSTEMS INC.	11,894.21	IRWD Check	Reconciled
426955	5-May-22	DATA CLEAN CORPORATION	559	IRWD Check	Reconciled
426956	5-May-22	DEAN ALLAN VOTAVA	7,300.00	IRWD Check	Reconciled
426957	5-May-22	DECISIONPOINT SYSTEMS INC	93.08	IRWD Check	Reconciled
426958	5-May-22	DESU, RAVI	329.45	IRWD Check	Negotiable
426959	5-May-22	DIAZ, ALEXANDER	16.32	IRWD Check	Negotiable
426960	5-May-22	DISTRICT ONE WEST BA 153, LLC	303.22	IRWD Check	Negotiable
426961	5-May-22	DMC ENGINEERING INC	3,892.93	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT  
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426962	5-May-22	DRAKE TRAFFIC CONTROL SERVICES INC	945	IRWD Check	Reconciled
426963	5-May-22	DUGAN, MARLENE	64.57	IRWD Check	Negotiable
426964	5-May-22	EHS INTERNATIONAL, INC	2,507.50	IRWD Check	Reconciled
426965	5-May-22	EUROFINS ENVIRONMENT TESTING AMERICA HOLDINGS, INC.	2,105.25	IRWD Check	Reconciled
426966	5-May-22	EXECUTIVE LIGHTING & ELECTRIC	477.46	IRWD Check	Reconciled
426967	5-May-22	FARRELL & ASSOCIATES	216.66	IRWD Check	Reconciled
426968	5-May-22	FASTBLUE COMMUNICATIONS INC.	1,917.00	IRWD Check	Reconciled
426969	5-May-22	FEDEX	671.98	IRWD Check	Reconciled
426970	5-May-22	FEHR & PEERS	11,635.00	IRWD Check	Reconciled
426971	5-May-22	FERGUSON ENTERPRISES, LLC	9,126.93	IRWD Check	Reconciled
426972	5-May-22	FIDELITY SECURITY LIFE INSURANCE COMPANY	6,481.50	IRWD Check	Reconciled
426973	5-May-22	FIDELITY SECURITY LIFE INSURANCE COMPANY	874.19	IRWD Check	Reconciled
426974	5-May-22	FIDELITY SECURITY LIFE INSURANCE COMPANY	85.52	IRWD Check	Reconciled
426975	5-May-22	FIDELITY SECURITY LIFE INSURANCE COMPANY	180.35	IRWD Check	Reconciled
426976	5-May-22	FIELDER, JULIET	47.7	IRWD Check	Negotiable
426977	5-May-22	FIREHOSEDIRECT.COM	160.93	IRWD Check	Reconciled
426978	5-May-22	FISHER SCIENTIFIC COMPANY LLC	6,713.21	IRWD Check	Reconciled
426979	5-May-22	FLEET SOLUTIONS LLC	5,490.37	IRWD Check	Reconciled
426980	5-May-22	FRONTIER CALIFORNIA INC.	290.01	IRWD Check	Reconciled
426981	5-May-22	GANAHL LUMBER CO.	758.54	IRWD Check	Reconciled
426982	5-May-22	GARDEN COMMUNITIES	25.11	IRWD Check	Negotiable
426983	5-May-22	GCI CONSTRUCTION, INC	1,678.71	IRWD Check	Reconciled
426984	5-May-22	GEI CONSULTANTS INC	3,657.00	IRWD Check	Reconciled
426985	5-May-22	GEIGER BROS	2,262.43	IRWD Check	Reconciled
426986	5-May-22	GOFORTH & MARTI	2,600.74	IRWD Check	Reconciled
426987	5-May-22	GRAINGER	12,365.71	IRWD Check	Reconciled
426988	5-May-22	GRAYBAR ELECTRIC COMPANY	92.23	IRWD Check	Reconciled
426989	5-May-22	GREGG DRILLING LLC	1,587.85	IRWD Check	Reconciled
426990	5-May-22	GROTHER, MONTSERRAT	34.11	IRWD Check	Negotiable
426991	5-May-22	HACH COMPANY	6,562.87	IRWD Check	Reconciled
426992	5-May-22	HANSON BRIDGETT LLP	56,923.25	IRWD Check	Reconciled
426993	5-May-22	HARRINGTON INDUSTRIAL PLASTICS LLC	1,942.09	IRWD Check	Reconciled
426994	5-May-22	HARTFORD LIFE AND ACCIDENT INSURANCE COMPANY	50.88	IRWD Check	Reconciled
426995	5-May-22	HAYS, JOSEPH	67.17	IRWD Check	Negotiable
426996	5-May-22	HAZEN AND SAWYER	13,030.00	IRWD Check	Reconciled
426997	5-May-22	HELPMATES STAFFING SERVICES	3,264.00	IRWD Check	Reconciled
426998	5-May-22	HELPMATES STAFFING SERVICES LLC	4,321.14	IRWD Check	Reconciled
426999	5-May-22	HI-LINE INC	552.14	IRWD Check	Reconciled
427000	5-May-22	HILL BROTHERS CHEMICAL COMPANY	13,130.12	IRWD Check	Reconciled
427001	5-May-22	HOHBERG, ROBERT	55.91	IRWD Check	Negotiable
427002	5-May-22	HOME DEPOT USA INC	451.93	IRWD Check	Reconciled
427003	5-May-22	HUDSON, SHERRI	43.96	IRWD Check	Negotiable
427004	5-May-22	IRVINE COMMUNITY DEVELOPMENT COMPANY LLC	230,825.70	IRWD Check	Reconciled
427005	5-May-22	IRVINE PACIFIC	1,261.99	IRWD Check	Reconciled
427006	5-May-22	IRVINE PIPE & SUPPLY INC	9,384.80	IRWD Check	Reconciled
427007	5-May-22	IRWD-PETTY CASH CUSTODIAN	1,346.59	IRWD Check	Reconciled
427008	5-May-22	IVANOU, MIKALAI	267.9	IRWD Check	Reconciled
427009	5-May-22	J. HARRIS INDUSTRIAL WATER TREATMENT, INC.	3,254.59	IRWD Check	Reconciled
427010	5-May-22	JAE OH, SUNG	48.08	IRWD Check	Reconciled
427011	5-May-22	JANJI, TONY	40.85	IRWD Check	Reconciled
427012	5-May-22	JANSEN, SARENE	28.39	IRWD Check	Reconciled
427013	5-May-22	JONSET LLC	1,672.00	IRWD Check	Reconciled
427014	5-May-22	JORDAN ROOF COMPANY	1,667.07	IRWD Check	Reconciled
427015	5-May-22	K HOVNIANIAN HOMES	113.63	IRWD Check	Reconciled
427016	5-May-22	KARNANI, RAJEEV	23.38	IRWD Check	Negotiable
427017	5-May-22	KARPOWICH, DOROTHY J	55.53	IRWD Check	Reconciled
427018	5-May-22	KAZARIANS & ASSOCIATES, INC.	4,922.20	IRWD Check	Reconciled
427019	5-May-22	KHODAVERDIAN, ARIN	108.06	IRWD Check	Negotiable
427020	5-May-22	KILL-N-BUGS TERMITE AND PEST CONTROL SERVICES	4,025.00	IRWD Check	Reconciled
427021	5-May-22	KIM, JUNMO	34.71	IRWD Check	Reconciled
427022	5-May-22	KO, JEONGWOO	37.93	IRWD Check	Negotiable
427023	5-May-22	LABWORKS, LLC	2,750.00	IRWD Check	Reconciled
427024	5-May-22	LAGUNA BEACH COUNTY WATER DISTRICT	23,772.39	IRWD Check	Reconciled
427025	5-May-22	LAKESHORE LAND LESSEE PT LLC	175.55	IRWD Check	Negotiable
427026	5-May-22	LANDCARE HOLDINGS, INC.	92,360.00	IRWD Check	Reconciled
427028	5-May-22	LEE, ROGER	102.49	IRWD Check	Reconciled
427029	5-May-22	LENNAR HOMES OF CALIFORNIA, INC.	374.66	IRWD Check	Reconciled
427030	5-May-22	LEON MILLS, DOUGLAS	129.95	IRWD Check	Negotiable

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427031	5-May-22	LI, SONGAO	27.43	IRWD Check	Negotiable
427032	5-May-22	LIANG, QI CHAO	24.42	IRWD Check	Negotiable
427033	5-May-22	LIN, JOCELYN	421.31	IRWD Check	Reconciled
427034	5-May-22	LINDE GAS & EQUIPMENT INC.	3,433.75	IRWD Check	Reconciled
427035	5-May-22	LINTON, IAN H	212.22	IRWD Check	Negotiable
427036	5-May-22	LY, CHRISTINE	202.86	IRWD Check	Reconciled
427037	5-May-22	M&G PROPERTIES	671.06	IRWD Check	Reconciled
427038	5-May-22	MADDOX ELECTRIC INC.	24,686.00	IRWD Check	Reconciled
427039	5-May-22	MADISON COMPANY	27.13	IRWD Check	Reconciled
427040	5-May-22	MARK THOMAS & COMPANY, INC.	2,136.69	IRWD Check	Negotiable
427041	5-May-22	MASTERS SURVIVORS TRUST	59.17	IRWD Check	Negotiable
427042	5-May-22	MAYER, CLAIRE	28.55	IRWD Check	Reconciled
427043	5-May-22	MC FADDEN-DALE INDUSTRIAL	1,888.72	IRWD Check	Reconciled
427044	5-May-22	MC MASTER CARR SUPPLY CO	384.11	IRWD Check	Reconciled
427045	5-May-22	MCCALL'S METERS, INC.	711.31	IRWD Check	Reconciled
427046	5-May-22	MCCARTHY BUILDING COMPANY	1,329.82	IRWD Check	Reconciled
427047	5-May-22	MCLARNEY, CHRISTINE	55.48	IRWD Check	Reconciled
427048	5-May-22	MEI, QUSHENG	16.89	IRWD Check	Reconciled
427049	5-May-22	MERRIMAC PETROLEUM, INC.	41,755.06	IRWD Check	Reconciled
427050	5-May-22	MERRYMAN, STEVE	17.57	IRWD Check	Negotiable
427051	5-May-22	METTLER-TOLEDO RAININ, LLC	490	IRWD Check	Reconciled
427052	5-May-22	MISCOWATER	8,321.75	IRWD Check	Reconciled
427053	5-May-22	MISSION COMMUNICATIONS, LLC	1,162.80	IRWD Check	Reconciled
427054	5-May-22	MISSION LANDSCAPE COMPANIES	1,593.23	IRWD Check	Reconciled
427055	5-May-22	MORGAN COMPANY	313.33	IRWD Check	Reconciled
427056	5-May-22	MR CRANE INC	1,595.00	IRWD Check	Reconciled
427057	5-May-22	MRO ELECTRIC & SUPPLY CO.	1,521.00	IRWD Check	Reconciled
427058	5-May-22	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	2,592.34	IRWD Check	Reconciled
427059	5-May-22	NALCO US 2 INC	1,034.41	IRWD Check	Reconciled
427060	5-May-22	NATURES IMAGE INC	9,900.00	IRWD Check	Reconciled
427061	5-May-22	NGUYEN, NHAT	40.19	IRWD Check	Reconciled
427062	5-May-22	NIXON-EGLI EQUIPMENT COMPANY INC.	5,119.72	IRWD Check	Reconciled
427063	5-May-22	NOESSER, LISA	27.5	IRWD Check	Negotiable
427064	5-May-22	NRD, LLC	100	IRWD Check	Reconciled
427065	5-May-22	O'CONNELL, JOANNA	89.59	IRWD Check	Reconciled
427066	5-May-22	O'REILLY AUTO ENTERPRISES, LLC	15.21	IRWD Check	Reconciled
427067	5-May-22	O.C. SUPERIOR CUSTOM CLEANING	792	IRWD Check	Reconciled
427068	5-May-22	OLIN CORPORATION	30,378.03	IRWD Check	Reconciled
427069	5-May-22	ON CALL EVENT RENTALS	1,740.13	IRWD Check	Reconciled
427070	5-May-22	ONESOURCE DISTRIBUTORS LLC	9,229.32	IRWD Check	Reconciled
427071	5-May-22	ORACLE AMERICA, INC.	2,126.35	IRWD Check	Reconciled
427072	5-May-22	ORANGE COUNTY AUTO PARTS CO	2,145.79	IRWD Check	Reconciled
427073	5-May-22	ORANGE COUNTY SANITATION DISTRICT	71,441.15	IRWD Check	Reconciled
427074	5-May-22	ORMOND, RAELA P	51.73	IRWD Check	Negotiable
427075	5-May-22	ORRICK, HERRINGTON & SUTCLIFFE LLP	3,000.00	IRWD Check	Reconciled
427076	5-May-22	PACIFIC CITY PROPERTIES, INC.	46.08	IRWD Check	Reconciled
427077	5-May-22	PACIFIC HYDROTECH CORPORATION	18,070.11	IRWD Check	Reconciled
427078	5-May-22	PACIFIC HYDROTECH CORPORATION	951.06	IRWD Check	Reconciled
427079	5-May-22	PACIFIC PARTS & CONTROLS INC	1,813.19	IRWD Check	Reconciled
427080	5-May-22	PACRIM ENGINEERING INC.	4,725.00	IRWD Check	Negotiable
427081	5-May-22	PAPER DEPOT DOCUMENT DESTRUCTION LLC	194	IRWD Check	Reconciled
427082	5-May-22	PARKHOUSE TIRE INC	725.74	IRWD Check	Reconciled
427083	5-May-22	PERMEH, HOLLY	40.8	IRWD Check	Reconciled
427084	5-May-22	PETRUSSE-NORRIS PAINTING, INC.	3,234.00	IRWD Check	Reconciled
427085	5-May-22	PLUMBERS DEPOT INC.	5,071.71	IRWD Check	Negotiable
427086	5-May-22	POLYDYNE INC	64,098.32	IRWD Check	Reconciled
427087	5-May-22	PPG INDUSTRIES SALES, INC.	948.16	IRWD Check	Reconciled
427088	5-May-22	PRE-PAID LEGAL SERVICES, INC.	1,274.56	IRWD Check	Reconciled
427089	5-May-22	PRE-PAID LEGAL SERVICES, INC.	849.6	IRWD Check	Reconciled
427090	5-May-22	PREMIER PAVING INC.	732.85	IRWD Check	Reconciled
427091	5-May-22	PROJECT PARTNERS LLC	2,000.00	IRWD Check	Reconciled
427092	5-May-22	PULTE GROUP	549.1	IRWD Check	Reconciled
427093	5-May-22	PUMP CHECK	995	IRWD Check	Reconciled
427094	5-May-22	PYON, CHARLOTTE	197.31	IRWD Check	Negotiable
427095	5-May-22	PYRO-COMM SYSTEMS INC	955	IRWD Check	Reconciled
427096	5-May-22	QI, SHUHONG	1,113.07	IRWD Check	Reconciled
427097	5-May-22	QUADIENT FINANCE USA, INC.	864.14	IRWD Check	Reconciled
427098	5-May-22	QUINLAN, BARBARA	20.17	IRWD Check	Reconciled

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427099	5-May-22	RAM AIR ENGINEERING INC	5,686.45	IRWD Check	Reconciled
427100	5-May-22	REACH EMPLOYEE ASSISTANCE INC	1,066.80	IRWD Check	Reconciled
427101	5-May-22	RED WING SHOE STORE	608.16	IRWD Check	Reconciled
427102	5-May-22	REFRIGERATION SUPPLIES DISTRIBUTOR	310.93	IRWD Check	Reconciled
427103	5-May-22	RENTOKIL NORTH AMERICA, INC	2,620.00	IRWD Check	Reconciled
427104	5-May-22	RESTEK CORPORATION	1,699.38	IRWD Check	Reconciled
427105	5-May-22	REZA SEDEHI AND BEHROOZ ERSHAGHI	74.44	IRWD Check	Reconciled
427106	5-May-22	RICHARD C. SLADE & ASSOCIATES LLC	2,192.00	IRWD Check	Reconciled
427107	5-May-22	RICHMOND AMERICAN HOMES OF MARYLAND, INC	1,065.23	IRWD Check	Reconciled
427108	5-May-22	RINCON TRUCK CENTER INC.	284.07	IRWD Check	Reconciled
427109	5-May-22	ROADWAY ENGINEERING & CONTRACTING INC.	1,537.34	IRWD Check	Reconciled
427110	5-May-22	ROBERTS, CAROL	28.41	IRWD Check	Negotiable
427111	5-May-22	ROBERTS, ERIC	25.95	IRWD Check	Reconciled
427112	5-May-22	SANTA ANA BLUE PRINT	818.83	IRWD Check	Reconciled
427113	5-May-22	SANTA MARGARITA FORD	493.71	IRWD Check	Reconciled
427114	5-May-22	SARABI, KHASHAYAR	81.92	IRWD Check	Reconciled
427115	5-May-22	SCHINDLER ELEVATOR CORPORATION	236.62	IRWD Check	Reconciled
427116	5-May-22	SCHLUNK, PETRA	51.23	IRWD Check	Negotiable
427117	5-May-22	SEDEHI, ALI	703.05	IRWD Check	Reconciled
427118	5-May-22	SELECT TRENCHLESS PIPELINES INC	2,359.06	IRWD Check	Reconciled
427119	5-May-22	SHAMROCK SUPPLY CO INC	25.06	IRWD Check	Reconciled
427121	5-May-22	SHEILS, CATHERINE	17.02	IRWD Check	Reconciled
427122	5-May-22	SHOETERIA	2,746.89	IRWD Check	Reconciled
427123	5-May-22	SIGNPOST HOMES INC	323.54	IRWD Check	Negotiable
427124	5-May-22	SITES PROJECT JOINT POWERS AUTHORITY	100,000.00	IRWD Check	Reconciled
427125	5-May-22	SITMATIC	2,275.27	IRWD Check	Reconciled
427126	5-May-22	SMITH SYSTEM DRIVER IMPROVEMENT INSTITUTE, INC.	4,547.55	IRWD Check	Reconciled
427127	5-May-22	SNYDER LANGSTON L.P.	2,600.00	IRWD Check	Reconciled
427128	5-May-22	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	2,877.60	IRWD Check	Reconciled
427129	5-May-22	SOUTHERN CALIFORNIA EDISON COMPANY	31,862.69	IRWD Check	Reconciled
427130	5-May-22	SOUTHERN CALIFORNIA GAS COMPANY	25.13	IRWD Check	Reconciled
427131	5-May-22	SOUTHERN CALIFORNIA SECURITY CENTERS, INC.	284.05	IRWD Check	Reconciled
427132	5-May-22	SOUTHERN COUNTIES LUBRICANTS LLC	8,796.85	IRWD Check	Reconciled
427133	5-May-22	STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES	107,150.00	IRWD Check	Reconciled
427134	5-May-22	STETSON ENGINEERS INC.	6,055.50	IRWD Check	Reconciled
427135	5-May-22	T.E. ROBERTS, INC.	43,874.00	IRWD Check	Reconciled
427137	5-May-22	TAIT ENVIRONMENTAL SERVICES, INC.	3,662.83	IRWD Check	Reconciled
427138	5-May-22	TANKVISIONS, INC	30	IRWD Check	Reconciled
427139	5-May-22	TENDLER, KIMBERLY	37.37	IRWD Check	Reconciled
427140	5-May-22	THOMPSON & PHIPPS INC	2,513.25	IRWD Check	Reconciled
427141	5-May-22	TK ELEVATOR CORPORATION	218.38	IRWD Check	Reconciled
427142	5-May-22	TOP TEN REAL ESTATE INC	25	IRWD Check	Reconciled
427143	5-May-22	TRADE TRAC, INC.	928.7	IRWD Check	Reconciled
427144	5-May-22	TRAFFIC MANAGEMENT, INC	1,510.00	IRWD Check	Reconciled
427145	5-May-22	TRI COUNTY PUMP COMPANY	24,144.25	IRWD Check	Reconciled
427146	5-May-22	TU, AI LING	86.24	IRWD Check	Negotiable
427147	5-May-22	TUSTIN TOYOTA	42.19	IRWD Check	Reconciled
427148	5-May-22	U.S. GAIN - A DIVISION OF U.S. VENTURE, INC.	82.59	IRWD Check	Reconciled
427149	5-May-22	UNITED PARCEL SERVICE INC	36	IRWD Check	Reconciled
427150	5-May-22	UNITED SITE SERVICES OF CALIFORNIA INC	273.82	IRWD Check	Reconciled
427151	5-May-22	VEDULLA, DEEPA	207.22	IRWD Check	Reconciled
427152	5-May-22	VERIZON WIRELESS SERVICES LLC	15,861.70	IRWD Check	Negotiable
427153	5-May-22	VERTEX INC	6,842.00	IRWD Check	Reconciled
427154	5-May-22	WALTERS WHOLESALE ELECTRIC	90.19	IRWD Check	Reconciled
427155	5-May-22	WARMINGTON HOMES	348.37	IRWD Check	Negotiable
427156	5-May-22	WASTE MANAGEMENT COLLECTIONS AND RECYCLING, INC.	2,011.25	IRWD Check	Reconciled
427157	5-May-22	WAXIE'S ENTERPRISES, INC	1,287.57	IRWD Check	Reconciled
427158	5-May-22	WEST YOST & ASSOCIATES, INC.	10,849.30	IRWD Check	Reconciled
427159	5-May-22	WILLOW AT PORTOLA SPRINGS COMMUNITY ASSOCIATION	720.08	IRWD Check	Reconciled
427160	5-May-22	WINZELER, COURTNEY	73.05	IRWD Check	Negotiable
427161	5-May-22	WIRELESS WATCHDOGS, LLC	2,268.00	IRWD Check	Reconciled
427162	5-May-22	WORKFORCE SAFETY LLC	4,500.00	IRWD Check	Reconciled
427163	5-May-22	YANG, ZHIQIANG	38.48	IRWD Check	Reconciled
427164	5-May-22	YORKE ENGINEERING, LLC	3,791.99	IRWD Check	Reconciled
427165	5-May-22	YSI, INC	762.88	IRWD Check	Reconciled
427166	5-May-22	YU, HENGTE	35.78	IRWD Check	Negotiable
427167	5-May-22	ZAUGG, BOB	56.65	IRWD Check	Reconciled
427168	5-May-22	ZEINEH, JACK	57.31	IRWD Check	Negotiable

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427169	5-May-22	ZHANG, MINGXIA	84.34	IRWD Check	Negotiable
427170	5-May-22	ZHANG, YU	45.76	IRWD Check	Reconciled
427171	5-May-22	FRANCHISE TAX BOARD	1,180.33	IRWD Check	Reconciled
427172	5-May-22	INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL 47	3,521.58	IRWD Check	Reconciled
427173	5-May-22	PERS LONG TERM CARE	612.63	IRWD Check	Reconciled
427174	12-May-22	Lindsay, Marina D	253.89	IRWD Check	Reconciled
427175	12-May-22	Mori, Richard K (Rich)	180	IRWD Check	Reconciled
427176	12-May-22	8X8 INC	10,506.83	IRWD Check	Reconciled
427177	12-May-22	A&Y ASPHALT CONTRACTORS, INC.	7,735.00	IRWD Check	Reconciled
427178	12-May-22	ABSOLUTE STANDARDS, INC.	312.5	IRWD Check	Reconciled
427179	12-May-22	ACI	894.93	IRWD Check	Reconciled
427181	12-May-22	ADS CORP.	11,101.00	IRWD Check	Reconciled
427182	12-May-22	AGILENT TECHNOLOGIES, INC.	129	IRWD Check	Reconciled
427183	12-May-22	AIR TECHNOLOGY LABORATORIES	289	IRWD Check	Reconciled
427184	12-May-22	AIRGAS, INC.	999.18	IRWD Check	Reconciled
427185	12-May-22	ALL STAR GLASS	468.78	IRWD Check	Reconciled
427186	12-May-22	ALLIANT INSURANCE SERVICES, INC	10,114.00	IRWD Check	Reconciled
427187	12-May-22	AM CONSERVATION GROUP, INC.	108.18	IRWD Check	Reconciled
427188	12-May-22	AMAZON CAPITAL SERVICES, INC.	16,117.27	IRWD Check	Reconciled
427189	12-May-22	AMERICAN VAN EQUIPMENT, INC	574.72	IRWD Check	Reconciled
427190	12-May-22	APD CONSULTANTS, INC.	435	IRWD Check	Reconciled
427191	12-May-22	AQUA-METRIC SALES COMPANY	2,421.59	IRWD Check	Reconciled
427192	12-May-22	AT&T	1,690.90	IRWD Check	Reconciled
427193	12-May-22	ATHENS SERVICES	1,950.60	IRWD Check	Reconciled
427194	12-May-22	AUTOZONE PARTS, INC.	27.72	IRWD Check	Reconciled
427195	12-May-22	BANK OF NEW YORK MELLON TRUST COMPANY NA	5,395.00	IRWD Check	Reconciled
427196	12-May-22	BATTERIES PLUS AND BATTERIES PLUS BULBS	203.65	IRWD Check	Reconciled
427197	12-May-22	BECKER, LARRY	40.06	IRWD Check	Reconciled
427198	12-May-22	BEHRENS AND ASSOCIATES, INC.	35,440.00	IRWD Check	Reconciled
427199	12-May-22	BLACK & VEATCH CORPORATION	38,491.75	IRWD Check	Reconciled
427200	12-May-22	BSI SERVICES AND SOLUTIONS (WEST) INC.	51,800.00	IRWD Check	Reconciled
427201	12-May-22	BURLINGTON SAFETY LABORATORY OF CALIFORNIA INC	2,231.34	IRWD Check	Reconciled
427202	12-May-22	C WELLS PIPELINE MATERIALS INC	1,315.63	IRWD Check	Reconciled
427203	12-May-22	CALIFORNIA BARRICADE RENTAL, INC.	21,437.00	IRWD Check	Reconciled
427204	12-May-22	CARBON BULK SALES LLC	258.31	IRWD Check	Reconciled
427205	12-May-22	CDW GOVERNMENT LLC	20,192.57	IRWD Check	Reconciled
427206	12-May-22	CHAN, HENRY	2,205.45	IRWD Check	Negotiable
427207	12-May-22	CHEM TECH INTERNATIONAL INC	3,277.26	IRWD Check	Reconciled
427208	12-May-22	CIMARRON ENERGY, INC	1,508.50	IRWD Check	Reconciled
427209	12-May-22	CITY OF IRVINE	55,854.00	IRWD Check	Reconciled
427210	12-May-22	COAST PLUMBING HEATING AND AIR, INC	849	IRWD Check	Reconciled
427211	12-May-22	COASTAL OCCUPATIONAL MEDICAL GROUP, INC.	300	IRWD Check	Negotiable
427212	12-May-22	CONSTELLATION NEWENERGY, INC.	40,668.38	IRWD Check	Reconciled
427213	12-May-22	CORE & MAIN LP	9,304.34	IRWD Check	Reconciled
427214	12-May-22	CORELOGIC INC	102.02	IRWD Check	Reconciled
427215	12-May-22	COTTONS POINT DESIGN, INC.	8,209.26	IRWD Check	Reconciled
427216	12-May-22	COX COMMUNICATIONS, INC.	278.62	IRWD Check	Reconciled
427217	12-May-22	CR & R INCORPORATED	1,106.10	IRWD Check	Reconciled
427218	12-May-22	CULLIGAN OF SANTA ANA	3,000.00	IRWD Check	Reconciled
427219	12-May-22	D & H WATER SYSTEMS INC.	1,017.24	IRWD Check	Reconciled
427220	12-May-22	DC FROST ASSOCIATES, INC	1,947.40	IRWD Check	Reconciled
427221	12-May-22	DCS MANAGEMENT LLC	158.12	IRWD Check	Reconciled
427222	12-May-22	DEAN ALLAN VOTAVA	3,450.00	IRWD Check	Reconciled
427223	12-May-22	DELL MARKETING LP	6,195.64	IRWD Check	Reconciled
427224	12-May-22	DEX MEDIA, INC.	41	IRWD Check	Reconciled
427225	12-May-22	DHEDA, SHEHREEN	15.2	IRWD Check	Negotiable
427226	12-May-22	DON WILSON BUILDERS	114.53	IRWD Check	Reconciled
427227	12-May-22	DRAKE TRAFFIC CONTROL SERVICES INC	3,885.00	IRWD Check	Reconciled
427228	12-May-22	DRIVELINES INC	173.88	IRWD Check	Reconciled
427229	12-May-22	EHS INTERNATIONAL, INC	125	IRWD Check	Reconciled
427230	12-May-22	ENDRESS AND HAUSER INC	2,778.70	IRWD Check	Reconciled
427231	12-May-22	ENGINEERING SOLUTIONS, LLC	20,954.02	IRWD Check	Reconciled
427232	12-May-22	ENVIRONMENTAL RESOURCE ASSOCIATES	471.24	IRWD Check	Reconciled
427233	12-May-22	EUROFINS EATON ANALYTICAL, INC.	700	IRWD Check	Reconciled
427234	12-May-22	EUROFINS ENVIRONMENT TESTING AMERICA HOLDINGS, INC.	1,722.00	IRWD Check	Reconciled
427235	12-May-22	FARRELL & ASSOCIATES	197.76	IRWD Check	Reconciled
427236	12-May-22	FEDEX NATIONAL LTL, INC	598.37	IRWD Check	Reconciled
427237	12-May-22	FELLING TRAILERS, INC.	73.84	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT  
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<b>CHECK OR ELECTRONIC #</b>	<b>PAYMENT DATE</b>	<b>SUPPLIERS</b>	<b>PAYMENT AMOUNT</b>	<b>PAYMENT METHOD</b>	<b>STATUS</b>
427238	12-May-22	FERGUSON ENTERPRISES, LLC	48,220.57	IRWD Check	Reconciled
427239	12-May-22	FIRE EXTINGUISHING SAFETY & SERVICE	765.6	IRWD Check	Reconciled
427240	12-May-22	FIRST CHOICE SERVICES	2,875.64	IRWD Check	Reconciled
427241	12-May-22	FISHER SCIENTIFIC COMPANY LLC	736.92	IRWD Check	Reconciled
427242	12-May-22	FITCH RATINGS, INC.	2,000.00	IRWD Check	Reconciled
427243	12-May-22	FOLLMAN, JACK	160.57	IRWD Check	Reconciled
427244	12-May-22	FOUGHT, CYNTHIA J.	2,893.15	IRWD Check	Reconciled
427245	12-May-22	FRONTIER CALIFORNIA INC.	58.47	IRWD Check	Reconciled
427246	12-May-22	GANAHL LUMBER CO.	3,356.68	IRWD Check	Reconciled
427247	12-May-22	GEIGER BROS	498.73	IRWD Check	Reconciled
427248	12-May-22	GEORGE HILLS COMPANY, INC.	99	IRWD Check	Reconciled
427249	12-May-22	GI ENDURANT LLC	16,362.50	IRWD Check	Reconciled
427250	12-May-22	GLEW, CHRISTOPHER	78.88	IRWD Check	Negotiable
427251	12-May-22	GOVERNMENTJOBS.COM, INC.	2,850.00	IRWD Check	Reconciled
427252	12-May-22	GRACE BJORNSTAD	1,731.47	IRWD Check	Reconciled
427253	12-May-22	GRAINGER	6,924.42	IRWD Check	Reconciled
427254	12-May-22	HACH COMPANY	4,222.02	IRWD Check	Reconciled
427255	12-May-22	HAZEN AND SAWYER	1,825.00	IRWD Check	Reconciled
427256	12-May-22	HDR ENGINEERING INC	8,966.00	IRWD Check	Reconciled
427257	12-May-22	HELPMATES STAFFING SERVICES	1,632.00	IRWD Check	Reconciled
427258	12-May-22	HELPMATES STAFFING SERVICES LLC	5,062.80	IRWD Check	Reconciled
427259	12-May-22	HI-LINE INC	240.76	IRWD Check	Reconciled
427260	12-May-22	HILL BROTHERS CHEMICAL COMPANY	3,548.11	IRWD Check	Reconciled
427261	12-May-22	HOME DEPOT USA INC	1,315.61	IRWD Check	Reconciled
427262	12-May-22	HORIZON ENGINEERING SYSTEMS LLC	5,040.00	IRWD Check	Reconciled
427263	12-May-22	HOYA OPTICAL LABS OF AMERICA, INC.	211	IRWD Check	Reconciled
427264	12-May-22	INDUSTRIAL METAL SUPPLY CO	791.21	IRWD Check	Reconciled
427265	12-May-22	INLAND POTABLE SERVICES, INC.	23,711.00	IRWD Check	Reconciled
427266	12-May-22	IRVINE PIPE & SUPPLY INC	259.63	IRWD Check	Reconciled
427267	12-May-22	IRVINE UNIFIED SCHOOL DISTRICT	718.5	IRWD Check	Reconciled
427268	12-May-22	IRWD-PETTY CASH CUSTODIAN	918.57	IRWD Check	Reconciled
427269	12-May-22	JCI JONES CHEMICALS INC	3,932.34	IRWD Check	Reconciled
427270	12-May-22	KIM, BONG DU	65.67	IRWD Check	Reconciled
427271	12-May-22	KONECRANES, INC.	77,260.30	IRWD Check	Reconciled
427272	12-May-22	LANDCARE HOLDINGS, INC.	49,743.35	IRWD Check	Reconciled
427274	12-May-22	LIEBERT CASSIDY WHITMORE	563.5	IRWD Check	Reconciled
427275	12-May-22	LINDE GAS & EQUIPMENT INC.	1,695.47	IRWD Check	Reconciled
427276	12-May-22	LINDSAY POLIC CONSULTING, INC.	5,600.00	IRWD Check	Reconciled
427277	12-May-22	LOM PARTNERS LLC	58.85	IRWD Check	Negotiable
427278	12-May-22	MBC AQUATIC SCIENCES, INC.	4,400.00	IRWD Check	Reconciled
427279	12-May-22	MC FADDEN-DALE INDUSTRIAL	335.87	IRWD Check	Reconciled
427280	12-May-22	MC MASTER CARR SUPPLY CO	625.17	IRWD Check	Reconciled
427281	12-May-22	MEROLA, PAUL	32.18	IRWD Check	Negotiable
427282	12-May-22	MICHAEL LOMONACO	4,500.00	IRWD Check	Reconciled
427283	12-May-22	MISSION COMMUNICATIONS, LLC	1,744.20	IRWD Check	Reconciled
427284	12-May-22	MONARCH ENVIRONMENTAL, INC.	2,100.00	IRWD Check	Reconciled
427285	12-May-22	MOSLEY, ANTOINETTE	169.16	IRWD Check	Reconciled
427286	12-May-22	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	126,487.89	IRWD Check	Reconciled
427287	12-May-22	MUTUAL PROPANE	211.15	IRWD Check	Reconciled
427288	12-May-22	NATIONAL READY MIXED CONCRETE SALES, LLC	1,414.76	IRWD Check	Reconciled
427289	12-May-22	NATURALWELL, LLC	2,502.50	IRWD Check	Reconciled
427290	12-May-22	NATURES IMAGE INC	6,200.00	IRWD Check	Reconciled
427291	12-May-22	NEW DIMENSION GENERAL CONSTRUCTION	4,650.70	IRWD Check	Reconciled
427292	12-May-22	O'REILLY AUTO ENTERPRISES, LLC	203.94	IRWD Check	Reconciled
427293	12-May-22	O.C. SUPERIOR CUSTOM CLEANING	3,600.00	IRWD Check	Reconciled
427294	12-May-22	OLIN CORPORATION	22,517.60	IRWD Check	Reconciled
427295	12-May-22	ONESOURCE DISTRIBUTORS LLC	21.27	IRWD Check	Reconciled
427296	12-May-22	ORACLE AMERICA, INC.	6,667.98	IRWD Check	Reconciled
427297	12-May-22	ORANGE COUNTY SANITATION DISTRICT	95,537.53	IRWD Check	Reconciled
427298	12-May-22	ORANGE COUNTY TREASURER	250	IRWD Check	Reconciled
427299	12-May-22	OTF IRVINE INC	385.19	IRWD Check	Negotiable
427300	12-May-22	PACIFIC AUTO WASH PARTNERS	25.99	IRWD Check	Reconciled
427301	12-May-22	PACIFIC HYDROTECH CORPORATION	6,682.30	IRWD Check	Reconciled
427302	12-May-22	PACIFIC HYDROTECH CORPORATION	126,963.57	IRWD Check	Reconciled
427303	12-May-22	PARKHOUSE TIRE INC	915.74	IRWD Check	Reconciled
427304	12-May-22	PAYMENTUS GROUP INC.	70,768.09	IRWD Check	Reconciled
427305	12-May-22	PELLETIER & ASSOCIATES, INC.	2,600.00	IRWD Check	Reconciled
427306	12-May-22	PENN ARCHIVE SERVICES	80.27	IRWD Check	Reconciled



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427307	12-May-22	PETRUSSE-NORRIS PAINTING, INC.	9,515.80	IRWD Check	Reconciled
427308	12-May-22	PILLSBURY WINTHROP SHAW PITTMAN LLP	1,248.00	IRWD Check	Reconciled
427309	12-May-22	POLLARDWATER.COM	5,709.64	IRWD Check	Reconciled
427310	12-May-22	PRUDENTIAL OVERALL SUPPLY	10,379.32	IRWD Check	Reconciled
427311	12-May-22	PUKLI, CAROL	53.58	IRWD Check	Reconciled
427312	12-May-22	QUINN COMPANY	989.97	IRWD Check	Reconciled
427313	12-May-22	RAM AIR ENGINEERING INC	13,032.88	IRWD Check	Reconciled
427314	12-May-22	RED WING SHOE STORE	1,075.00	IRWD Check	Reconciled
427315	12-May-22	REFRIGERATION SUPPLIES DISTRIBUTOR	379.62	IRWD Check	Reconciled
427316	12-May-22	RENTOKIL NORTH AMERICA, INC	12,674.00	IRWD Check	Reconciled
427317	12-May-22	RESTEK CORPORATION	537.57	IRWD Check	Reconciled
427318	12-May-22	RODNEY HARMSWORTH ASSOCIATES, INC.	7,941.00	IRWD Check	Reconciled
427319	12-May-22	RODRIGUEZ, RAMIRO Y	56.04	IRWD Check	Negotiable
427320	12-May-22	ROGERS, ROY	86.88	IRWD Check	Reconciled
427321	12-May-22	SADDLEBACK SURVEYS, INC.	605.5	IRWD Check	Reconciled
427322	12-May-22	SAN MARCO APARTMENTS	46.88	IRWD Check	Reconciled
427323	12-May-22	SANTA ANA BLUE PRINT	1,549.41	IRWD Check	Reconciled
427324	12-May-22	SCOTT EQUIPMENT INCORPORATED	154.53	IRWD Check	Reconciled
427325	12-May-22	SECURITAS SECURITY SERVICES USA, INC.	79,235.85	IRWD Check	Reconciled
427326	12-May-22	SERRANO WATER DISTRICT	31,037.84	IRWD Check	Reconciled
427327	12-May-22	SHAMROCK SUPPLY CO INC	3,161.50	IRWD Check	Reconciled
427328	12-May-22	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	287.76	IRWD Check	Reconciled
427329	12-May-22	SOUTH COAST BOBCAT	5,314.81	IRWD Check	Reconciled
427330	12-May-22	SOUTH COAST WATER CO.	95	IRWD Check	Reconciled
427331	12-May-22	SOUTH COAST WATER DISTRICT	937.17	IRWD Check	Reconciled
427332	12-May-22	SOUTHERN CALIFORNIA EDISON COMPANY	283,761.57	IRWD Check	Reconciled
427333	12-May-22	SOUTHERN CALIFORNIA SECURITY CENTERS, INC.	440.68	IRWD Check	Reconciled
427334	12-May-22	STANDARD & POOR'S FINANCIAL SERVICES LLC	1,000.00	IRWD Check	Reconciled
427335	12-May-22	STATE WATER RESOURCES CONTROL BOARD	480,132.91	IRWD Check	Reconciled
427336	12-May-22	SUKLE ADVERTISING INC.	69,570.00	IRWD Check	Reconciled
427337	12-May-22	SUN, YEXIAO	177.09	IRWD Check	Negotiable
427338	12-May-22	SUNSHINE SUPPLY COMPANY, INC.	5,469.39	IRWD Check	Reconciled
427339	12-May-22	SUSAN A. SIROTA	4,850.00	IRWD Check	Reconciled
427340	12-May-22	TAYLOR MORRISON OF CALIFORNIA, LLC	473.84	IRWD Check	Negotiable
427341	12-May-22	TEHRANI, ALIREZA	20	IRWD Check	Negotiable
427342	12-May-22	TEKDRAULICS	2,603.97	IRWD Check	Negotiable
427343	12-May-22	THOMPSON & PHIPPS INC	7,576.15	IRWD Check	Reconciled
427344	12-May-22	TIC-RETAIL PROPERTIES	21,165.02	IRWD Check	Reconciled
427345	12-May-22	TIERRA VERDE INDUSTRIES	286.08	IRWD Check	Reconciled
427346	12-May-22	TORAY MEMBRANE USA, INC.	106,846.38	IRWD Check	Reconciled
427347	12-May-22	TOTAL RESOURCE MANAGEMENT, INC	850	IRWD Check	Reconciled
427348	12-May-22	TRAFFIC MANAGEMENT, INC	1,136.00	IRWD Check	Reconciled
427349	12-May-22	TRAN, TIEN	29.14	IRWD Check	Negotiable
427350	12-May-22	TRI COUNTY PUMP COMPANY	20,766.30	IRWD Check	Reconciled
427351	12-May-22	UBERLYTICS, LLC	4,750.00	IRWD Check	Reconciled
427352	12-May-22	UL VERIFICATION SERVICES INC.	630	IRWD Check	Reconciled
427353	12-May-22	UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA	5,853.46	IRWD Check	Reconciled
427354	12-May-22	UNITED PARCEL SERVICE INC	36	IRWD Check	Reconciled
427355	12-May-22	USA BLUEBOOK	564	IRWD Check	Reconciled
427356	12-May-22	USA WASTE OF CALIFORNIA, INC.	562.5	IRWD Check	Reconciled
427357	12-May-22	VAUGHAN'S INDUSTRIAL REPAIR CO INC	6,988.43	IRWD Check	Reconciled
427358	12-May-22	VERTECH INDUSTRIAL SYSTEMS, LLC	11,647.11	IRWD Check	Reconciled
427359	12-May-22	VULCAN MATERIALS COMPANY	1,570.94	IRWD Check	Reconciled
427360	12-May-22	VWR INTERNATIONAL, LLC	2,161.25	IRWD Check	Reconciled
427361	12-May-22	WASTE MANAGEMENT COLLECTIONS AND RECYCLING, INC.	2,769.52	IRWD Check	Reconciled
427362	12-May-22	WAXIE'S ENTERPRISES, INC	310.93	IRWD Check	Reconciled
427363	12-May-22	WECK LABORATORIES INC	335	IRWD Check	Reconciled
427364	12-May-22	WEST COAST SAND & GRAVEL INC.	934.6	IRWD Check	Reconciled
427365	12-May-22	WESTAMERICA COMMUNICATIONS, INC.	600	IRWD Check	Reconciled
427366	12-May-22	WHITLEY, MARGARET	248.33	IRWD Check	Reconciled
427367	12-May-22	WISCONSIN STATE LABORATORY OF HYGIENE	1,015.00	IRWD Check	Reconciled
427368	12-May-22	YSI, INC	3,771.25	IRWD Check	Reconciled
427369	12-May-22	PACIFIC HYDROTECH CORPORATION	215,194.08	IRWD Check	Reconciled
427370	12-May-22	PACIFIC HYDROTECH CORPORATION	11,326.01	IRWD Check	Reconciled
427371	12-May-22	BEST DRILLING AND PUMP, INC.	10,212.50	IRWD Check	Reconciled
427372	12-May-22	T.E. ROBERTS, INC.	295,438.99	IRWD Check	Reconciled
427373	12-May-22	CENTURY PAVING, INC.	97,155.00	IRWD Check	Negotiable
427374	19-May-22	Hatch, Lauren	60	IRWD Check	Reconciled

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427375	19-May-22	Joseph, Brandon	483.91	IRWD Check	Reconciled
427376	19-May-22	A&Y ASPHALT CONTRACTORS, INC.	1,200.00	IRWD Check	Reconciled
427377	19-May-22	ACCUSTANDARD INC	304.97	IRWD Check	Reconciled
427378	19-May-22	ADAMS, AMANDA	114.23	IRWD Check	Negotiable
427379	19-May-22	AGILENT TECHNOLOGIES, INC.	472.9	IRWD Check	Reconciled
427380	19-May-22	AIR TECHNOLOGY LABORATORIES	503	IRWD Check	Reconciled
427381	19-May-22	AIRGAS, INC.	651.39	IRWD Check	Reconciled
427382	19-May-22	ALCOR SOLUTIONS, INC	5,400.00	IRWD Check	Reconciled
427383	19-May-22	AMAZON CAPITAL SERVICES, INC.	1,830.92	IRWD Check	Reconciled
427384	19-May-22	ANTHEM BLUE CROSS	306.93	IRWD Check	Reconciled
427385	19-May-22	APCO GRAPHICS INC	107.75	IRWD Check	Reconciled
427386	19-May-22	ASGHARIPARI, SEYEDMOHAMMAD	39.1	IRWD Check	Negotiable
427387	19-May-22	ASSOCIATION OF CALIFORNIA WATER AGENCIES/JPIA	38,138.78	IRWD Check	Reconciled
427388	19-May-22	AT&T	98.67	IRWD Check	Reconciled
427390	19-May-22	AT&T	178.46	IRWD Check	Reconciled
427391	19-May-22	AUTOZONE PARTS, INC.	1,087.06	IRWD Check	Reconciled
427392	19-May-22	BIOMAGIC INC	8,627.01	IRWD Check	Reconciled
427393	19-May-22	BLAIRS TOWING INC	248	IRWD Check	Reconciled
427394	19-May-22	BORCHARD SURVEYING & MAPPING, INC.	6,270.00	IRWD Check	Reconciled
427395	19-May-22	CALIFORNIA BARRICADE RENTAL, INC.	7,830.25	IRWD Check	Reconciled
427396	19-May-22	CALIFORNIA DEPARTMENT OF TAX AND FEE ADMINISTRATION	2,911.00	IRWD Check	Reconciled
427397	19-May-22	CALIFORNIA WATER EFFICIENCY PARTNERSHIP	464.76	IRWD Check	Reconciled
427398	19-May-22	CANNON CORPORATION	2,948.75	IRWD Check	Reconciled
427399	19-May-22	CANON FINANCIAL SERVICES, INC	8,332.75	IRWD Check	Reconciled
427400	19-May-22	CANON SOLUTIONS AMERICA, INC.	2,246.94	IRWD Check	Reconciled
427401	19-May-22	CENTROID SYSTEMS, INC.	95	IRWD Check	Reconciled
427402	19-May-22	CHEM TECH INTERNATIONAL INC	12,827.28	IRWD Check	Reconciled
427403	19-May-22	CNC ENGINEERING	9,840.00	IRWD Check	Reconciled
427404	19-May-22	COASTAL OCCUPATIONAL MEDICAL GROUP, INC.	360	IRWD Check	Negotiable
427405	19-May-22	COLE-PARMER INSTRUMENT CO	1,050.03	IRWD Check	Reconciled
427406	19-May-22	CONSTELLATION NEWENERGY, INC.	31,000.47	IRWD Check	Negotiable
427407	19-May-22	COTTONS POINT DESIGN, INC.	2,469.08	IRWD Check	Reconciled
427408	19-May-22	COUNTY OF ORANGE	3,342.50	IRWD Check	Reconciled
427409	19-May-22	CV TECHNOLOGY, INC.	33,989.99	IRWD Check	Reconciled
427410	19-May-22	DECISIONPOINT SYSTEMS INC	316.59	IRWD Check	Reconciled
427411	19-May-22	DILYTICS INC	6,210.00	IRWD Check	Negotiable
427412	19-May-22	DIRECTV INC	146.99	IRWD Check	Reconciled
427413	19-May-22	DO, ALAN	54.07	IRWD Check	Reconciled
427414	19-May-22	DRAKE TRAFFIC CONTROL SERVICES INC	840	IRWD Check	Reconciled
427415	19-May-22	EMD MILLIPORE CORP.	724.08	IRWD Check	Reconciled
427416	19-May-22	ENVIRONMENTAL ENGINEERING AND CONTRACTING, INC.	38,316.25	IRWD Check	Reconciled
427417	19-May-22	EUROFINS ENVIRONMENT TESTING AMERICA HOLDINGS, INC.	2,188.50	IRWD Check	Reconciled
427418	19-May-22	FAN, RUOBING	176.22	IRWD Check	Reconciled
427419	19-May-22	FEDEX	305.06	IRWD Check	Reconciled
427420	19-May-22	FIREHOSEDIRECT.COM	137.41	IRWD Check	Reconciled
427421	19-May-22	FIRST CHOICE SERVICES	1,131.17	IRWD Check	Reconciled
427422	19-May-22	FISHER SCIENTIFIC COMPANY LLC	1,122.01	IRWD Check	Reconciled
427423	19-May-22	FRONTIER CALIFORNIA INC.	292.72	IRWD Check	Reconciled
427424	19-May-22	GANAHL LUMBER CO.	685.5	IRWD Check	Reconciled
427425	19-May-22	GANNETT FLEMING, INC.	17,808.00	IRWD Check	Reconciled
427426	19-May-22	GCI CONSTRUCTION, INC.	14,049.25	IRWD Check	Reconciled
427427	19-May-22	GEI CONSULTANTS INC	24,561.48	IRWD Check	Reconciled
427428	19-May-22	GEIGER BROS	3,647.33	IRWD Check	Reconciled
427429	19-May-22	GEOSYNTEC CONSULTANTS, INC.	31,148.59	IRWD Check	Reconciled
427430	19-May-22	GONZALEZ MUNOZ, LETICIA	55.13	IRWD Check	Reconciled
427431	19-May-22	GRAINGER	10,861.63	IRWD Check	Reconciled
427432	19-May-22	GRAYBAR ELECTRIC COMPANY	347.08	IRWD Check	Reconciled
427433	19-May-22	GSRP ST SOLAR I LLC	14,498.85	IRWD Check	Reconciled
427434	19-May-22	HAAKER EQUIPMENT COMPANY	991.3	IRWD Check	Reconciled
427435	19-May-22	HACH COMPANY	3,150.46	IRWD Check	Reconciled
427436	19-May-22	HARRINGTON INDUSTRIAL PLASTICS LLC	10,325.24	IRWD Check	Reconciled
427437	19-May-22	HELPMATES STAFFING SERVICES LLC	6,757.21	IRWD Check	Reconciled
427438	19-May-22	HI-LINE INC	349.74	IRWD Check	Reconciled
427439	19-May-22	HIJAZI, MOHAMED	22.77	IRWD Check	Reconciled
427440	19-May-22	HILL BROTHERS CHEMICAL COMPANY	10,764.13	IRWD Check	Reconciled
427441	19-May-22	HINTON, LISA	32.53	IRWD Check	Negotiable
427442	19-May-22	HUMANA INSURANCE COMPANY	75.3	IRWD Check	Reconciled
427443	19-May-22	ICHIBANYA USA INC	929.89	IRWD Check	Negotiable

**IRVINE RANCH WATER DISTRICT  
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<b>CHECK OR ELECTRONIC #</b>	<b>PAYMENT DATE</b>	<b>SUPPLIERS</b>	<b>PAYMENT AMOUNT</b>	<b>PAYMENT METHOD</b>	<b>STATUS</b>
427444	19-May-22	IDEXX DISTRIBUTION, INC	7,053.29	IRWD Check	Reconciled
427445	19-May-22	INTEGRITY MUNICIPAL SERVICES LLC	2,575.00	IRWD Check	Reconciled
427446	19-May-22	INTRACORP SOUTHERN CALIFORNIA LLC	355.03	IRWD Check	Negotiable
427447	19-May-22	IRON MOUNTAIN INFORMATION MANAGEMENT INC	676.61	IRWD Check	Reconciled
427448	19-May-22	IRVINE PACIFIC	935.89	IRWD Check	Negotiable
427449	19-May-22	IRVINE PIPE & SUPPLY INC	12,162.11	IRWD Check	Reconciled
427450	19-May-22	IRWD-PETTY CASH CUSTODIAN	674.24	IRWD Check	Reconciled
427451	19-May-22	JCI JONES CHEMICALS INC	6,547.50	IRWD Check	Reconciled
427452	19-May-22	JOHN MICHAEL COVAS	216.9	IRWD Check	Negotiable
427453	19-May-22	JOHNSEN, ERIN	349.79	IRWD Check	Negotiable
427454	19-May-22	JONSET LLC	836	IRWD Check	Reconciled
427455	19-May-22	KROOT, RICHARD	884.99	IRWD Check	Reconciled
427456	19-May-22	LA HABRA FENCE COMPANY INC	5,169.00	IRWD Check	Reconciled
427457	19-May-22	LCS TECHNOLOGIES, INC.	1,080.00	IRWD Check	Negotiable
427458	19-May-22	LINDE GAS & EQUIPMENT INC.	289.81	IRWD Check	Reconciled
427459	19-May-22	LOPEZ, RENEE	25.63	IRWD Check	Negotiable
427460	19-May-22	MAP COMMUNICATIONS, INC.	847.95	IRWD Check	Reconciled
427461	19-May-22	MARJAN, MANOUCHEHR	41.47	IRWD Check	Negotiable
427462	19-May-22	MATHESON TRI GAS, INC	15.79	IRWD Check	Reconciled
427463	19-May-22	MC FADDEN-DALE INDUSTRIAL	81.06	IRWD Check	Reconciled
427464	19-May-22	MC MASTER CARR SUPPLY CO	551.94	IRWD Check	Reconciled
427465	19-May-22	MCR TECHNOLOGIES INC	5,058.86	IRWD Check	Reconciled
427466	19-May-22	MICROSOFT CORPORATION	20	IRWD Check	Reconciled
427467	19-May-22	MILES CHEMICAL COMPANY, INC.	6,186.34	IRWD Check	Reconciled
427468	19-May-22	MSC INDUSTRIAL SUPPLY CO	612.74	IRWD Check	Reconciled
427469	19-May-22	MYERS & SONS HI-WAY SAFETY, INC.	4,111.36	IRWD Check	Reconciled
427470	19-May-22	NATIONAL READY MIXED CONCRETE SALES, LLC	1,382.26	IRWD Check	Reconciled
427471	19-May-22	NOV PROCESS & FLOW TECHNOLOGIES US, INC.	10,127.72	IRWD Check	Reconciled
427472	19-May-22	NVS, INC.	1,226.25	IRWD Check	Reconciled
427473	19-May-22	OFFICE SOLUTIONS BUSINESS PRODUCTS & SERVICES LLC	1,421.01	IRWD Check	Reconciled
427474	19-May-22	OLIN CORPORATION	13,348.65	IRWD Check	Reconciled
427475	19-May-22	ONESOURCE DISTRIBUTORS LLC	2,084.84	IRWD Check	Reconciled
427476	19-May-22	ORANGE COUNTY AUTO PARTS CO	1,028.77	IRWD Check	Reconciled
427477	19-May-22	ORANGE COUNTY TREASURER	250	IRWD Check	Reconciled
427478	19-May-22	ORANGE LINE OIL COMPANY	1,480.92	IRWD Check	Reconciled
427479	19-May-22	ORIGIN CONSULTING LLC	21,435.00	IRWD Check	Reconciled
427480	19-May-22	PACIFIC RIDGE MAINTENANCE ASSOCIATION	1,500.00	IRWD Check	Negotiable
427481	19-May-22	PACIFIC STAR CHEMICAL, LLC	2,552.93	IRWD Check	Reconciled
427482	19-May-22	PARKHOUSE TIRE INC	4,884.94	IRWD Check	Reconciled
427483	19-May-22	PAYNE & FEARS LLP	7,620.00	IRWD Check	Reconciled
427484	19-May-22	PINNACLE TOWERS LLC	842.76	IRWD Check	Reconciled
427485	19-May-22	POLYDYNE INC	61,941.17	IRWD Check	Reconciled
427486	19-May-22	PROJECT PARTNERS LLC	11,525.00	IRWD Check	Reconciled
427487	19-May-22	PRONTO GYM SERVICES, INC.	345	IRWD Check	Reconciled
427488	19-May-22	PSOMAS	9,142.50	IRWD Check	Reconciled
427489	19-May-22	PURE PROCESS FILTRATION INC	4,602.78	IRWD Check	Reconciled
427490	19-May-22	QUINN COMPANY	143.4	IRWD Check	Reconciled
427491	19-May-22	RAM AIR ENGINEERING INC	5,638.30	IRWD Check	Reconciled
427492	19-May-22	RELIANCE STANDARD LIFE INSURANCE COMPANY	35,930.82	IRWD Check	Reconciled
427493	19-May-22	RICHMOND AMERICAN HOMES OF MARYLAND, INC	132.12	IRWD Check	Reconciled
427494	19-May-22	RJM DESIGN GROUP INC	4,209.00	IRWD Check	Reconciled
427495	19-May-22	ROSSI AUTOMOTIVE EQUIPMENT INC	280	IRWD Check	Reconciled
427496	19-May-22	SANTA MARGARITA FORD	208.57	IRWD Check	Reconciled
427497	19-May-22	SHEHATA, MOHIB	200.17	IRWD Check	Reconciled
427498	19-May-22	SIGMA-ALDRICH INC	118.85	IRWD Check	Reconciled
427499	19-May-22	SIGNPOST HOMES INC	86.08	IRWD Check	Negotiable
427500	19-May-22	SOUTH COAST BOBCAT	253.16	IRWD Check	Reconciled
427501	19-May-22	SOUTHERN CALIFORNIA EDISON COMPANY	697,060.68	IRWD Check	Reconciled
427502	19-May-22	SOUTHERN CALIFORNIA GAS COMPANY	16,126.72	IRWD Check	Reconciled
427503	19-May-22	STRADLING YOCCA CARLSON & RAUTH	168	IRWD Check	Reconciled
427504	19-May-22	TAIT ENVIRONMENTAL SERVICES, INC.	3,700.00	IRWD Check	Reconciled
427505	19-May-22	TAYLOR MORRISON OF CALIFORNIA, LLC	17.1	IRWD Check	Negotiable
427506	19-May-22	TETRA TECH, INC	87,738.66	IRWD Check	Reconciled
427507	19-May-22	THOMPSON & PHIPPS INC	4,120.01	IRWD Check	Reconciled
427508	19-May-22	TOM'S TRUCK CENTER NORTH COUNTY, LLC	1,104.35	IRWD Check	Reconciled
427509	19-May-22	TOTAL RESOURCE MANAGEMENT, INC	4,250.00	IRWD Check	Reconciled
427510	19-May-22	TRAFFIC MANAGEMENT, INC	3,442.00	IRWD Check	Reconciled
427511	19-May-22	TRIPAC MARKETING INC	703.01	IRWD Check	Reconciled

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427512	19-May-22	UNITED HEALTHCARE INSURANCE COMPANY	324.22	IRWD Check	Reconciled
427513	19-May-22	UNITED PARCEL SERVICE INC	57.16	IRWD Check	Reconciled
427514	19-May-22	UNITED SITE SERVICES OF CALIFORNIA INC	273.82	IRWD Check	Reconciled
427515	19-May-22	VAUGHAN'S INDUSTRIAL REPAIR CO INC	49,862.00	IRWD Check	Reconciled
427516	19-May-22	WASTE MANAGEMENT COLLECTIONS AND RECYCLING, INC.	440.06	IRWD Check	Reconciled
427517	19-May-22	WATER RESEARCH FOUNDATION	62,924.00	IRWD Check	Reconciled
427518	19-May-22	WATERSMART SOFTWARE INC	15,174.99	IRWD Check	Negotiable
427519	19-May-22	WAXIE'S ENTERPRISES, INC	2,046.06	IRWD Check	Reconciled
427520	19-May-22	WECK LABORATORIES INC	240	IRWD Check	Reconciled
427521	19-May-22	WEST COAST SAND & GRAVEL INC.	473.32	IRWD Check	Reconciled
427522	19-May-22	WEST YOST & ASSOCIATES, INC.	836	IRWD Check	Reconciled
427523	19-May-22	YSI, INC	9,212.63	IRWD Check	Reconciled
427524	19-May-22	ZEPPELIN FLOODS LLC	11,480.00	IRWD Check	Reconciled
427525	19-May-22	AT&T	437.46	IRWD Check	Reconciled
427526	19-May-22	AT&T	5,718.34	IRWD Check	Reconciled
427527	19-May-22	PERS LONG TERM CARE	612.63	IRWD Check	Reconciled
427528	19-May-22	INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL 47	3,455.65	IRWD Check	Reconciled
427529	19-May-22	FRANCHISE TAX BOARD	1,654.15	IRWD Check	Negotiable
427530	19-May-22	CALIFORNIA DEPT OF JUSTICE	25	IRWD Check	Negotiable
427531	19-May-22	CALIFORNIA DEPT OF JUSTICE	250	IRWD Check	Negotiable
427532	19-May-22	CALIFORNIA DEPT OF JUSTICE	25	IRWD Check	Negotiable
427533	20-May-22	ACTION WHOLESALE PRODUCTS, INC.	775.48	IRWD Check	Reconciled
427535	24-May-22	PETRUSSE-NORRIS PAINTING, INC.	10,370.36	IRWD Check	Reconciled
427536	25-May-22	JCI JONES CHEMICALS INC	4,704.68	IRWD Check	Reconciled
427537	26-May-22	A&A WIPING CLOTH CO	1,939.50	IRWD Check	Reconciled
427538	26-May-22	A&Y ASPHALT CONTRACTORS, INC.	2,500.00	IRWD Check	Reconciled
427539	26-May-22	ABM INDUSTRY GROUPS, LLC	24,516.09	IRWD Check	Reconciled
427540	26-May-22	ABSOLUTE STANDARDS, INC.	165	IRWD Check	Negotiable
427541	26-May-22	ACCUSTANDARD INC	189.91	IRWD Check	Negotiable
427542	26-May-22	ACE INDUSTRIES, INC.	1,856.05	IRWD Check	Reconciled
427543	26-May-22	AECOM TECHNICAL SERVICES, INC.	56,505.00	IRWD Check	Reconciled
427544	26-May-22	AGILENT TECHNOLOGIES, INC.	379.4	IRWD Check	Reconciled
427545	26-May-22	AIRGAS, INC.	1,466.31	IRWD Check	Reconciled
427546	26-May-22	ALEXANDER'S CONTRACT SERVICES, INC.	112,423.10	IRWD Check	Reconciled
427547	26-May-22	ALSTON & BIRD LLP	95,194.00	IRWD Check	Reconciled
427548	26-May-22	AMAZON CAPITAL SERVICES, INC.	5,650.27	IRWD Check	Reconciled
427549	26-May-22	AMERICAN BACKFLOW SPECIALTIES, INC.	2,892.88	IRWD Check	Negotiable
427550	26-May-22	AMERICAN GEOTECHNICAL, INC.	8,122.50	IRWD Check	Reconciled
427551	26-May-22	ANDRITZ SEPARATION, INC.	2,356.60	IRWD Check	Negotiable
427552	26-May-22	ANTHEM BLUE CROSS	306.93	IRWD Check	Reconciled
427553	26-May-22	AQUA BEN CORPORATION	53,145.40	IRWD Check	Negotiable
427554	26-May-22	AQUA-METRIC SALES COMPANY	1,423.86	IRWD Check	Negotiable
427555	26-May-22	AT&T	7,239.36	IRWD Check	Negotiable
427556	26-May-22	AUTOMATIONDIRECT.COM INC.	568.92	IRWD Check	Negotiable
427557	26-May-22	AUTOZONE PARTS, INC.	529.77	IRWD Check	Reconciled
427558	26-May-22	AVISTA TECHNOLOGIES, INC	10,788.44	IRWD Check	Reconciled
427559	26-May-22	AZTEC CONTAINER	5,689.20	IRWD Check	Reconciled
427560	26-May-22	BANUELOS, MARTHA	52.9	IRWD Check	Negotiable
427561	26-May-22	BEHDADNIA, GOHAR	30.47	IRWD Check	Negotiable
427562	26-May-22	BHATIA, JASMEET	55.06	IRWD Check	Negotiable
427563	26-May-22	BIGWIG MONSTER, LLC	10,800.00	IRWD Check	Negotiable
427564	26-May-22	BIOTAGE LLC	252.8	IRWD Check	Reconciled
427565	26-May-22	BLANK, MITCHELL	30.84	IRWD Check	Reconciled
427566	26-May-22	BRAY SALES, INC.	2,433.33	IRWD Check	Reconciled
427567	26-May-22	BRUCE HADLEY NEWELL	1,250.00	IRWD Check	Reconciled
427568	26-May-22	BURLINGTON SAFETY LABORATORY OF CALIFORNIA INC	17,119.29	IRWD Check	Negotiable
427569	26-May-22	C WELLS PIPELINE MATERIALS INC	3,750.79	IRWD Check	Negotiable
427570	26-May-22	CALIFORNIA BARRICADE RENTAL, INC.	8,944.25	IRWD Check	Reconciled
427571	26-May-22	CALIFORNIA MUNICIPAL UTILITIES ASSOCIATION	14,505.00	IRWD Check	Negotiable
427572	26-May-22	CAROLLO ENGINEERS, INC	3,097.25	IRWD Check	Negotiable
427573	26-May-22	CASA EDUCATION FOUNDATION	2,000.00	IRWD Check	Negotiable
427574	26-May-22	CDW GOVERNMENT LLC	944.06	IRWD Check	Negotiable
427575	26-May-22	CENTROID SYSTEMS, INC.	50,109.50	IRWD Check	Reconciled
427576	26-May-22	CHAN, MATTHEW	45.35	IRWD Check	Negotiable
427577	26-May-22	CHARLES P CROWLEY COMPANY INC	285.67	IRWD Check	Reconciled
427578	26-May-22	CHEM TECH INTERNATIONAL INC	7,242.48	IRWD Check	Reconciled
427579	26-May-22	CITY OF IRVINE	3,860.40	IRWD Check	Reconciled
427580	26-May-22	CITY OF NEWPORT BEACH	2,174.27	IRWD Check	Reconciled

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427581	26-May-22	CLIFFORD MORIYAMA	4,000.00	IRWD Check	Negotiable
427582	26-May-22	CONNEXUS INDUSTRIES INC.	31,444.99	IRWD Check	Negotiable
427583	26-May-22	CONSERV CONSTRUCTION INC.	8,027.50	IRWD Check	Negotiable
427584	26-May-22	CONSTELLATION NEWENERGY, INC.	501.91	IRWD Check	Negotiable
427585	26-May-22	COOMBS SERVICE GROUP	72,000.00	IRWD Check	Reconciled
427586	26-May-22	COX COMMUNICATIONS, INC.	3,463.57	IRWD Check	Reconciled
427587	26-May-22	CSU FULLERTON AUXILIARY SERVICES CORPORATION	11,408.29	IRWD Check	Reconciled
427588	26-May-22	D & H WATER SYSTEMS INC.	5,646.84	IRWD Check	Negotiable
427589	26-May-22	DATA CLEAN CORPORATION	559	IRWD Check	Reconciled
427590	26-May-22	DAVIS, JEROME	66.6	IRWD Check	Negotiable
427591	26-May-22	DE SILVA, MAUREEN	314.11	IRWD Check	Negotiable
427592	26-May-22	DEMARIA ELECTRIC MOTOR SERVICES, INC.	11,867.45	IRWD Check	Negotiable
427593	26-May-22	DEMONBREUN, KEITH	235.68	IRWD Check	Negotiable
427594	26-May-22	DIRECTV INC	146.99	IRWD Check	Negotiable
427595	26-May-22	DRAKE TRAFFIC CONTROL SERVICES INC	3,830.00	IRWD Check	Reconciled
427596	26-May-22	DRIVELINES INC	160	IRWD Check	Negotiable
427597	26-May-22	ECO SERVICES LLC	5,935.96	IRWD Check	Reconciled
427598	26-May-22	EKIZIAN, ANNA	301.82	IRWD Check	Negotiable
427599	26-May-22	ELITE EQUIPMENT, INC.	249.17	IRWD Check	Negotiable
427600	26-May-22	ELLIS, KENT	55.1	IRWD Check	Negotiable
427601	26-May-22	ENVIRONMENTAL RESOURCE ASSOCIATES	1,681.88	IRWD Check	Negotiable
427602	26-May-22	ENVIRONMENTAL SCIENCE ASSOCIATES	15,438.41	IRWD Check	Negotiable
427603	26-May-22	EUROFINS ENVIRONMENT TESTING AMERICA HOLDINGS, INC.	2,882.25	IRWD Check	Negotiable
427604	26-May-22	EXECUTIVE LIGHTING & ELECTRIC	264.74	IRWD Check	Negotiable
427605	26-May-22	FARRELL & ASSOCIATES	27.25	IRWD Check	Reconciled
427606	26-May-22	FEDEX	272.77	IRWD Check	Reconciled
427607	26-May-22	FERGUSON ENTERPRISES, LLC	11,204.90	IRWD Check	Reconciled
427608	26-May-22	FIONA HUTTON & ASSOCIATES, INC.	7,368.75	IRWD Check	Reconciled
427609	26-May-22	FISHER & PHILLIPS LLP	7,372.00	IRWD Check	Negotiable
427610	26-May-22	FISHER SCIENTIFIC COMPANY LLC	3,611.64	IRWD Check	Reconciled
427611	26-May-22	FLUID SOUND, INC.	1,000.00	IRWD Check	Negotiable
427612	26-May-22	FRONTIER CALIFORNIA INC.	325.43	IRWD Check	Negotiable
427613	26-May-22	FUSCOE ENGINEERING, INC.	435	IRWD Check	Negotiable
427614	26-May-22	GEI CONSULTANTS INC	1,908.00	IRWD Check	Reconciled
427615	26-May-22	GELB, TERRI	83.24	IRWD Check	Negotiable
427616	26-May-22	GOFORTH & MARTI	747.35	IRWD Check	Reconciled
427617	26-May-22	GRAINGER	1,486.91	IRWD Check	Reconciled
427618	26-May-22	GRAYBAR ELECTRIC COMPANY	1,017.25	IRWD Check	Reconciled
427619	26-May-22	GREATER IRVINE CHAMBER OF COMMERCE	1,800.00	IRWD Check	Reconciled
427620	26-May-22	HACH COMPANY	6,362.81	IRWD Check	Reconciled
427621	26-May-22	HARRINGTON INDUSTRIAL PLASTICS LLC	12,176.78	IRWD Check	Negotiable
427622	26-May-22	HELPMATES STAFFING SERVICES	3,264.00	IRWD Check	Negotiable
427623	26-May-22	HELPMATES STAFFING SERVICES LLC	6,600.65	IRWD Check	Negotiable
427624	26-May-22	HI-LINE INC	492.45	IRWD Check	Reconciled
427625	26-May-22	HILL BROTHERS CHEMICAL COMPANY	10,358.39	IRWD Check	Negotiable
427626	26-May-22	HOME DEPOT USA INC	1,881.65	IRWD Check	Negotiable
427627	26-May-22	HORIZONS CONSTRUCTION CO. INT'L INC	1,249.47	IRWD Check	Reconciled
427628	26-May-22	HUANG, LIANG	680.59	IRWD Check	Negotiable
427629	26-May-22	HUNSAKER & ASSOCIATES IRVINE	13,806.00	IRWD Check	Negotiable
427630	26-May-22	HUNTSMAN HOLDINGS, LLC	5,983.88	IRWD Check	Negotiable
427631	26-May-22	IMPERIAL SPRINKLER SUPPLY, INC.	238.23	IRWD Check	Reconciled
427632	26-May-22	INNOVATIVE MACHINE TOOL REPAIR LLC	1,582.96	IRWD Check	Reconciled
427633	26-May-22	IRVINE PACIFIC	251.41	IRWD Check	Negotiable
427634	26-May-22	IRVINE PIPE & SUPPLY INC	2,444.97	IRWD Check	Reconciled
427635	26-May-22	JACOBS ENGINEERING GROUP INC.	4,438.00	IRWD Check	Negotiable
427636	26-May-22	JONSET LLC	836	IRWD Check	Negotiable
427637	26-May-22	JUST ENERGY SOLUTIONS INC.	164.17	IRWD Check	Reconciled
427638	26-May-22	KAN VENTURES, INC	7,298.07	IRWD Check	Negotiable
427639	26-May-22	KB HOMES	28.46	IRWD Check	Negotiable
427640	26-May-22	KP PUBLIC AFFAIRS LLC	15,000.00	IRWD Check	Reconciled
427641	26-May-22	KRONICK MOSKOVITZ TIEDEMANN & GIRARD	229.15	IRWD Check	Reconciled
427642	26-May-22	KUTAK ROCK LLP	3,695.97	IRWD Check	Reconciled
427643	26-May-22	LAGUNA BEACH COUNTY WATER DISTRICT	18,174.48	IRWD Check	Negotiable
427644	26-May-22	LANDCARE HOLDINGS, INC.	1,304.00	IRWD Check	Reconciled
427645	26-May-22	LILLESTRAND LEADERSHIP CONSULTING, INC.	17,956.88	IRWD Check	Negotiable
427646	26-May-22	LINDE GAS & EQUIPMENT INC.	2,202.24	IRWD Check	Reconciled
427647	26-May-22	LSA ASSOCIATES INC	120	IRWD Check	Negotiable
427648	26-May-22	MARK ENTERPRISES TECHNOLOGIES LLC	36,737.75	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT  
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427649	26-May-22	MARK KADESH	10,200.00	IRWD Check	Negotiable
427650	26-May-22	MC FADDEN-DALE INDUSTRIAL	7.28	IRWD Check	Negotiable
427651	26-May-22	MICROSOFT CORPORATION	516.63	IRWD Check	Reconciled
427652	26-May-22	MSC INDUSTRIAL SUPPLY CO	2.75	IRWD Check	Negotiable
427653	26-May-22	NATIONAL READY MIXED CONCRETE SALES, LLC	497.82	IRWD Check	Reconciled
427654	26-May-22	NEWPORT NORTH APTS	190.22	IRWD Check	Negotiable
427655	26-May-22	NEWPORT WINDOW MAINTENANCE INC	2,745.00	IRWD Check	Negotiable
427656	26-May-22	NIXON-EGLI EQUIPMENT COMPANY INC.	5,868.42	IRWD Check	Reconciled
427657	26-May-22	NOV PROCESS & FLOW TECHNOLOGIES US, INC.	168.95	IRWD Check	Reconciled
427658	26-May-22	NYAMTAISHIR, TSELMUUN	28.15	IRWD Check	Negotiable
427659	26-May-22	O'REILLY AUTO ENTERPRISES, LLC	142.47	IRWD Check	Negotiable
427660	26-May-22	OLIN CORPORATION	47,733.97	IRWD Check	Reconciled
427661	26-May-22	OLSON REMCHO LLP	497	IRWD Check	Reconciled
427662	26-May-22	ORACLE AMERICA, INC.	3,572.45	IRWD Check	Reconciled
427663	26-May-22	ORANGE COUNTY AUTO PARTS CO	1,775.20	IRWD Check	Reconciled
427664	26-May-22	PACIFIC HYDROTECH CORPORATION	9,376.07	IRWD Check	Negotiable
427665	26-May-22	PACIFIC HYDROTECH CORPORATION	47,249.39	IRWD Check	Negotiable
427666	26-May-22	PACIFIC HYDROTECH CORPORATION	1,073,135.44	IRWD Check	Negotiable
427667	26-May-22	PACIFIC STAR CHEMICAL, LLC	2,827.47	IRWD Check	Reconciled
427668	26-May-22	PARKHOUSE TIRE INC	1,104.79	IRWD Check	Reconciled
427669	26-May-22	PETRUSSE-NORRIS PAINTING, INC.	3,155.60	IRWD Check	Reconciled
427670	26-May-22	PIERCE, KENNY	29.26	IRWD Check	Negotiable
427671	26-May-22	PROJECT PARTNERS LLC	11,650.00	IRWD Check	Negotiable
427672	26-May-22	PUBLIC POLICY INSTITUTE OF CALIFORNIA	10,000.00	IRWD Check	Negotiable
427673	26-May-22	QUADIENT FINANCE USA, INC.	2,000.00	IRWD Check	Reconciled
427674	26-May-22	RAM AIR ENGINEERING INC	6,390.47	IRWD Check	Reconciled
427675	26-May-22	RENTOKIL NORTH AMERICA, INC	2,000.00	IRWD Check	Negotiable
427676	26-May-22	RICHARD C. SLADE & ASSOCIATES LLC	5,314.63	IRWD Check	Negotiable
427677	26-May-22	RINCON TRUCK CENTER INC.	378.36	IRWD Check	Negotiable
427678	26-May-22	ROLL RITE	1,799.84	IRWD Check	Reconciled
427679	26-May-22	RS HUGHES COMPANY, INC.	2,509.50	IRWD Check	Negotiable
427680	26-May-22	SAFETY-KLEEN SYSTEMS, INC	275	IRWD Check	Reconciled
427681	26-May-22	SAN MARCO APARTMENTS	90.98	IRWD Check	Negotiable
427682	26-May-22	SANTA ANA BLUE PRINT	1,891.95	IRWD Check	Reconciled
427683	26-May-22	SANTA MARGARITA FORD	543.17	IRWD Check	Reconciled
427684	26-May-22	SEAL ANALYTICAL INC	726.98	IRWD Check	Negotiable
427685	26-May-22	SHAMROCK SUPPLY CO INC	455.2	IRWD Check	Negotiable
427686	26-May-22	SI TESTING	4,580.00	IRWD Check	Negotiable
427687	26-May-22	SITMATIC	641.67	IRWD Check	Reconciled
427688	26-May-22	SNAP-ON INCORPORATED	82.71	IRWD Check	Negotiable
427689	26-May-22	SONG, WANYU	50	IRWD Check	Reconciled
427690	26-May-22	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	1,294.92	IRWD Check	Reconciled
427691	26-May-22	SOUTHERN CALIFORNIA EDISON COMPANY	429,450.09	IRWD Check	Negotiable
427692	26-May-22	SOUTHERN CALIFORNIA EDISON COMPANY	84.41	IRWD Check	Negotiable
427693	26-May-22	SOUTHERN CALIFORNIA GAS COMPANY	2,229.07	IRWD Check	Negotiable
427694	26-May-22	STANTEC CONSULTING SERVICES INC.	17,087.90	IRWD Check	Reconciled
427695	26-May-22	SUEZ TREATMENT SOLUTIONS INC.	2,997.42	IRWD Check	Reconciled
427696	26-May-22	SUKLE ADVERTISING INC.	40,021.25	IRWD Check	Negotiable
427697	26-May-22	SYNAGRO-WWT, INC.	229,698.39	IRWD Check	Negotiable
427698	26-May-22	TEKDRAULICS	1,733.22	IRWD Check	Negotiable
427699	26-May-22	TESLA MOTORS INCORPORATED	3,312.02	IRWD Check	Negotiable
427700	26-May-22	TETRA TECH, INC	4,628.00	IRWD Check	Reconciled
427701	26-May-22	TEVORA BUSINESS SOLUTIONS, INC.	21,482.80	IRWD Check	Reconciled
427702	26-May-22	THE ADT SECURITY CORPORATION	24,270.00	IRWD Check	Negotiable
427703	26-May-22	THE PARK AT IRVINE SPECTRUM	84.49	IRWD Check	Negotiable
427704	26-May-22	THOMPSON & PHIPPS INC	9,878.74	IRWD Check	Negotiable
427705	26-May-22	TIC-OFFICE PROPERTIES	242.67	IRWD Check	Negotiable
427706	26-May-22	TIC-RESORT PROPERTIES	56.69	IRWD Check	Negotiable
427707	26-May-22	TIC-RETAIL PROPERTIES	502.5	IRWD Check	Negotiable
427708	26-May-22	TIC-SPECTRUM OFFICE	152.45	IRWD Check	Negotiable
427709	26-May-22	TRAFFIC MANAGEMENT, INC	1,554.00	IRWD Check	Negotiable
427710	26-May-22	TRIPAC MARKETING INC	3,293.75	IRWD Check	Reconciled
427711	26-May-22	TURTLE ROCK CANYON APTS	268.1	IRWD Check	Negotiable
427712	26-May-22	TUSTIN TOYOTA	35.26	IRWD Check	Reconciled
427713	26-May-22	UCT, LLC	314.9	IRWD Check	Reconciled
427714	26-May-22	UNITED PARCEL SERVICE INC	36	IRWD Check	Negotiable
427715	26-May-22	UNITED SITE SERVICES OF CALIFORNIA INC	739.95	IRWD Check	Reconciled
427716	26-May-22	URBAN WATER INSTITUTE INC	1,250.00	IRWD Check	Negotiable

**IRVINE RANCH WATER DISTRICT  
AP DISBURSEMENTS AND VOIDS FOR MAY 2022**

<b>CHECK OR ELECTRONIC #</b>	<b>PAYMENT DATE</b>	<b>SUPPLIERS</b>	<b>PAYMENT AMOUNT</b>	<b>PAYMENT METHOD</b>	<b>STATUS</b>
427717	26-May-22	VWR INTERNATIONAL, LLC	9,312.98	IRWD Check	Negotiable
427718	26-May-22	WAGENER LAW, A PROFESSIONAL CORPORATION	3,263.50	IRWD Check	Reconciled
427719	26-May-22	WARD, WILLIAM P JR.	1,369.04	IRWD Check	Negotiable
427720	26-May-22	WARE MALCOMB	977.5	IRWD Check	Reconciled
427721	26-May-22	WATER ASSOCIATION OF KERN COUNTY	500	IRWD Check	Negotiable
427722	26-May-22	WATEREUSE ASSOCIATION	6,000.00	IRWD Check	Negotiable
427723	26-May-22	WAXIE'S ENTERPRISES, INC	126.83	IRWD Check	Reconciled
427724	26-May-22	WECK LABORATORIES INC	1,050.00	IRWD Check	Reconciled
427725	26-May-22	WEST COAST SAND & GRAVEL INC.	2,294.81	IRWD Check	Reconciled
427726	26-May-22	WESTERN WEATHER GROUP INC	3,225.00	IRWD Check	Reconciled
427727	26-May-22	WORKFORCE SAFETY LLC	7,500.00	IRWD Check	Negotiable
427728	26-May-22	IRWD-PETTY CASH CUSTODIAN	753.96	IRWD Check	Reconciled
<b>SUB-TOTAL CHECK DISBURSEMENTS</b>			<b>9,642,732.00</b>		
14906	5-May-22	CHARD SNYDER & ASSOCIATES, INC.	16,119.05	IRWD Wire	Negotiable
14907	5-May-22	CHARD SNYDER & ASSOCIATES, INC.	4,045.42	IRWD Wire	Negotiable
14908	5-May-22	YORK RISK SERVICES GROUP, INC.	2,142.27	IRWD Wire	Negotiable
14909	6-May-22	EMPOWER RETIREMENT, LLC	178,395.01	IRWD Wire	Negotiable
14910	6-May-22	CALIFORNIA DEPARTMENT OF CHILD SUPPORT SERVICES	3,049.00	IRWD Wire	Negotiable
14911	6-May-22	INTERNAL REVENUE SERVICE	231,070.23	IRWD Wire	Negotiable
14912	6-May-22	FRANCHISE TAX BOARD	72,810.87	IRWD Wire	Negotiable
14913	6-May-22	EMPLOYMENT DEVELOPMENT DEPARTMENT	17,894.61	IRWD Wire	Negotiable
14914	6-May-22	CALPERS	249,099.23	IRWD Wire	Negotiable
14915	6-May-22	CALPERS	3,537.54	IRWD Wire	Negotiable
14916	6-May-22	CALPERS	589,682.42	IRWD Wire	Negotiable
14917	9-May-22	CHARD SNYDER & ASSOCIATES, INC.	3,342.15	IRWD Wire	Negotiable
14918	9-May-22	CHARD SNYDER & ASSOCIATES, INC.	3,397.78	IRWD Wire	Negotiable
14919	10-May-22	YORK RISK SERVICES GROUP, INC.	10,708.74	IRWD Wire	Negotiable
14921	16-May-22	CHARD SNYDER & ASSOCIATES, INC.	1,474.95	IRWD Wire	Negotiable
14922	16-May-22	BANK OF NEW YORK MELLON TRUST COMPANY NA	32,055.70	IRWD Wire	Negotiable
14923	16-May-22	BANK OF AMERICA	8,178.09	IRWD Wire	Negotiable
14924	16-May-22	U.S. BANK NATIONAL ASSOCIATION	10,849.31	IRWD Wire	Negotiable
14925	16-May-22	U.S. BANK NATIONAL ASSOCIATION	4,284.94	IRWD Wire	Negotiable
14926	16-May-22	SUMITOMO MITSUI BANKING CORPORATION	14,961.65	IRWD Wire	Negotiable
14927	16-May-22	CALPERS	1,392.07	IRWD Wire	Negotiable
14928	17-May-22	CHARD SNYDER & ASSOCIATES, INC.	4,524.43	IRWD Wire	Negotiable
14929	17-May-22	CHARD SNYDER & ASSOCIATES, INC.	5,358.07	IRWD Wire	Negotiable
14930	17-May-22	YORK RISK SERVICES GROUP, INC.	5,914.84	IRWD Wire	Negotiable
14931	17-May-22	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	1,465,158.97	IRWD Wire	Negotiable
14933	23-May-22	CHARD SNYDER & ASSOCIATES, INC.	2,840.53	IRWD Wire	Negotiable
14934	23-May-22	CHARD SNYDER & ASSOCIATES, INC.	2,438.54	IRWD Wire	Negotiable
14935	24-May-22	EMPOWER RETIREMENT, LLC	198,819.00	IRWD Wire	Negotiable
14936	24-May-22	CALIFORNIA DEPARTMENT OF CHILD SUPPORT SERVICES	3,049.00	IRWD Wire	Negotiable
14937	24-May-22	INTERNAL REVENUE SERVICE	240,651.28	IRWD Wire	Negotiable
14938	24-May-22	FRANCHISE TAX BOARD	74,594.20	IRWD Wire	Negotiable
14939	24-May-22	EMPLOYMENT DEVELOPMENT DEPARTMENT	18,138.14	IRWD Wire	Negotiable
14940	26-May-22	WELLS FARGO BANK, N.A.	5,504.08	IRWD Wire	Negotiable
14941	31-May-22	CALPERS	249,755.33	IRWD Wire	Negotiable
14942	31-May-22	CHARD SNYDER & ASSOCIATES, INC.	9,322.10	IRWD Wire	Negotiable
14943	31-May-22	CHARD SNYDER & ASSOCIATES, INC.	2,870.71	IRWD Wire	Negotiable
14944	31-May-22	YORK RISK SERVICES GROUP, INC.	4,162.91	IRWD Wire	Negotiable
14945	31-May-22	YORK RISK SERVICES GROUP, INC.	8,975.17	IRWD Wire	Negotiable
<b>SUB-TOTAL ELECTRONIC DISBURSEMENTS</b>			<b>3,760,568.33</b>		
<b>SUB-TOTAL AP CHECK AND ELECTRONIC DISBURSEMENTS</b>			<b>13,403,300.33</b>		
427027	5-May-22	LEE, CHUNHUI	17.36	IRWD Check	Voided
427120	5-May-22	SHAVER JR, LEWIS	52.48	IRWD Check	Voided
427136	5-May-22	TACTICAL PROPERTY HOLDINGS LLC	1,811.49	IRWD Check	Voided
427180	12-May-22	ACTION WHOLESALE PRODUCTS, INC.	775.48	IRWD Check	Voided
427273	12-May-22	LIDO PROPERTY MANAGEMENT	15.56	IRWD Check	Voided
427389	19-May-22	AT&T	6,594.94	IRWD Check	Voided
427534	24-May-22	PETRUSSE-NORRIS PAINTING, INC.	10,582.00	IRWD Check	Voided
14920	12-May-22	WELLS FARGO BANK, N.A.	5,508.12	IRWD Wire	Voided
14932	20-May-22	CALPERS	248,935.40	IRWD Wire	Voided
<b>SUB-TOTAL CHECK AND ELECTRONIC DISBURSEMENTS ISSUED AND VOIDED IN MAY 2022</b>			<b>274,292.83</b>		
<b>TOTAL AP DISBURSEMENTS AND VOIDS FOR MAY 2022</b>			<b>13,677,593.16</b>		

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Exhibit "E"

**MONTHLY SUMMARY OF PAYROLL ACH PAYMENTS**

**May  
2022**

	AMOUNT	VENDOR	PURPOSE
5/6/2022	1,076,097.24	BANK OF AMERICA	ACH Payments for Payroll
5/20/2022	1,076,854.90	BANK OF AMERICA	ACH Payments for Payroll
	<u><b>\$2,152,952.14</b></u>		

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Exhibit "F"

**IRWD Gov Code 53065.5 Disclosure Report**

Payment or Reimbursements for Individual charges of \$100 or more per transaction for services or product received.

01-MAY-22 to 31-MAY-22


NAME	CHECK NO>	CHECK DATE	AMOUNT	ITEM DESCRIPTION	EXPENSE JUSTIFICATION
Lin, Eileen	426894	5-May-22	435.00	Membership Renewal	CalCPA Membership
Lin, Eileen	426894	5-May-22	1,385.00	Certification Renewal	CalCPA - CPE class credits
Lindsay, Marina D	427174	12-May-22	253.89	Mileage	Sustainable Water Markets Network Kern River Conf., Bakersfield, CA - May 6-8, 2022
Moeder, Jacob	426895	5-May-22	180.00	Certification Renewal	Professional Engineers, Land Surveyors, and Geologist - Civil Engineer renewal
Mori, Richard	427175	12-May-22	180.00	Certification Renewal	Professional Engineers, Land Surveyors, and Geologist - Civil Engineer renewal
<b>Total Amount:</b>			<b>\$2,433.89</b>		

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June 27, 2022

Prepared by: N. Mwe / R. Mori

Submitted by: K. Burton

Approved by: Paul A. Cook 

## CONSENT CALENDAR

### SEAWATCH RECYCLED WATER PRESSURE REDUCING STATION CONSTRUCTION AWARD

#### SUMMARY:

The Seawatch Recycled Water Zone G to G\_R Pressure Reducing Station project includes construction of a new below grade pressure reducing station. Staff recommends the Board:

- Reject the bid of GCI Construction, Inc. as non-responsive, and
- Authorize the General Manager to execute a construction contract with T.E. Roberts, Inc. in the amount of \$383,155 for the Seawatch Recycled Water Zone G to G\_R Pressure Reducing Station project.

#### BACKGROUND:

IRWD operates a 10-inch Zone G recycled water pipeline located in a fire access road between the streets of Seawatch and Coral Cay in Crystal Cove. The access road drops approximately 200 feet in elevation, which contributes to the development of high-pressure surges in the pipeline. Over the years, the surges have led to several pipe failures along this segment of pipe. In 2020, staff contracted with JIG Consultants to complete a study to further evaluate and understand the pressure surges and to ultimately develop a design solution. Per the recommendations provided by JIG, a new recycled water Zone G to G\_R pressure reducing station is needed near Seawatch, which is located on the high elevation side of the fire access road. The project will construct a new pressure reducing station that will eliminate high pressure surges in the pipeline to mitigate against future pipeline failures. The project location is shown in Exhibit "A".

#### Construction Award:

IRWD retained JIG Consultants to design the pressure reducing station in November 2020. Staff approved the plans and advertised the project for construction bids to a select list of 36 pipeline and mechanical contractors in May 2022. The bid opening was held on June 14, 2022 with bids received from GCI Construction, T.E. Roberts, SS Mechanical Construction, Paulus Engineering, and Ferreira Construction Co. GCI Construction was the apparent low bidder with a bid amount of \$297,900. A summary of the five bids received is provided in the following table.

<b>Bidder</b>	<b>Bid Amount</b>
GCI Construction	\$ 297,900
T.E. Roberts	\$ 383,155
SS Mechanical Construction	\$ 391,633
Paulus Engineering	\$ 399,500
Ferreira Construction Co.	\$ 452,600
<i>Engineer's Estimate</i>	<i>\$ 450,000</i>

After review by staff and legal counsel, the apparent low bid from GCI Construction was determined to be non-responsive. GCI Construction failed to include the following required documents for the project in its bid submission: “Statements by Bidder”, “Certification of Bidder and Qualifications”, “Safety Program Certification”, and “Non-Collusion Declaration”. As such, staff and legal counsel recommend that the Board reject the bid of GCI Construction as non-responsive.

The next apparent low bidder, with a bid amount of \$383,155, is T.E. Roberts. Staff reviewed the bid from T.E. Roberts and determined that it is responsive. T.E. Roberts’ bid information is attached as Exhibit “B”. Staff recommends that the Board authorize the General Manager to award a construction contract to T.E. Roberts in the amount of \$383,155.

FISCAL IMPACTS:

Project 11597 is included in the FY 2021-22 Capital Budget and will be funded by the regional recycled water funds. The existing budget is sufficient to fund the recommendation presented herein.

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 15303, which provides categorical exemption for small facilities or structures; installation of small new equipment and facilities in small structures; water main, sewage, electrical, gas and other utility extensions, including street improvements of reasonable length to serve such construction and Section 15282, which provides statutory exemption for installation of new pipeline that does not exceed one mile (more than 5,210 feet) in length. A Notice of Exemption was filed with the Orange County Clerk’s office on November 16, 2021.

COMMITTEE STATUS:

Construction awards are not routinely taken to Committee prior to submittal to the Board.

RECOMMENDATION:

THAT THE BOARD REJECT THE BID OF GCI CONSTRUCTION, INC. AS NON-RESPONSIVE AND AUTHORIZE THE GENERAL MANAGER TO EXECUTE A CONSTRUCTION CONTRACT WITH T.E. ROBERTS, INC. IN THE AMOUNT OF \$383,155 FOR THE SEAWATCH RECYCLED WATER ZONE G TO G\_R PRESSURE REDUCING STATION, PROJECT 11597.

LIST OF EXHIBITS:

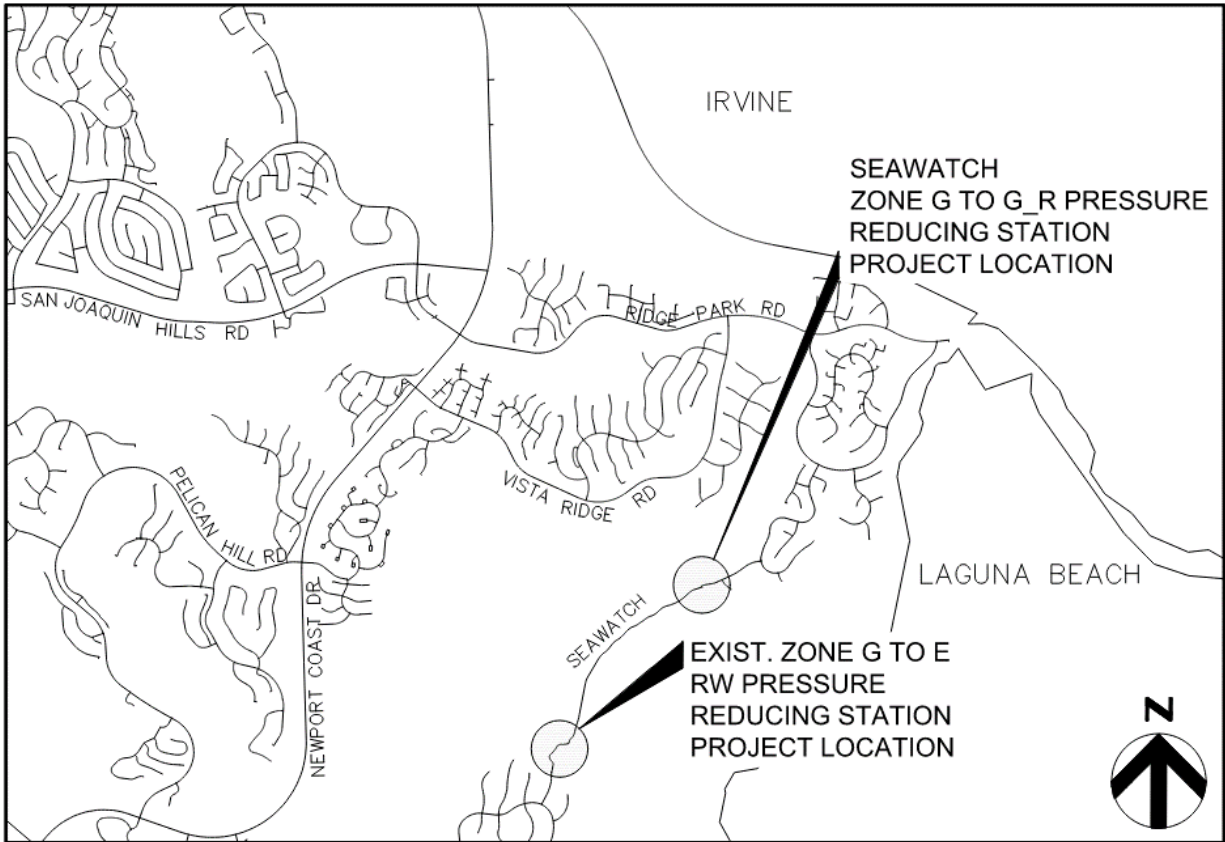
Exhibit "A" – Location Map

Exhibit "B" – Bid Results

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# EXHIBIT "A"



VICINITY MAP



LOCATION MAP

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## EXHIBIT "B"

### Bid Results

### Bidder Details

Vendor Name T. E. Roberts, Inc.  
 Address 306 W. Katella Avenue, Unit B  
 Orange, California 92867  
 United States  
 Respondee Steve Miller  
 Respondee Title Estimator  
 Phone 714-669-0072  
 Email estimating@teroberts.com  
 Vendor Type CADIR  
 License # 603008  
 CADIR 1000000280

### Bid Detail

Bid Format Electronic  
 Submitted 06/14/2022 1:11 PM (PDT)  
 Delivery Method  
 Bid Responsive  
 Bid Status Submitted  
 Confirmation # 295300

### Respondee Comment

### Buyer Comment

### Attachments

File Title	File Name	File Type
TER Bid IRWD Seawatch RW PRS.pdf	TER Bid IRWD Seawatch RW PRS.pdf	Bid Form

### Subcontractors

Showing 1 Subcontractor

Name & Address	Desc	License Num	CADIR	Amount	Type
CMB Structures Inc. 7211 Haven Avenue, E-287 Alta Loma, California 91701	Vault and concrete work	613977	1000001531	\$33,980.00	CADIR

## Line Items

Discount Terms No Discount

Item #	Item Code	Type	Item Description	UOM	QTY	Unit Price	Line Total	Response	Comment
<b>BASE BID ITEMS</b>							<b>\$383,155.00</b>		
1			Mobilization and Demobilization	LS	1	\$20,804.00	\$20,804.00	Yes	
2			Miscellaneous Site Work and Piping	LS	1	\$111,435.00	\$111,435.00	Yes	
3			Trench Safety Measures	LS	1	\$2,601.00	\$2,601.00	Yes	
4			Seawatch Recycled Water Zone G to G_R Pressure Reducing Station	LS	1	\$233,083.00	\$233,083.00	Yes	
5			Miscellaneous Improvements at Existing Zone G to E Recycled Water PRV	LS	1	\$14,419.00	\$14,419.00	Yes	
6			Final Record Drawings	LS	1	\$813.00	\$813.00	Yes	
<b>ADDITIVE AND DEDUCTIVE BID ITEMS</b>							<b>\$0.00</b>		
7			ADDITION (+) OR DEDUCTION (-)	LS	1	\$0.00	\$0.00	Yes	


## Line Item Subtotals

Section Title	Line Total
<b>BASE BID ITEMS</b>	<b>\$383,155.00</b>
<b>ADDITIVE AND DEDUCTIVE BID ITEMS</b>	<b>\$0.00</b>
<b>Grand Total</b>	<b>\$383,155.00</b>

June 27, 2022

Prepared by: M. Lu / M. Cortez

Submitted by: K. Burton

Approved by: Paul A. Cook 

## ACTION CALENDAR

### SEWER SIPHON IMPROVEMENTS PHASE II CONSULTANT SELECTION

#### SUMMARY:

IRWD's sewer system includes 19 inverted siphons in various locations. Earlier this year, IRWD completed the Sewer Siphon Improvements Phase I that rehabilitated the four highest priority siphons. Phase II will rehabilitate the next seven prioritized siphons. Staff recommends the Board authorize the General Manager to execute a Professional Services Agreement with Woodard & Curran in the amount of \$1,285,684 for engineering design services for the Sewer Siphon Improvements Phase II.

#### BACKGROUND:

In 2016, IRWD completed a preliminary assessment of its 19 siphons and assigned a rehabilitation priority considering risk and likelihood of failure. The top four siphons were recently completed as part of Phase I. Phase II will rehabilitate the next seven siphons: S1, S3, S5, S8, S9, S16, and S18. Siphon S16 is located in the city of Newport Beach and the remaining six are located in the city of Irvine. General descriptions of the siphons are provided below.

1. Siphon S1 – San Diego Creek/University (constructed in 1966): This location consists of a three-barrel inverted siphon going under Sand Canyon Creek, along the bike trail between the San Diego Creek Channel and University Drive. The barrels are asbestos cement pipe (ACP) with diameters of 10, 15 and 18 inches. There is no air jumper at this location;
2. Siphon S3 – Michelson/Riparian (constructed in 1976): This location consists of a two-barrel inverted siphon going under San Diego Creek at Michelson Drive, near Riparian View. The barrels are vitrified clay pipe (VCP) with diameters of 24 and 36 inches. The siphon includes a 21-inch air jumper. The 21-inch air jumper is reinforced polymer mortar pipe (RPMP) per the as-built;
3. Siphon S5 – Jamboree/Main (constructed in 1972): This location consists of a two-barrel inverted siphon going under the Barranca Channel, along Jamboree Road near Main Street. The two barrels are 8-inch diameter VCP. The as-built drawings show two 8-inch VCP stubs – one at the upstream manhole, and the other at the downstream manhole;
4. Siphon S8 – Jeffrey/Alton (constructed in 1988): This location consists of a two-barrel inverted siphon going under San Diego Creek, along Jeffrey Road. The barrels are VCP with diameters of 15 and 21 inches. There is a 15-inch polyvinyl chloride (PVC) air jumper at this location;
5. Siphon S9 – Sand Canyon/Barranca (constructed in 1987): This location consists of a two-barrel inverted siphon going under the Barranca Channel, along Sand Canyon Avenue. The barrels are VCP with diameters of 8 and 12 inches. There is no air jumper at this location;



6. Siphon S16 – University/Milano (constructed in 1998): This location consists of a two-barrel inverted siphon going under Bonita Creek, near SR-73. The two barrels are 16-inch diameter VCP. There is no air jumper at this location; and
7. Siphon S18 – Harvard/University (constructed in 1978): This location consists of a two-barrel inverted siphon going under Sand Canyon Creek (culvert), along Harvard Avenue. The two barrels are 8-inch diameter VCP. There is no air jumper at this location.

The 2016 assessment noted issues of corrosion, lining failure, lack of flow control device, and site access inadequacy. The likelihood of failure for these seven siphons ranges from high to extreme.

It was recognized in Phase I that having a well-defined and thorough consultant scope of work that includes sewer cleaning and inspection would have helped better define the contractor scope of work and minimize the amount of change orders. Due to “lessons learned” from Phase I, the consultant scope of work for Phase II includes this additional sewer cleaning and inspection work as requested in the request for proposal, which accounts for approximately \$300,000 of the consultant scope of work. This type of cleaning and inspection is a specialized task that the District staff are not well-suited to perform.

An alternative to performing this work would be to include several alternative bid items in the contractor’s bid schedule in the hope of addressing any issues that may potentially arise during construction. This method of bidding can result in unnecessary time wasted when the contractor needs to secure materials or equipment (e.g., for cured-in-place pipe) to address any construction issues not previously anticipated during design.

#### Consultant Selection:

On April 27, 2022, staff issued a request for proposal for engineering design services for the project to four consultants: Psomas, Stantec, West Yost, and Woodard & Curran. Psomas and West Yost withdrew after receiving the request for proposal citing insufficient staff availability and experience. Proposals were received from the remaining two consultants on June 2. Staff completed its evaluation of the proposals and found the following merits in Woodard & Curran’s proposal.

- Woodard & Curran’s team has more experience overall with sewer systems, sewer siphons and condition assessment, which is relevant to this Phase II project;
- Woodard & Curran provided preliminary evaluations and implementable solutions to the Phase II siphons with greater details, such as flow control device improvements at Siphons S1 and S5, maintenance/access and odor control improvements at Siphon S9, and potential location of a grit trap at Siphon S3;
- As part of the lessons learned from Phase I, Woodard & Curran understands the importance of completing a condition assessment of the siphon barrels and Laser 3-dimensional scanning of the interiors of the existing upstream and downstream vaults. Woodard & Curran is providing a substantial effort in condition assessment of the siphons to determine the need for cured-in-place-pipe lining. The effort proposed matches what is required for this project, including dewatering, barrel cleaning,

dewatering and closed-circuit-tv inspection. Secondly, accurate measurements of the interior of the vaults are required to minimize additional cost claims from the contractor due to encountering field conditions that differ from record drawing information; and

- Woodard & Curran was the design consultant in Phase I and is thus familiar with the IRWD's expectations on siphon evaluations and design.

Based upon these merits, staff recommends awarding a Professional Services Agreement to Woodard & Curran in the amount of \$1,285,684. The consultant selection matrix is provided in Exhibit "A" and Woodard & Curran's proposal is provided in Exhibit "B".

FISCAL IMPACTS:

Sewer Siphon Improvements Phase II, Project 11841, is included in the FY 2021-22 Capital Budget. The existing budget is sufficient to fund the project's design phase.

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA) and in conformance with the California Code of Regulations Title 14, Chapter 3, Section 15303. Section 15303 provides exemption of new, small facilities or structures; installation of small new equipment and facilities in small structures; water main, sewage, electrical, gas or other utility extensions, including street improvements of reasonable length to serve such construction. A Notice of Exemption will be prepared for the project and filed with the County of Orange.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on June 21, 2022.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH WOODARD & CURRAN IN THE AMOUNT OF \$1,285,684 FOR DESIGN ENGINEERING SERVICES FOR THE SEWER SIPHON IMPROVEMENTS PHASE II, PROJECT 11841.

LIST OF EXHIBITS:

Exhibit "A" – Consultant Selection Matrix

Exhibit "B" – Woodard & Curran Proposal and Fee

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**EXHIBIT "A"**  
**Sewer Siphon Improvements Phase II**  
**Project 11841**  
**Consultant Selection Matrix**

	Weights	Woodard & Curran	Stantec
<b>TECHNICAL APPROACH</b>	50%		
*Project Approach	60%	1	2
*Scope of Work	40%	1	2
Weighted Score (Technical Approach)		1.00	2.00
<b>EXPERIENCE</b>	50%		
*Firm/Team	50%	1	2
*Sewer Siphon and Condition Assessment Experience	50%	1	2
Weighted Score (Experience)		1.00	2.00
<b>COMBINED WEIGHTED SCORE</b>		<b>1.00</b>	<b>2.00</b>
Project Manager		Mirko Maher 24	Joe Long 31
Project Engineer		Justin Kraetsch 7	Patrick Stahl 11
QC/QA		Jen Glynn 27	Jim Cathcart 44
Technical Advisor		Glenn Hermanson 30	Umeth Murthy 30
Design Engineer		Oliver Saeby	Bitu Sadri 18
Structural		Tom Scalese 12	Simon Lin 18
Sewer Modelling		Cathy Greenman 20	Jeff Dunn 28
Condition Assessment		V&A	Pro-Pipe
Traffic Control		TCE	Stantec
CCTV		NPS	Pro-Pipe
Surveying		Calvada	Stantec
<b>LABOR HOURS</b>		Hours	Hours
Task 1 - Project Management		391	388
Task 2 - Preliminary Design		630	898
Task 3 - Final Design		2,261	1,919
Task 4 - Bid Support		79	74
<b>TOTAL HOURS</b>		<b>3,361</b>	<b>3,279</b>
<b>TOTAL SHEETS</b>		<b>63</b>	<b>59</b>
<b>FEE</b>			
Task 1 - Project Management		\$105,150.00	\$78,925.00
Task 2 - Preliminary Design		\$376,069.00	\$280,479.00
Task 3 - Final Design		\$499,265.00	\$326,925.00
Task 4 - Bid Support		\$17,880	\$19,240
Optional CCTV		\$287,320	\$391,115 *
			*includes dewatering \$160,000
Grand Total excluding Optional Task		\$998,364.00	\$705,569.00
<b>Grand Total including Optional Task</b>		<b>\$1,285,684.00</b>	<b>\$1,096,684.00</b>
Number of Drawings		63 dwgs	59 dwgs
Final Design Unit Prices (\$/dwg) (excluding optional task)		\$15,847	\$11,959
Professional Liability Insurance		Yes	Yes
General Liability Insurance		Yes	Yes
<b>FORCED RANKINGS:</b>			
1 - First		1	2
2 - Second			

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# Engineering Design Services for the Sewer Siphon Improvements Phase II

**June 13, 2022 Revision**



Via Electronic Mail

June 2, 2022



Mr. Michael Lu  
Irvine Ranch Water District  
Michelson Water Recycling Plant  
3512 Michelson Drive  
Irvine, CA 92612

Re: **Proposal for Engineering Design Services for the Sewer Siphon Improvements Phase II**

Dear Mr. Lu:

Irvine Ranch Water District (IRWD) is seeking Engineering Design Services for the Sewer Siphon Improvements Phase II. Woodard & Curran has a full understanding of IRWD's project and unmatched qualifications for sewer siphon design. Based on our review of the request for proposal and discussions and meetings with IRWD staff, we have developed a comprehensive proposal to meet IRWD's needs and goals.

Woodard & Curran offers a team of highly qualified engineers with the technical expertise and local siphon knowledge to address IRWD's needs for the project. We propose **Mirko Maher** to serve as project manager and **Justin Kraetsch** as project engineer, each are experts in sewer design. Mirko has over 20 years of project management and sewer design experience, and Justin has recently completed the Sewer Siphon Project for IRWD and a similar project for the City of Anaheim. They will be supported by **Glenn Hermanson** and **Jen Glynn**, Technical Advisors and QA/QC, experts in sewer siphon design and trenchless technologies who have recently worked with Justin and IRWD on the Sewer Siphon Improvements Project Phase I. In addition, we have partnered with four specialty subconsultants: V&A for Condition Assessment, Calvada for surveying, TCE for traffic control and National Plant for CCTV.

Woodard & Curran's team members have extensive experience in sewer siphon design and trenchless projects throughout California. We **understand the challenges and local site conditions** having **recently completed the Sewer Siphon Improvements Phase I**. Our team members' thorough understanding of the unique challenges associated with this project will make this project a success for IRWD.

If you have any questions about our proposal, please contact me at khiggins@woodardcurran.com or (949) 420-5313 or Mirko Maher at Mmaher@woodardcurran.com or (925) 212-3757.

Sincerely,

A handwritten signature in blue ink that reads "Mirko Maher".

Mirko Maher, PE  
Project Manager

A handwritten signature in blue ink that reads "Kathleen Higgins".

Kathleen Higgins, PE  
Principal-in-Charge



## A. Scope

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**Engineering Design Services for the Sewer Siphon  
Improvements Phase II**

## Project Understanding

IRWD's sewer system includes 19 inverted siphons in various locations. In 2016, the District completed a preliminary assessment and ranking of the siphons considering their risk of failure. Four (4) siphons were rehabilitated in Phase I as designed by Woodard & Curran working closely with IRWD staff. This Phase II project will evaluate the next seven siphons and design the necessary rehabilitation improvements.

The seven inverted siphons are listed below. Six of the siphons are located in the City of Irvine, and one is located in the City of Newport Beach.

- 1. Siphon S1 – San Diego Creek/University (constructed in 1966):** This location consists of a three-barrel inverted siphon going under Sand Canyon Creek. The barrels are asbestos cement pipe (ACP) with diameters of 10-, 15- and 18-inches. There is no air jumper at this location.
- 2. Siphon S3 – Michelson/Riparian (constructed in 1976):** This location consists of a two- barrel inverted siphon going under San Diego Creek at Michelson Drive, near Riparian View. The barrels are vitrified clay pipe (VCP) with diameters of 24- and 36-inches. The siphon includes a 21-inch air jumper. The 21-inch air jumper is reinforced polymer mortar pipe (RPMP) per the as-built.
- 3. Siphon S5 – Jamboree/Main (constructed in 1972):** This location consists of a two-barrel inverted siphon going under the Barranca Channel, near Main Street. The two barrels are 8-inch diameter VCP. The as-built drawings show two 8-inch VCP stubs – one at the upstream manhole, and the other at the downstream manhole.
- 4. Siphon S8 – Jeffrey/Alton (constructed in 1988):** This location consists of a two-barrel inverted siphon going under San Diego Creek, along Jeffrey Road. The barrels are VCP with diameters of 15- and 21-inches. There is a 15-inch polyvinyl chloride (PVC) air jumper at this location.
- 5. Siphon S9 – Sand Canyon/Barranca (constructed in 1987):** This location consists of a two- barrel inverted siphon going under the Barranca Channel, along Sand Canyon Avenue. The barrels are VCP with diameters of 8- and 12-inches. There is no air jumper at this location.
- 6. Siphon S16 – University/Milano (constructed in 1998):** This location consists of a two-barrel inverted siphon going under Bonita Creek, near SR-73. The two barrels are 16-inch diameter VCP. There is no air jumper at this location.
- 7. Siphon S18 – Harvard/University (constructed in 1978):** This location consists of a two-barrel inverted siphon going under Sand Canyon Creek (culvert), along Harvard Avenue. The two barrels are 8-inch diameter VCP. There is no air jumper at this location.

This project requires resolving many challenges for each siphon, including maintenance access, odor, flow control, and constructibility. To solve these challenges, our approach focuses on providing you the following three key elements:

- » **A specialized and experienced local team that is ready to hit the ground running:**  
Our team of engineers have successfully worked together with IRWD on the Sewer



Siphon Phase I project, are thoroughly knowledgeable about what is required for the project and understand the needs of IRWD. The team's institutional knowledge will shorten the "learning curve" to facilitate siphon condition assessment and rehabilitation designs that address the needs of IRWD.

- » **Leverage Recent Experience on Phase I with Flow Control Devices and Other Critical Items:** Woodard & Curran will use our experience from the Phase I Project to streamline the design of the flow control devices (stop logs or gates) and other critical items, such as the siphon barrel and vault condition assessment/rehabilitation, vault access improvements, and flow bypassing. Our team of engineers will utilize their invaluable experience from Phase I to provide a design that minimizes change orders, improves the reliability and performance of these critical siphons, and factors in O&M throughout the process.
- » **Provide Implementable Proven Solutions for each Siphon:** Woodard & Curran team has reviewed the RFP documents in detail, including existing as-built information, and have developed an approach for each siphon using the latest industry methods that have been successfully implemented at numerous siphons, including IRWD's S2, S4, S6, and S10 siphons as part of the Phase I project.

## Approach

Our extensive sewer siphon expertise and recent Phase I experience allowed Woodard & Curran's team of engineers and siphon experts to craft an approach that results in a design that will achieve IRWD's goals of restoring structural integrity and hydraulic capacities, reducing cleaning frequency, improving operation and maintenance, and mitigating odors at the seven siphons.

### A SPECIALIZED AND EXPERIENCED LOCAL TEAM THAT IS READY TO HIT THE GROUND RUNNING

We have selected our team based on their experience on the Phase I project. We included team members that have worked with IRWD previously specifically related to this project's scope of work; and have developed solutions for siphons with similar challenges. Challenges that were previously address in similar projects include site access restrictions, limited O&M access into the vaults that adds cost and complexity to routine maintenance, poor hydraulics leading to reduced capacity from accumulated sediment/debris, and odor issues. **Several team members, including Justin Kraetsch, Glenn Hermanson, Jen Glynn, and Oliver Saeby were involved in the Phase I project from the condition assessment phase through construction** and are already familiar with the related work and IRWD's concerns with addressing the issues related to each of the seven siphons included in this project scope.

This project will be managed from our Laguna Hills Office located minutes from the project sites. Mirko Maher, PE, will be project manager. The project engineer will be Justin Kraetsch, PE, with technical advisors Glenn Hermanson and Jen Glynn and design engineer Oliver Saeby.

Mirko has over 20 years' experience in sewer design, trenchless design, and condition assessment. Mirko will lead the design with the support of Justin Kraetsch, PE. Justin brings his strong technical background with design and has recently completed IRWD's Phase I Sewer Siphon Improvement Project, City of Santa Rosa Trunk Sewer and Siphon Condition Assessment Project, and City of Anaheim Magnolia and Broadway Sewer Siphon Rehabilitation Design.

Woodard & Curran's project team includes renowned sewer design and trenchless technical experts, Jen Glynn and Glenn Hermanson, to provide senior technical guidance and quality control and quality assurance reviews, as well as input for solutions to minimize risks and service disruptions. They bring a nearly combined 60 years of project design experience and will support the team from planning to final document preparation to ensure high quality peer reviewed project documents are delivered while being mindful of constructability and reducing and eliminating project risks.

Condition assessment services will be required for this projects scope of work, as it is critical to understand each siphon's condition and as-built measurements in order to address the key project element of rehabilitation. Woodard & Curran has partnered with team member V&A Consulting Engineers because they bring their many years of condition assessment expertise. They will perform accurate field measurements and LiDAR 3D scanning while inside the vaults to ensure the design improvements and construction documents accurately reflect the as-built conditions.

Another critical element for the design of this project is performing topographic survey of each siphon location at the upstream and downstream structures, including dipping the invert elevations of the siphon barrels and inlet/outlet sewer for verification of record drawings and model information. Woodard & Curran has selected Cal-Vada for topographic survey services to ensure accurate construction documents may be developed.

National Plant Services will provide siphon barrel cleaning, dewatering, and closed-circuit television (CCTV) inspection support as an optional task during final design. We have worked closely with them on numerous projects.

***Due to our teams' experience with IRWD's Phase I Siphon Project, we have a shortened "learning curve" and are ready to hit the ground running providing IRWD cost effective and implementable solutions.*** As provided in more detail in the following sections and scope of work, our team is ready to discuss some of these approaches and solutions with you at the kickoff meeting.

## **LEVERAGE RECENT EXPERIENCE ON PHASE I WITH FLOW CONTROL DEVICES AND OTHER CRITICAL ITEMS**

There is no "national standard" for inverted sewer siphon design. Inverted siphons are by nature prone to sediment accumulation due to their geometry and difficult to access for cleaning, inspection, and repairs, adding cost and complexity to routine maintenance. Engineers with less experience tend to make decisions with impacts that aren't apparent for years. The Woodard & Curran team has the invaluable experience from the design and construction of the Phase I Project and a deep knowledge for rehabilitating siphons. Our experience will be applied to this Phase II Project to optimize and streamline the condition assessments and design of critical components such as the flow control devices, siphon barrel and vault rehabilitation improvements, grit traps, and flow bypassing.

### **Flow Control Devices**

To improve siphon operation and reduce maintenance requirements, flow control devices such as stop logs or stop gates will be installed in the upstream structures to direct all dry weather flows to a single barrel. This will result in higher flow velocities in that dedicated "duty" barrel, and in turn reduce rate of sediment accumulation in that barrel. During wet weather flows, the flow would then be diverted into the other "standby" barrel(s).





## Vault Condition Assessments and Rehabilitations

Woodard & Curran's subconsultant, V&A Consulting Engineers, will perform a condition assessment of the upstream and downstream siphon structures, including physical testing of the concrete and liner (if present), and visual assessment of the hatches, inlet and outlet pipe connections, and sluice gates and stop logs (if present). Based on a review of the RFP documents, 10 of the 14 vaults are lined with PVC liner and the remaining four vaults are lined with polyurethane or a similar spray-type corrosion protection liner. During the Phase I Project, the condition assessment identified delamination and bulging of the existing PVC liner in the vaults, indicating potential corrosion of the concrete behind the liner. During construction, it was discovered that the concrete in S4, S6, and S10 vaults was in primarily good condition after the existing PVC liner was removed. Behind-the-liner concrete testing, consisting of cutting back the liner to assess the concrete behind it via sounding, penetration measurements, and surface pH, is commonly employed to get an accurate condition assessment of lined concrete. Performing behind-the-liner concrete testing can help reduce costly liner removal and reapplication work by providing a more complete assessment of the existing structure. These behind-the-liner concrete tests will be performed by V&A Consulting Engineers as part of the condition assessments.

## Grit Traps

The addition of grit traps on gravity sewer lines upstream of inverted siphons can reduce long-term maintenance requirements and cleaning frequencies by capturing sediments before they enter the barrels. The primary criteria for determining the need for a grit trap upstream of siphon include the configuration of the sewer system, flows, and maintenance access to the proposed grit trap. They should be located as close to the siphon as possible with minimum number of laterals or sewer connections between the trap and siphon, in an area where a vactor/combo truck can park without significant traffic impact and where O&M staff can safely access the manhole to vacuum out the grit.

Grit traps were installed upstream of Siphon S2 and S10 as part of the Phase I Project. IRWD has expressed satisfaction with their performance to-date based on the quantity of debris removed during each cleaning and the relatively straightforward cleaning process. This matches the positive feedback from other clients with grit traps designed by Woodard & Curran: Oro Loma Sanitary District and City of Santa Clara. The Phase 1 grit traps upstream of Siphons S2 and S10 were installed in live flow using flow-through plugs and did not require sewer service interruptions.



*Grit Trap constructed in live flow on 42-inch RCP sewer upstream of Siphon S10 as part of the Phase 1 Sewer Siphons Project.*

Woodard & Curran has evaluated preliminary locations of grit traps for the seven Phase II siphons based on a detailed review of the RFP documents and site visits. At Siphon S3, the highest flow siphon of this project, a grit trap could be located approximately 700 feet upstream of the siphon on the 51-inch RCP San Diego Creek Interceptor line within IRWD's 20-foot-wide easement. Their easement runs along an Orange County Flood Control District access road parallel to the San Joaquin Channel. Woodard & Curran will perform a detailed evaluation of the feasibility and benefits of adding grit traps upstream of Siphons S1, S3, S5, S8, S9, S16, and S18 during the preliminary design phase.

### **Flow Bypassing**

Flow bypassing will be required to construct the rehabilitation improvements inside the siphon upstream and downstream structures and to complete cleaning/dewatering/CCTV inspection and rehabilitation of the barrels. Flow bypassing for siphons is typically performed by one of the following:

1. Installing a temporary above-ground pumping system upstream of the siphon and discharging flows into a manhole downstream of the siphon; or
2. Installing flow-through plugs inside the siphon upstream and downstream structures if a single barrel (for dual barrel configurations) or two barrels (for triple barrel configurations) can handle peak dry weather flows.

Woodard & Curran will evaluate these bypass options during the preliminary design phase. The flow-through plug option was successfully implemented at each siphon for the Phase I project and is the preferred approach over installing above-ground bypass pumps and piping where feasible. This is dependent on the peak dry weather flow through the siphon and capacity of the siphon barrels. For dual-barrel configurations, such as at S3, S5, S8, S9, S16, and S18, one barrel would remain active while flow-through plugs are in operation. For the triple-barrel configuration at S1, up to two barrels could remain active at all times. As part of the hydraulic analysis of the Phase II siphons, Woodard & Curran will confirm the estimated peak dry weather flow requirements and determine if the siphons have the capacity to handle the peak dry weather flows with one barrel out of service.



*Flow-through plugs installed at S2 siphon structures to provide flow bypass during vault and siphon barrel rehabilitation work as part of the Phase I Sewer Siphon Project.*



## Sewer Cleaning, Dewatering, and CCTV Inspections

As part of the Phase II Project, the ACP and VCP siphon barrels will be cleaned, dewatered, and inspected with CCTV to assess their condition and recommend rehabilitation improvements. A sanitary sewer flow bypass system must be implemented to isolate each siphon barrel for this work. As previously discussed, a passive flow bypass system utilizing flow-through plugs in the upstream and downstream structures is the preferred approach over installing above-ground pumps and piping where feasible. Woodard & Curran will evaluate the different bypass options after completing the hydraulic analysis as part of the preliminary design phase. The Preliminary Design Report (PDR) will include the recommendations for cleaning and CCTV inspections at each siphon and the bypass system required to complete the work.

The cleaning, dewatering, and CCTV inspections can be performed during the final design phase after the completion of the hydraulic analysis and PDR or during the construction phase. The S2, S4, S6, and S10 siphon barrels were inspected during the construction phase for the Phase I project, and the results of the inspections were used to execute the bid items associated with rehabilitation using cured-in-place pipe (CIPP) liners. This approach was successfully implemented and is the recommended option if there are existing flow control devices such as sluice gates that must be demolished by a contractor in order to complete the work (installing flow-through plugs, cleaning, dewatering, and CCTV of isolated barrels).

Based on the condition of the existing barrels and flow control devices per the RFP documents, the existing stop gate frames at S1, S8, S9, S16, and S18 are likely too corroded and would not provide an adequate seal to complete cleaning and CCTV. The current devices in S3 and S8 are stuck-in-place and would obstruct cleaning and CCTV equipment; thus, requiring demolition to proceed with the work. The table below includes a summary of the existing sluice gates and stop logs based on the RFP documents:

### Summary of Existing Flow Control Devices and Flow Through Barrels from RFP Documents

Siphon	Barrels	Existing Flow Control Devices	Status
S1 – San Diego Creek/ University	10", 15", and 18"	None	All open, flowing
S3 – Michelson/Riparian	24" and 36"	Redwood baffles, stuck halfway in guide frames	All open, flowing under frozen baffles
S5 – Jamboree/Main	Two 8"	None	All open, flowing
S8 – Jeffrey/Alton	15" and 21"	Sluice gates and stop gates	All open, flowing
S9 – Sand Canyon/ Barranca	8" and 12"	Sluice gates, gate partially closed on 8"	12" flowing, 8" closed
S16 – University/Milano	Two 16"	Stop logs, one installed	One flowing, one closed
S18 – Harvard/University	Two 8"	None	All open, flowing

*The condition of the existing flow control devices and flow through the barrels will be assessed and documented as part of the condition assessment.*

The pros and cons of performing the cleaning, dewatering, and CCTV during the final design phase versus the construction phase are summarized in the table on the following page.

## Pros and Cons for Performing Siphon Barrel Cleaning, Dewatering, and CCTV During Final Design vs. During Construction

Phase	Pros	Cons
Final Design Phase	<ul style="list-style-type: none"> <li>• Define rehabilitation requirements (CIPP or spot repairs) prior to Bid.</li> <li>• Reduced construction cost.</li> </ul>	<ul style="list-style-type: none"> <li>• Extends design schedule by 2-3 months.</li> <li>• Increased design fee.</li> <li>• Pay CCTV subcontractor for cost to furnish and install bypass system and demolish existing interfering gates/logs. (ballpark = \$30,000 - \$40,000)</li> </ul>
Construction Phase	<ul style="list-style-type: none"> <li>• Cost savings for utilizing Contractor's bypass system.</li> <li>• Reduced design schedule and fee.</li> <li>• Successful implementation in Phase 1 siphon project.</li> </ul>	<ul style="list-style-type: none"> <li>• Additional bid items for initial cleaning, dewatering, and CCTV of siphons.</li> <li>• Provide alternate bid items for rehabilitation work pending inspection results (CIPP or spot repairs).</li> </ul>

As shown in the Scope of Work and Fee Estimate, Woodard & Curran has included cleaning, dewatering, and CCTV inspection as an optional task as part of our scope of work. If authorized by IRWD, we would execute a contract with our CCTV subconsultant, National Plant Services, to complete the work during the final design phase.

## PROVIDE IMPLEMENTABLE PROVEN SOLUTIONS FOR EACH SIPHON

Woodard & Curran's team has reviewed the RFP documents in detail, including existing as-built information, and have developed an approach for each siphon using the latest industry methods that have been successfully implemented at numerous siphons, including IRWD's S2, S4, S6, and S10 siphons as part of the Phase I project. Based on our experience, we have developed solutions for each siphon which include access improvements to pull up to each of the structures, which would allow for future equipment cleaning and maintenance need. Our team has reviewed the information specific to the seven siphons included in this scope (S1, S3, S5, S8, S9, S16, and S18) and provided a potential approach for each siphon as outlined in the table at the end of this section. In addition, we have provided an example of some more detailed thoughts and some solutions for one of the more difficult siphons to access, Siphon S9.

### S9 Maintenance and Access

1. To address safety and operational needs, we will investigate removing the metal sluice gates and adding other means to control flow, which would be implemented from surface at the top of the vault. These could be stop logs that can be installed and removed from the ground surface through new composite manhole covers. Providing flow control that reduces or eliminates the need for its confined space entry into the structure and will improve safety for IRWD O&M staff.
2. On both the upstream and downstream sides, building up the ground to surface to be level with the top of the structure adjacent to the bike path will improve access to the structures. This could be implemented by construction of a wingwall to allow vehicles to back up to the access covers. At locations where the access is flush to adjacent grade, use of curb walls and grading will be investigated.
3. On the upstream side of this siphon, reduce and eliminate sediment accumulation within the siphon by constructing a grit trap. A grit trap could be installed on the 18-inch inlet

sewer within approximately 20 feet of the inlet structure on the bike path at this location. This 18-inch sewer is within IRWD's existing 20-foot wide easement.

### S9 Odors and Odor Control

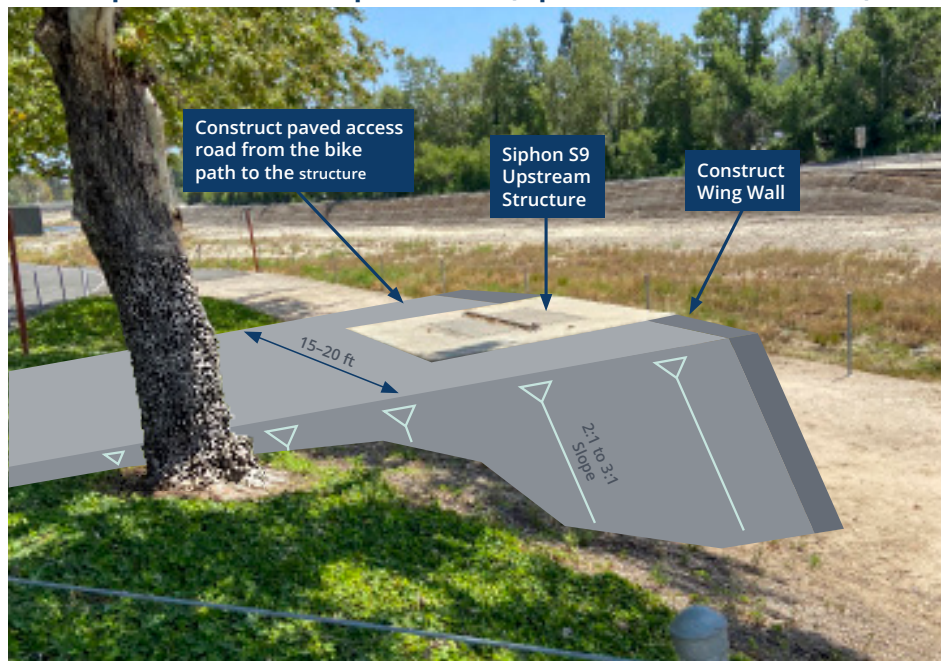
1. To address any potential for odor issues near the structures and corrosion of the metallic access hatch, we recommend removing the top slab of the structure and replacing it with a new precast concrete slab outfitted with IRWD's standard airtight composite manhole covers. Precast polymer concrete will be evaluated as a material option for the replacement top slabs for their corrosion resistance benefits.
2. If solutions to the odor issues at the downstream structure are needed beyond replacing the top slab with airtight composite manhole covers, we will evaluate adding a chemical dosing system immediately upstream of the siphon, in the area east of the bike path.

### Recommended Improvements to Access

Siphon S9's upstream structure is located within Orange County Flood Control District right-of-way within a 20-foot wide IRWD sewer easement. The vault is raised approximately 2 to 6 feet above grade, complicating access into the vault. Two approaches to be investigated at this location to provide vehicle and personnel access into the vault would include the following two options.

1. Grading the adjacent property and ramp to be level with the top of the access; or
2. Lowering the access and installing a wingwall to retain the adjacent grades. The option to raise the surface is illustrated on the following figure.

#### Siphon S9 Access Improvement (Option to Raise to Surface)



*Access road and wing wall would be constructed south of the existing tree*

For the other six siphons, refer to the following table which summarizes some of the issues and concerns as well as a potential approach. These approaches and others developed as part of the preliminary design will be discussed in a workshop setting which will give opportunity for IRWD O&M and design staff to provide crucial feedback.

## SIPHON ISSUES AND POTENTIAL SOLUTIONS

Siphon	Potential Approach
<p style="text-align: center;"><b>Siphon S1</b> - San Diego Creek / University</p> <p>Barrels: 10", 15", &amp; 18" ACP Air Jumper: None PDWF = 6.33 mgd</p>	<ol style="list-style-type: none"> <li>1. Evaluate access improvements to the inlet structure. Options include constructing an all-weather access road, lowering the height of the structure to be flush with grade, constructing a retaining wall, and <b>allowing the access road to be wider and flatter.</b></li> <li>2. Evaluate access improvements to the outlet structure. Options include constructing an all-weather access road and lowering the height of the structure to be flush with grade. Another option is to construct a new manhole in the south end of the Bethel Church parking lot. A combination unit could be positioned at this new manhole while a maintenance worker walks to outlet structure to direct the hydroflushing hose to the proper barrel.</li> <li>3. Both the inlet and outlet structures were not constructed as shown on the record drawings. The narrow benches and flow channel walls will create challenges to construct stop gate/log frames. A potential configuration is shown in our proposal. Detailed field measurements and LiDAR 3D scanning will be performed during the man-entry structure inspections to capture accurate as-built conditions.</li> <li>4. To address odor issues at the inlet structure, the top slab could be replaced with a new precast slab equipped with airtight composite manhole covers that effectively eliminate odors. We will evaluate precast polymer concrete (corrosion proof) for the top slab as an alternative material option.</li> <li>5. <b>A grit trap could be located approx. 300 feet south of the siphon inlet structure</b> next to the parking lot for the Mariposa Villa Apartments to allow for better access for combination units for cleaning. An air vent (with carbon canister) could also be installed on the grit trap at this location.</li> <li>6. <b>An air jumper could be constructed across the creek via open cut under the bike path.</b> This will be evaluated during the design phase.</li> </ol>
<p style="text-align: center;"><b>Siphon S3</b> - Michelson / Riparian</p> <p>Barrels: 24" &amp; 36" VCP Air Jumper: 21" RPMP PDWF = 41.01 mgd</p>	<ol style="list-style-type: none"> <li>1. Both the inlet and outlet structures have 48"x48" access shafts (aka "chimneys") from the ground surface to the vaults. This configuration partially blocks visual inspection from the surface. Evaluate removing these shafts and extending the walls up to the ground surface with the top slab at the ground surface.</li> <li>2. The top slab of the structures will be replaced with precast slabs equipped with airtight composite manhole covers to eliminate odor issues. We will evaluate precast polymer concrete (corrosion proof) for the top slab as an alternative material option.</li> <li>3. The reported odor issues at the inlet structure are surprising since the existing 21" air jumper should be conveying air downstream. We will inspect the existing 21" air jumper and analyze air flow through the jumper as part of the condition assessment to determine if it is adequately sized or plugged. An airtight lid is the first strategy to eliminate odors at this location. We may also recommend an air vent with carbon canister located 200 feet west in the landscaped area next to a parking lot. A vent may also be recommended at the outlet structure.</li> <li>4. The configuration of the existing baffles/gates will be confirmed during the man-entry structure inspections. The existing redwood baffles will be removed, and we will evaluate replacement flow control devices.</li> <li>5. <b>If a grit trap is constructed, it could be located on the 51" RCP interceptor approx. 700 feet upstream of the siphon as the sewer extends north within a 20' wide sewer easement along a dirt access road between Harvard Ave. and San Joaquin Channel</b> to allow for better access for combination units for cleaning. An air vent (with carbon canister) could also be installed at this location.</li> </ol>
<p style="text-align: center;"><b>Siphon S5</b> - Jamboree / Main</p> <p>Barrels: 8" &amp; 8" VCP Air Jumper: To be confirmed PDWF = 3.74 mgd</p>	<ol style="list-style-type: none"> <li>1. Both of these structures are located in the #2 lane of the heavily trafficked Jamboree Road.</li> <li>2. We will evaluate the advantages and disadvantages of moving the siphon 30 feet west so that the structures could be accessed without significant traffic control.</li> <li>3. <b>The man-entry structure inspections will determine if the air jumper was constructed.</b> If present, the air jumper will be inspected via CCTV.</li> <li>4. There is no good location for a grit trap upstream of this siphon before the 15" sewer bifurcates at the Kelvin Ave and Jamboree Rd intersection. Therefore a grit trap would also be located in Lane #2 on Jamboree Rd. The advantages and disadvantages of a grit trap in this location will be evaluated. Installing a Smart Cover at this location will also be evaluated as this location is difficult to visually inspect.</li> <li>5. Lanes 1, 2, and 3 will likely be closed during construction work at the manholes. If three lanes are closed, the temporary traffic control measures would impact access to the 405 FWY and trigger Caltrans' involvement. Limiting closure to two lanes may avoid impacting the 405 off-ramp and Caltrans involvement. We will evaluate limiting construction work area to lanes 1 and 2 only. Nighttime work will likely be required.</li> </ol>
<p style="text-align: center;"><b>Siphon S8</b> - Jeffrey / Alton</p> <p>Barrels: 15" &amp; 21" VCP Air Jumper: 15" PVC PDWF = 12.14 mgd</p>	<ol style="list-style-type: none"> <li>1. The existing corroded sluice gates will be removed. Since the gates appear to be open, it may be possible to dewater and CCTV the siphon barrels during either the design phase or the construction phase.</li> <li>2. The top slab of the structures will be replaced with precast slabs equipped with airtight composite manhole covers to eliminate odor issues. We will evaluate precast polymer concrete (corrosion proof) for the top slab as an alternative material option.</li> <li>3. As an additive odor protection measure, an air vent (with carbon canister) could be added at the upstream and downstream structures.</li> <li>4. The downstream structure has a vertical curb at the edge of the parking lot which keeps the combination unit from being positioned properly over the structure. <b>We will design site access improvements to allow the proper positioning of cleaning equipment.</b></li> <li>5. We will inspect the 15" air jumper to determine the condition of the air jumper and analyze the air flow to determine if it is adequately sized.</li> <li>6. A grit trap could be constructed on the existing 33-inch VCP inlet sewer approximately 10 to 30 feet upstream of east of the siphon inlet structure within the 25' wide sewer easement.</li> </ol>
<p style="text-align: center;"><b>Siphon S9</b> - Sand Canyon / Barranca</p> <p>Barrels: 8" &amp; 12" VCP Air Jumper: None PDWF = 2.37 mgd</p>	<ol style="list-style-type: none"> <li>1. The existing corroded sluice gates will be removed and we will evaluate replacement flow control devices.</li> <li>2. The top slab of the structures will be replaced with precast slabs equipped with airtight composite manhole covers to eliminate odor issues. We will evaluate precast polymer concrete (corrosion proof) for the top slab as an alternative material option.</li> <li>3. Since there have not been any reported odor issues on the upstream side of the siphon, installing an air jumper (by attaching it to the outside of the bridge) is not recommended.</li> <li>4. There have been odor issues on the downstream side of the siphon. An air vent (with carbon canister) could be added at this location and located adjacent to the landscaping.</li> <li>5. The upstream structure is raised several feet above the sloped grade which prevents proper access to the structure. Site access improvements to the upstream structure will be recommended. <b>One option is to construct an access road turnout from the bike path and wingwalls to retain the adjacent grades. A conceptual sketch is provided in this proposal.</b></li> <li>6. The downstream structure has a vertical curb at the edge of the parking lot which keeps the combination unit from being positioned properly over the structure. We will design site access improvements to allow the proper positioning of cleaning equipment.</li> <li>7. <b>If a solution for downstream odor issues is needed, there appears to be adequate room for a chemical dosing system in the area east of the inlet structure near the bike path.</b></li> <li>8. On the upstream side, a grit trap could be installed within 20 feet of the inlet structure on the bike path.</li> </ol>

## SIPHON ISSUES AND POTENTIAL SOLUTIONS

Siphon	Potential Approach
<p><b>Siphon S16</b> - University / Milano</p> <p>Barrels: 16" &amp; 16" Air Jumper: None PDWF = 4.2 mgd</p>	<ol style="list-style-type: none"> <li>1. The cone/ top slab of the siphon manhole structures will be replaced with a new cone/slab with an airtight composite cover to eliminate potential future odor issues.</li> <li>2. Both the inlet and outlet structures are 72" diameter manholes with short channels for the siphon barrels. There may be inadequate space behind flow control devices to allow for effective use of inspection and cleaning equipment. We will evaluate options that accommodate the minimal space and improve O&amp;M access.</li> <li>3. Since there have not been any odor issues on the upstream side of the siphon, constructing air jumper (by attaching it to the outside of the bridge) is not recommended.</li> <li>4. <b>An all-weather driving surface should be installed around the downstream structure. This would provide improved vehicle access and also reduce the amount of brush encroaching on the structure.</b></li> <li>5. We will evaluate constructing a grit trap on the existing 30" VCP inlet sewer within Bonita Creek Park.</li> </ol>
<p><b>Siphon S18</b> - Harvard / University</p> <p>Barrels: 8" &amp; 8" Air Jumper: None PDWF = 1.5 mgd</p>	<ol style="list-style-type: none"> <li>1. The existing manhole covers and frames will be replaced with composite covers per IRWD standards.</li> <li>2. Both the inlet and outlet structures are 60" diameter manholes with short channels for the siphon barrels. There may be inadequate space behind flow control devices to allow for effective use of inspection and cleaning equipment. We will evaluate reconfiguring the location of the flow control devices. A larger structure may be constructed around the existing upstream structure. Any reconfiguration must eliminate the ragging situation. Constructing a larger structure at the downstream location may not be recommended due to its location in the middle of the intersection.</li> <li>3. Since there have not been any odor issues on the upstream side of the siphon, installing an air jumper (via open cut) is not recommended.</li> <li>4. <b>A grit trap could be installed on the existing 12" PVC inlet sewer upstream of the siphon in the median (relatively minor traffic impacts).</b></li> </ol>



# SCOPE OF WORK

## TASK 1. PROJECT MANAGEMENT

### Task 1.1 Meetings

Woodard & Curran will prepare for and attend up to six project meetings, including the kickoff meeting two PDR meetings and three design review meetings as outlined in the table below. In addition, Woodard & Curran's mechanical, structural, and other key staff will meet for two on-site visits during preliminary design. The on-site visits may be conducted at the time of the coordination meetings or separately. Woodard & Curran will prepare an agenda and meeting notes for each meeting, which will be distributed to the IRWD Project Manager within 5 working days of meetings.

Meeting/Workshop	Description
Preliminary design kick-off and site visit	One (1) two-hour meeting
Present draft Preliminary Design Report	One (1) two-hour meeting
Present final Preliminary Design Report and discuss responses to IRWD's comments	One (1) two-hour meeting
Present the 60% design	One (1) two-hour meeting
Present the 90% design and discuss responses to IRWD's comments	One (1) two-hour meeting
Present the 100% design and discuss responses to IRWD's comments	One (1) two-hour meeting

### Task 1.2 Coordination and Project Status Reports

Woodard & Curran will provide regular project coordination, communication, and updates to IRWD weekly. Woodard & Curran will prepare weekly and monthly status reports. Each weekly status report will be submitted on Monday and shall consist of a brief (one to two paragraphs) e-mail summarizing the activities completed the previous week, the activities planned for the upcoming week, and critical decisions that need to be made. Each monthly status report will be submitted along with the billing invoice for that month. The monthly status reports will include a detailed summary of the work completed for that month, the work planned for the upcoming month, and a review of the work status relative to budget and schedule. Woodard & Curran will maintain and update a log of key action items and decisions, which will include key outstanding decisions as well as a record of key decisions made at meetings or in other forums with IRWD.

A Microsoft Project schedule will be prepared and updated at least monthly. The schedule will include detailed schedules for both design and construction activities. The schedule will include critical factors impacting the project schedule including permitting, design, bid and construction phases and shall reflect IRWD's Notice of Award and Notice to Proceed, contractor shop drawing submittals and Engineer review, manufacturing and delivery times for construction materials, construction activities and construction close out.

### **Task 1.3 Project Invoicing**

Woodard & Curran will track the project scope, budget, and schedule and document progress in monthly progress reports that will be submitted with each invoice. Each monthly progress report will provide detail summarizing the work completed and will review work status relative to budget and schedule. The project schedule will be updated on a monthly basis for inclusion in the monthly progress report.

### **Task 1.4 Quality Control Plan**

Woodard & Curran will implement its quality assurance program for the project, which will include an internal Senior Technical Approach Review (STAR) Workshop at the onset of the project, as well as a senior level technical review (quality control reviews) of project deliverables. Our quality assurance (QA) program includes tracking of all major deliverables, assigning reviewers and documenting reviews in the project files.

#### **Task 1 Deliverables:**

- Data Request List (electronic copy, via email)
- Meeting Agendas and Minutes (PDF or Microsoft Word files via email)
- Weekly Progress Reports (electronic email)
- Monthly Progress Report and Updated Schedule (pdf with invoice via email)

#### **Task 1 Assumptions:**

- Assumes an 11 month design project duration from NTP through 100% final design submittal.

## **TASK 2. PRELIMINARY DESIGN**

Woodard & Curran will perform the following subtasks as part of the preliminary design phase. The primary goal of this task is to establish facility design criteria. The subtasks will be documented and compiled into a Preliminary Design Report.

### **Task 2.1 Data Collection and Review, Utility Information, and Topographic Survey and Laser/3D Scanning**

Woodard & Curran will prepare an initial data request list and submit the list to IRWD ahead of the project kickoff meeting. W&C will review available documents relative to the project, including but not limited to: as built drawings, siphon evaluation reports, atlas maps, IRWD's InfoSWMM hydraulic model, and O&M records. The data request list will be updated and sent to IRWD as needed as information is received, and as new information is requested.

Woodard & Curran will research to confirm utilities in the area that will be potentially impacted by the project. Utility review will be based only on mapping provided by No-dig agencies and records provided by IRWD. Utilities if determined present (e.g., storm drain, electrical, gas, and telephone/communication duct banks) will be avoided if possible.

Woodard & Curran's surveying subconsultant, Cal-Vada, will perform a topographic survey of the inlet and outlet siphon structures at each siphon (14 total), including dipping the invert elevations of the siphon barrels. The survey data will be used for verification of record drawing and model information, and base mapping for preliminary and final design of the recommended improvements. A topographic survey will also be performed at the proposed grit trap locations. It is assumed that grit traps will be constructed upstream of each siphon (7 total).

### Survey Features:

- Survey shots will be taken on 50-foot natural ground grid and 25-foot curb/sidewalk grid on the streets to create 1-foot contour intervals.
- Location, elevation, size, and type of visible above ground existing utilities within the survey areas.
- Spot elevations of grade breaks and flow lines of adjacent streets, curbs, or catch basins that terminate or commence offsite flow within the survey areas.
- Flow line invert elevations and sizes of existing sanitary sewer and storm drain structures and manholes within and adjacent to the survey areas. IRWD will open structures/manholes as required.
- Existing driveways and intersections adjacent to survey areas.
- Location of existing adjacent striping and signing, and traffic control signals within the survey areas.
- Public fire hydrants within the survey areas. If none are in the survey areas, the nearest two will be provided.
- Streetlights within the survey areas.
- Location of trees over 6 feet in height, regardless of caliper, within the survey areas.

The vertical control will be based on the North American Vertical Datum of 1988 (NAVD 88). A local municipal benchmark will be used, if available. The horizontal control will be based on the California State Plane Coordinate System of 1983 (NAD 83).

Property lines of the parcels will be included from record data, along with easements of record.

Woodard & Curran's condition assessment subconsultant, V&A Consulting Engineers, will use Laser/3D scanning inside each existing siphon structure to obtain detailed and accurate measurements of the interior of the structures, inlet and outlet piping, siphon barrels, and any existing equipment inside the structures. The results will be incorporated into the design plans to accurately reflect the existing conditions for the demolition and construction requirements of the proposed improvements.

### Task 2.2 Condition Assessment

Woodard & Curran's subconsultant, V&A Consulting Engineers (V&A), will perform a complete condition assessment of all 14 siphon structures (7 inlet and 7 outlet). As the first step of the condition assessment, V&A will review as-built drawings and other related documents to the inverted siphons to support planning and condition assessment work. A Work Plan/Health and Safety (H&S) Plan will be developed for the condition assessment work that will document the methods and locations of the field work, safety requirements, crew contact information, and schedule. A draft Work Plan/H&S Plan will be submitted to W&C and IRWD for one round of comments. Comments will be incorporated into a final submittal. V&A personnel will have previously completed and received certification for confined space training, fall protection training, and fall protection equipment training. V&A will provide and use its own fall protection equipment.

V&A will make a confined space entry into all 14 siphon structures to complete the condition assessment field testing. Items that will be assessed include the vault, vault hatch, inlet piping entering the vault, outlet piping exiting the vault, sluice gates, stop logs (if present), and lining (if present). Where linings are present, V&A will cut back the liner at one (1) location within

each structure to assess the concrete behind the liner. Once all assessments are complete, V&A will repair the lining where removed. The field testing will include the following:

1. **Visual Assessment:** Visually assess accessible areas of the structures, rate condition of concrete surfaces, existing liners, and metallic components, document observations using digital photographs. A minimum of ten (10) photos will be obtained from each structure.
2. **Reinforced Concrete:**
  - a. Assess the concrete condition by “sounding” to listen for shallow subsurface discontinuities such as voids, delamination, and honeycombing within the concrete substrate. Sounding will be performed at various elevations of the walls and on the floor/bench of the structure. Delaminated areas will be marked with chalk for reporting purposes.
  - b. Conduct penetration measurements (using a chipping hammer) to find the depth to sound material at various locations within the structures.
  - c. Measure the surface pH of the concrete surfaces at the concrete penetration test locations described above. The pH of the concrete can substantiate the extent of degradation.
3. **Metallic:** For any metallic surfaces, perform ultrasonic thickness testing (UT) to determine the remaining wall thickness of the metal. Up to ten (10) UT measurements at each structure will be taken.

V&A will obtain CCTV of the existing air jumper lines. Based on a review of the RFP documents, Siphon S3 has a 21-inch RPMP air jumper and Siphon S8 has a 15-inch PVC air jumper. The tractor mounted CCTV will be inserted into the air jumper line and the vaults and will travel downstream. Tractor CCTV allows for pan, tilt, and zoom of the camera to focus on observations. PACP reports per NASSCO will be provided.

V&A will perform differential pressure monitoring of the 21-inch air jumper line at Siphon S3 and 15-inch air jumper line at Siphon S8. Pressure monitoring will be performed for a period of seven (7) days at the inlet and outlet siphon structures (four monitoring locations total). The data will be used to calculate and analyze air flow through the air jumper piping. The differential pressure monitors will be capable of measuring differential pressure in the range of +/- 2-inches of water column. Instantaneous differential pressure samples will be recorded at each of the monitoring locations immediately prior to and after installation of the monitoring equipment.

### **Condition Assessment Report**

After the field data are collected, V&A will prepare a condition assessment report that describes the field assessment methods, activities, results, conclusions, and recommendations for replacement and rehabilitation of the siphon inlet and outlet structures. The report will include photographs of the existing conditions, data tables, and graphical and illustrative figures, as required, to present the information gathered during this assessment. The locations and severity of defects will be noted, and the current condition of the structure regarding its state of degradation will be described. The draft report will be provided in electrical format (PDF) for one round of comments. Comments will be incorporated into a final report deliverable.

### Task 2.3 Hydraulic Analysis

Woodard & Curran will utilize IRWD's sewer hydraulic model (InfoSWMM) to conduct a hydraulic capacity analysis of the siphons as defined in the RFP. InfoSWMM is a stable and accurate hydraulic model for master planning. However, hydraulics associated with inverted siphons, specifically the transition between gravity flow and pressurized flow, can cause numerical inaccuracies. Therefore, we will review the accuracy and stability of IRWD's InfoSWMM model prior to conducting the siphon capacity analysis and if necessary, adjust the headlosses and pipe configurations to improve the model accuracy and capacity predictions. Our modeling approach is summarized below:

- Evaluate the InfoSWMM model accuracy and adjust the model reflecting the hydraulic characteristics of the siphons, including gravity flow, pressurized flow, flow splits and transitions, and entry and exit losses.
- Collect dry weather flow data from temporary flow meters installed in manholes immediately upstream or downstream of each siphon. Flow data will be collected for a two (2) week period. Additional scope of work on the field flow monitoring is provided later in this section.
- Evaluate siphon performance with single and multiple barrel operation for dry and wet weather flow conditions.
- Evaluate dry weather bypass and diversion flow requirements for use in planning the cleaning and rehabilitation process of the structure and siphon barrels during construction and during future siphon barrel cleaning and inspection maintenance.
- Evaluate siphon performance with proposed weir boards set at various heights to determine if weir boards can stay installed 12-months per year or if weir boards will need to be adjusted seasonally. This evaluation will be performed assumed two conditions: the siphons are clean (no debris) and the siphons are partially filled with debris.
- Evaluate the impact debris has on hydraulic capacity. The model will be run at various "levels of debris." The goal is to determine the impact of 1 inch of debris, 3 inches of debris, 6 inches of debris, etc. This is a critical analysis because the critical depth of debris for a peak wet weather event may not significantly impact the performance of the siphon during dry weather.

### Sanitary Sewer Flow Monitoring

V&A will perform the sewer system flow monitoring at seven (7) locations to collect flow data for a duration of two (2) weeks. V&A will prepare flow monitoring equipment necessary for installing and removing the meters. Flow meters will be area-velocity flow meters capable of collecting flow level and velocity measurements in free-flow and surcharged hydraulic conditions. The V&A field crew with a fully equipped truck/van and necessary confined spaced entry equipment, simple traffic control, and flow monitoring equipment will install, field calibrate, and remove the flow meters.

The proposed flow meters for this scope of work will be equipped with an antenna for remote data monitoring. Malfunction of a flow meter will be documented and reported as soon as it is observed, and V&A will respond within a 48-hour window. After the first week, V&A will perform a site visit to download the data and perform in-situ calibrations. After two (2) weeks, V&A will download the data and remove the meters.

Following the flow monitoring activities and after the flow meters are removed, V&A will download the reduce the data in 15-minute intervals into Microsoft Excel spreadsheets for data analysis, data QA/QC, and report preparation. The report will include the following information:

- A summary of the flow monitoring equipment used.
- Location maps with addresses, pipe size, manhole identifier number, flow channel condition, site schematics, and photographs.
- Flow monitoring data with tabular outputs of depth, velocity, and flow rate and hydrographs of depth, velocity, and flow rates for each flow meter.

### **Task 2.4 Siphon Operation and Maintenance (O&M) Program**

Woodard & Curran will develop a siphon operation and maintenance program for each of the siphons, including recommended configurations based on hydraulic analysis and flow monitoring for various flow conditions (wet and dry weather), and recommendations for maintenance and cleaning procedures of the siphon structures and equipment. The O&M program will help maintain full capacity and redundancy of the siphons, maximize self-cleaning velocities through the primary barrels, and minimize risk for blockages, while minimizing or eliminating the need for operational adjustments during flow fluctuations.

### **Task 2.5 Recommend Improvements for Final Design**

Woodard & Curran will evaluate and recommend the required siphon improvements to be included in final design. The recommended improvements will be made to restore system capacity and redundancy and improve the long-term operation and maintenance of the siphons. The following items will be evaluated:

- 1. Addition of Grit Trap Structures:** We will evaluate the feasibility and benefits of adding grit traps upstream of the seven siphons, including long term maintenance of the siphons and costs. We will develop a list of criteria for determining the need for a grit trap at each siphon location. Criteria to be considered may include siphon configuration, flow, maintenance access to the proposed grit trap, and benefits to the operation of the siphon.
- 2. Vault Structure and Lining:** We will address deficiencies noted in the condition assessment and recommend improvements that may benefit the long-term operation of the siphons, such as the repair of degraded concrete and corroded structures, and the repair or replacement of lining. The proposed vault improvements will also consider the potential for significant degradation of structures that is not visible due to the existing lining and will consider the condition and materials of the influent and effluent pipes of each structure.
- 3. Vault Access:** We will address deficiencies noted in the condition assessment and provide recommendations for hatch replacement or repair considering corrosion resistance and the prevention of escaping odors, precluding the need of applying a silicone sealant "gasket" each time the vault is closed. The proposed improvements will allow access for installation and removal of flow control devices, regular maintenance of the siphon barrels, and installation of flow-through plugs for long-term maintenance of the siphon. It is noted that Phase I replaced the existing hatches with composite manhole lids, which required replacement and reconstruction of the vault slab.
- 4. Site Access:** We will provide recommendations for site access improvements, where necessary, to facilitate access of vector trucks and District's vehicles during maintenance.
- 5. Flow Control Equipment:** We will evaluate existing flow control systems and alternatives, e.g., sluice gates and stop logs and provide recommendations for equipment based on durability and reliability in a corrosive environment and minimizing or eliminating



confined space entries and extensive maintenance needs of the equipment. The equipment will also allow the District to adjust to changes in operational flow conditions, i.e., siphon operation program.

The design for the flow control systems will be part of an overall siphon operation plan that (a) maximizes the operation of the siphon to maintain reliability and redundancy through all possible flow conditions, and (b) eliminates the need for constant adjustments in response to daily flow fluctuations or wet weather flow conditions. The design will also allow for future isolation of each barrel for cleaning, dewatering, CCTV, and rehabilitation, if necessary, while minimizing the need for confined space entry.

6. **Air Jumpers:** We will recommend repairs or improvements to the existing air jumpers and other improvements to reduce odors emanating from the siphon structures.
7. **Cleaning, closed circuit television inspection, and rehabilitation of siphon barrels:** We will provide recommendations for cleaning, CCTV, and rehabilitation of the siphon barrels, including development of bypass or diversion requirements and optional rehabilitation methods, such as cured-in-place-pipe (CIPP), spot repairs, grouts, pre-liners, etc., which will be included as unit priced Alternate Bid Items in the Construction Documents to address any defects that are discovered during the construction phase.

Woodard & Curran will evaluate different bypass options, such as aboveground bypass pumping and flow-through plug and provide recommendations with considerations of the risks and costs associated with each bypass option.

### **Task 2.6 Preliminary Opinion of Probable Construction Cost**

Woodard & Curran will provide a preliminary Opinion of Probable Construction Cost for the Project.

### **Task 2.7 Preliminary Construction Schedule**

Woodard & Curran will provide a preliminary construction schedule that reflects coordination items, date of completed plans, critical path issues, any long lead items, and IRWD review times.

### **Task 2.8 Preliminary List of Drawings**

Woodard & Curran will provide a preliminary list of drawings anticipated in the Final Design. The list of drawings may include site plan, demolition plan and details, site access improvement plan, siphon structure improvement plan and sections including concrete and lining rehabilitation, siphon barrel plan and profile, traffic control plans, bike/pedestrian diversion plans, etc. and will be updated based on the preliminary list identified in Task 3.

### **Task 2.9 Preliminary Design Report (PDR)**

The work described above will be summarized and compiled into a PDR. The PDR will summarize the results of the subtasks identified above along with additional design criteria identified during the preliminary design phase. One PDF file of the draft PDR will be submitted for review. Upon resolution and incorporation of review comments, one PDF file of the final PDR will be submitted.

#### **Task 2 Deliverables:**

- Data Request List
- Topographic Survey

- Draft and Final Condition Assessment Report
- Draft and Final Preliminary Design Report including opinion of probable cost, construction schedule, list of drawings.
- The hydraulic modeling results, flow monitoring data report, condition assessment report, and CCTV inspection of the Siphon S3 and S8 air jumpers will be included as appendices.

### Task 2 Assumptions:

- IRWD will provide access to all facilities, including opening of siphon inlet and outlet structures, as required given reasonable notice.
- PDR will include preliminary schematics of siphon improvements.
- IRWD will provide easement documentation for the existing easements. This documentation will either be a title report for each parcel or will be in AutoCAD format that can be inserted into the survey AutoCAD file.
- Scope assumes major structural rehabilitation or full structure replacement is not anticipated.
- Geotechnical explorations/recommendations and potholing is not included.

## TASK 3. FINAL DESIGN

Woodard & Curran will prepare the final design Contract Documents in accordance with IRWD requirements outlined below for the project manual and construction plans.

IRWD's construction manual will be referred to in the contract documents.

- **Project Manual:** Woodard & Curran will prepare a Project Manual in standard IRWD format for the Contract Documents. IRWD's front end documents will be utilized, and Woodard & Curran will assess IRWD's documents to determine any needed supplemental special provisions that should be added to comply with IRWD's general provisions and front-end requirements. The Project Manual will describe the work, the allowable shutdown durations and sequencing associated with any connections and tie-ins to existing IRWD facilities. The Project Manual will also include the IRWD General Technical Specifications, modifications thereto, and any project specific technical specifications. Woodard & Curran will prepare the Project Manual in standard IRWD format using the Project Manual template provided by IRWD in Microsoft Word format. Woodard & Curran will provide a PDF file of the bidding documents in 8-1/2 x 11-inch format.
- **IRWD Construction Manual:** IRWD has also developed and periodically updates its IRWD Construction Manual, which contains General Technical Specifications and Standard Drawings for use in the preparation of plan and project technical specifications. This manual will be referred to in the Contract Documents.
- **Construction Plans:** Woodard & Curran will prepare detailed construction drawings in the latest version of AutoCAD using NCS V4.0 layering standards, on 24-inch x 36-inch sheets utilizing IRWD's standard border template. Plans will be prepared in AutoCAD. The improvement plans will include a site plan, sheet index/location map/legend, general notes, index map, plans and profiles of the pipeline improvements, abandonment of existing pipes, notes and details, bypass plan, access improvements and construction sequencing, and all details necessary for the construction of the improvements. The list of sheets anticipated for the project, and included for each submittal is indicated below:



Sheet No.	Title	60%	90%, 100%, Final
1	Title Sheet	X	X
2	Sheet Index and Vicinity Map	X	X
3	Legend, General Notes, Sewer Notes, and Construction Notes	X	X
4	Abbreviations, Symbols, Standard Drawing List, and Legend	X	X
5	Siphon S1 Site and Construction Access Plan	X	X
6	Siphon S1 Site and Access Improvements Plan	X	X
7	Siphon S1 Upstream Structure Demo, Rehabilitation and Flow Control Plan and Sections	X	X
8	Siphon S1 Downstream Structure Demo, Rehabilitation and Flow Control Plans and Sections	X	X
9	Siphon S1 Grit Trap Plan	X	X
10	Siphon S1 Barrel Cleaning and CIPP Lining Plan and Section	X	X
11	Siphon S3 Site and Construction Access Plan	X	X
12	Siphon S3 Site and Access Improvements Plan	X	X
13	Siphon S3 Upstream Structure Demo, Rehabilitation and Flow Control Plan and Sections	X	X
14	Siphon S3 Downstream Structure Demo, Rehabilitation and Flow Control Plans and Sections	X	X
15	Siphon S3 Grit Trap Plan	X	X
16	Siphon S3 Barrel Cleaning and CIPP Lining Plan and Section	X	X
17	Siphon S5 Site and Access Improvements Plan	X	X
18	Siphon S5 Upstream Structure Demo, Rehabilitation and Flow Control Plan and Sections	X	X
19	Siphon S5 Downstream Structure Demo, Rehabilitation and Flow Control Plans and Sections	X	X
20	Siphon S5 Barrel Cleaning and CIPP Lining Plan and Section	X	X
21	Siphon S8 Site and Construction Access Plan	X	X

Sheet No.	Title	60%	90%, 100%, Final
22	Siphon S8 Site and Access Improvements Plan	X	X
23	Siphon S8 Upstream Structure Demo, Rehabilitation and Flow Control Plan and Sections	X	X
24	Siphon S8 Downstream Structure Demo, Rehabilitation and Flow Control Plans and Sections	X	X
25	Siphon S8 Barrel Cleaning and CIPP Lining Plan and Section	X	X
26	Siphon S9 Site and Construction Access Plan	X	X
27	Siphon S9 Site and Access Improvements Plan	X	X
28	Siphon S9 Upstream Structure Demo, Rehabilitation and Flow Control Plan and Sections	X	X
29	Siphon S9 Downstream Structure Demo, Rehabilitation and Flow Control Plans and Sections	X	X
30	Siphon S9 Grit Trap Plan	X	X
31	Siphon S9 Barrel Cleaning and CIPP Lining Plan and Section	X	X
32	Siphon S16 Site and Construction Access Plan	X	X
33	Siphon S16 site and Access Improvements Plan	X	X
34	Siphon S16 Upstream Structure Demo, Rehabilitation and Flow Control Plan and Sections	X	X
35	Siphon S16 Downstream Structure Demo, Rehabilitation and Flow Control Plans and Sections	X	X
36	Siphon S16 Grit Trap Plan	X	X
37	Siphon S16 Barrel Cleaning and CIPP Lining Plan and Section	X	X
38	Siphon S18 Site and Access Improvements Plan	X	X
39	Siphon S18 Upstream Structure Demo, Rehabilitation and Flow Control Plan and Sections	X	X
40	Siphon S18 Downstream Structure Demo, Rehabilitation and Flow Control Plans and Sections	X	X
41	Siphon S18 Grit Trap Plan	X	X
42	Siphon S18 Barrel Cleaning and CIPP Lining Plan and Section	X	X

Sheet No.	Title	60%	90%, 100%, Final
43	Siphon S1 Air Jumper Plan and Profile	X	X
44	General Civil/Rehabilitation Details 1	X	X
45	General Civil/Rehabilitation Details 2	X	X
46	General Civil/Rehabilitation Details 3	X	X
47	General Civil/Rehabilitation Details 4	X	X
48	General Civil/Rehabilitation Details 5		X
49	General Civil/Rehabilitation Details 6		X
50	General Civil/Rehabilitation Details 7		X
51	Structural Notes	X	X
52	Structural Details 1	X	X
53	Structural Details 2	X	X
54	Structural Details 3	X	X
55	Structural Details 4		X
56	Structural Details 5		X
57	Siphon S1 San Diego Creek Trail Bikeway Diversion Plan	X	X
58 - 60	Siphon S3 Traffic Control Plans	X	X
61 - 66	Siphon S5 Traffic Control Plans	X	X
67	Siphon S8 San Diego Creek Trail Bikeway Diversion Plan	X	X
68	Siphon S9 San Diego Creek Trail Bikeway Diversion Plan	X	X
69	Siphon S16 Bonita Creek Bikeway and Pedestrian Diversion Plan	X	X
70 - 77	Siphon S18 Traffic Control Plans	X	X

### Task 3.1 Final Design Plans

The final design covers the 60%, 90%, 100% and final design submittals. Throughout final design, Woodard & Curran will continue to regularly meet with IRWD to discuss the project and integrate any responses into the next project milestone. The 90% submittal will be a substantially complete and biddable construction set, pending any unresolved questions or items for IRWD staff discussion. The 100% design submittal will be a biddable, buildable design submittal for final IRWD approval.

Woodard & Curran will preview each plan submittal with IRWD staff in a virtual preview meeting. Improvement plans will be submitted and transmitted via email (PDF file) to IRWD for review at the 60%, 90%, 100% and final design completion levels according to the following guidelines:

- **60% Draft:** Woodard & Curran will provide a searchable PDF file of the plan set and will show right-of-way, easements, construction notes and major details. The design set will include all sheets, plan and profile, and sections/details for major items. Key maps, location maps, station numbers, and general notes will be included in the plans including civil/site, demolition, mechanical, structural, rehabilitation, bypass/diversion, and traffic control plans. It will include basic mechanical equipment, structural layouts, pipeline alignments, preliminary profiles, and existing utilities at a minimum. We will provide a complete table of contents for the Project Manual. The project manual will include all sections including any project specific specifications sections or modifications to the IRWD General Technical Specifications Sections and relevant City standards or specifications. Woodard & Curran will provide a single searchable PDF file of the 60-percent Project Manual. An opinion of probable construction cost will be provided. All deliverables will be QA/QC'd by our internal QA/QC Team.
- **90%:** Woodard & Curran will provide a searchable PDF file of the entire plan set. The plan set will show all design elements including traffic control plans, be QA/QC'd by our internal QA/QC Team, and include revisions per IRWD, City of Irvine, City of Newport Beach and other agencies' comments. Woodard & Curran will provide a single searchable PDF file of the 90-percent Project Manual. An updated opinion of probable construction cost will be provided. All deliverables will be QA/QC'd by our internal QA/QC Team.
- **100% submittal:** Woodard & Curran will provide a searchable PDF file of the entire plan set. Woodard & Curran will provide a single searchable PDF file of the 100-percent Project Manual. An updated opinion of probable construction cost will be provided. All deliverables will be QA/QC'd by our internal QA/QC Team.
- **Final Design Deliverable:** Woodard & Curran will provide one full size, final set of plans in a single PDF with the Engineer's electronic stamp and signature, including IRWD's signatures on the design sheets. Woodard & Curran will provide a single searchable PDF file of the Project Manual including the Engineer's electronic stamp and signature on the signature page. This submittal will be backchecked for inclusion of all previous comments prior to adding the Executive Director's electronic signature on the cover sheets of the plans and Project Manual. Once the submittal is reviewed and signed by IRWD, Woodard & Curran will provide AutoCAD files for the entire plan set and Microsoft Word files used in the preparation of the Project Manual. An updated opinion of probable construction cost will be provided. All deliverables will be QA/QC'd by our internal QA/QC Team.

### **Task 3.2 Project Manual**

Woodard & Curran will prepare the project manual in accordance with IRWD requirements previously outlined. Woodard & Curran will assist in calculating liquidated damages value for the project should the contract time be exceeded. IRWD's standard liquidated damage calculation form will be provided.

### **Task 3.3 Opinion of Probable Construction Cost**

Woodard & Curran will prepare a detailed and itemized opinion of probable construction cost for the proposed facilities for submission with each of the design deliverables. The Opinion of Probable Construction cost will be formatted the same as the Schedule of Work included in the Bid Documents section of the Project Manual.

### **Task 3.4 Permits**

Woodard & Curran will identify required permits and their controlling agencies including the City of Irvine, City of Newport Beach and County of Orange. Woodard & Curran will apply for and secure approval of the required permits. Copies of permit conditions will be inserted in the Project Manual's Appendix. IRWD will pay all permit fees directly to the agency.

### **Task 3.5 CEQA Documentation Support**

Woodard & Curran will provide necessary project information, maps or exhibits to assist IRWD in preparing the CEQA documentation for the project including project description details and construction and operational specifics such as estimates of area affected by construction, equipment used for construction, or estimates of construction vehicle trips.

#### **Task 3 Deliverables:**

- 60% Design Drawings, Project Manual, Engineer's Estimate and Schedule (pdf electronic copies)
- 90% Design Drawings, Project Manual, Engineer's Estimate and Schedule (pdf electronic copies)
- 100% Design Drawings, Project Manual, Engineer's Estimate and Schedule (pdf electronic copies)
- Final Bid Design Drawings, Project Manual, Engineer's Estimate and Schedule (electronic copies in PDF, AutoCAD and Microsoft Word files)

#### **Task 3 Assumptions:**

- IRWD will be responsible for producing and distributing Bid Documents and maintaining a plan holders list
- Construction phase support is not included; however, we can provide these services at a negotiated scope and fee.
- A single bid package will be provided.
- Final design duration is estimated to be approximately 6 months. Delays beyond the reasonable control of Woodard & Curran may result in additional project management costs.
- CEQA support is limited only to providing engineering and planning exhibits.
- No public outreach is provided as part of this fee estimate.
- Excludes electrical and Instrumentation plans. If proposed automatic chemical dosing systems are required, the number of which will be determined in preliminary design and included in separate scope and fee.

→ Permitting fee assumes effort include encroachment permit for City of Irvine, and City of Newport Beach, and Orange County Flood Control District. Fees to be paid by IRWD.

#### Task 4. ADDENDA PREPARATION and PRE-BID MEETING

During the bidding period, Woodard & Curran will assist with providing information and clarification of bid documents to prospective bidders. This will include the preparation of three addendums for bidding, including revisions to the design plans and specifications and assistance with addressing bidder questions. This includes the following budgeted hours:

1. **Plan Revisions:** Woodard & Curran has budgeted twenty-four (24) hours for plan revisions to the construction drawings.
2. **Specification Revisions:** Woodard & Curran has budgeted twenty-four (24) hours for revisions or additions to the project specifications.
3. **Bidder Questions:** Woodard & Curran has budgeted twenty-four (24) hours to address and respond to bidder questions.
4. **Pre-Bid Meeting:** During the bidding period, Woodard & Curran will attend a two-hour pre-bid meeting. This may include a site visit with potential bidding contractors.

#### Task 5. Siphon Barrel, Cleaning, Dewatering, and CCTV Inspection (Optional Task)

If approved by IRWD to perform siphon barrel cleaning, dewatering, and CCTV inspection after the completion of the PDR, Woodard & Curran will retain its subconsultant, National Plant Services, to perform cleaning, dewatering, and CCTV inspection of the 15 siphon barrels. National Plant Services is appropriately licensed with the necessary capabilities and experience to perform siphon barrel inspections, including installation of flow-through plugs to isolate individual siphon barrels. Woodard & Curran will coordinate the inspection work and perform quality review of the inspection data deliverables submitted by National Plant prior to demobilizing from a siphon site. Woodard & Curran will use the inspection data collected to assess the condition of the siphon barrels and provide rehabilitation recommendations (CIPP lining or spot repairs). The rehabilitation recommendations would be incorporated into the final design bid items. The inspection data reports would be included as an appendix to the Project Manual.

##### Task 5 Deliverables:

- Cleaning Log with volume of debris removed
- PACP Coded CCTV Videos in MPEG4
- PACP database
- PACP Reports in PDF

##### Task 5 Assumptions:

- Access points must be accessible, and a minimum of 24" in diameter, with no benches that will prevent installation of flow through plugs.
- Disposal bin staging site to be provided by IRWD
- Assumes no discharge permit required to decant wash water
- Water Source must be in the vicinity of each siphon.





## B. Team

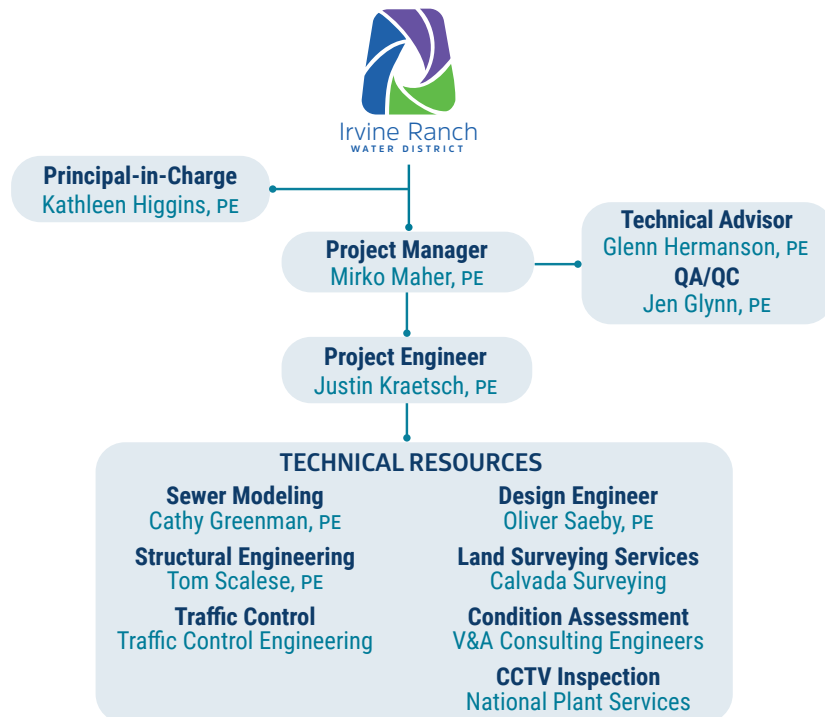
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**Engineering Design Services for the Sewer Siphon  
Improvements Phase II**

## B | Team

Our staff are specialists in their fields, offering in-depth understanding of cutting-edge technology, astute problem solving, multidisciplinary engineering, and expert regulatory guidance. Woodard & Curran has over 1160 highly-qualified professionals from 27 office locations across the United States, including seven offices in California. We have successfully assisted many southern California cities and agencies in implementing sewer design projects.

The team members shown in the organizational chart below have provided design of sewer improvements for IRWD and other agencies, including Orange County Sanitation District, City of Anaheim, City of Malibu, Padre Dam Municipal Water District, City of Santa Clara, City of San Jose and many more. Our team members' have a thorough understanding of the unique challenges associated with the Sewer Siphon Improvement Projects having completed the Phase I project which will make this project a long-term success for IRWD.



10% of time on Project

### **Mirko Maher, PE | Project Manager (Laguna Hills, CA)**

Mirko has 24 years of experience in planning, design, and construction management of water and wastewater pipelines and pump stations. Mirko has managed planning design teams from preliminary and planning through bid package work products, resulting in successful construction with minimal change orders. He takes pride in finding solutions to provide best methods of pipeline construction and rehabilitation to provide cost and construction efficiencies while reducing owner risks. Mirko is familiar with IRWD requirements and is currently project manager for the IRWD Sewer Relocation in SD Creek near SR133, was QA/QC reviewer for the IRWD Woods sewer Access Improvements Study and is project manager for the Anaheim Broadway Sewer Siphon Improvement project.





2% of time on Project

**Kathleen Higgins, PE | Principal-in-Charge (Laguna Hills, CA)**

Kathleen has over 30 years of experience leading a variety of water projects including sewer and water design and management, BMP analysis and design, and preparation of final design plans for water and sewer systems. She has served as principal-in-charge and project manager on a variety of projects throughout Southern California including IRWD's Sewer Siphon Improvements Project Phase I and The Woods Sewer Study. Kathleen will be responsible to ensure that the right staff are committed to the project and that IRWD's needs are met. She will also assist in resolving any issues on the project, should they arise.



5% of time on Project

**Glenn Hermanson, PE | Technical Advisor (Sacramento, CA)**

Glenn's 32 years of experience with infrastructure engineering have provided him with significant expertise in trenchless technologies and genuine enthusiasm working on sewer projects, pipeline condition assessment, rehabilitation, and design. His experience includes projects that minimize disturbance to residents and businesses, reduce risk, and save costs. Glenn's experience has focused on sewer facilities evaluation, hydraulic analysis, pipeline rehabilitation, condition assessment, and design and construction of sewer improvements. He has completed more than 13 sewer condition assessment projects, including over 43 miles of pipeline and evaluation of over 30 sewer siphons. Glenn's work includes analysis and design of the IRWD Sewer Siphon Improvements project and the Anaheim Broadway Sewer Siphon Improvement project.



30% of time on Project

**Justin Kraetsch, PE | Project Engineer (Laguna Hills, CA)**

Justin's 7 years of experience in sewer infrastructure design and construction management includes predesign, final design, and trenchless feasibility studies of pipeline projects. Justin has served as the Project Engineer on several pipeline design projects and is experienced in construction plan preparation using AutoCAD, development of technical specifications, and construction cost estimates. He was the project engineer responsible for the preparation of final design construction plans, specifications, and cost estimates for the IRWD Sewer Siphon Improvements project and is the project engineer for the Anaheim Broadway Sewer Siphon Improvement project.



3% of time on Project

**Jen Glynn, PE | QA/QC (Sacramento, CA)**

Jennifer has 27 years of experience specializing in pipeline condition assessment, alternatives analysis, and rehabilitation design in both congested urban areas; and highly sensitive environmentally impacted locations involving various lining methods, as well as pipe bursting and conventional open-cut replacement techniques. She has assessed and designed more than 100 miles of pipeline ranging in size from 2-inches to 96-inches in diameter. Jennifer successfully manages projects from conception to completion, many of which required special attention to sensitive issues, including endangered species habitat preservation. Jennifer is a recognized expert in the

field of trenchless technology and focuses on using the most advanced technologies in the field. Jen provided QA/QC of the IRWD Sewer Siphon Improvements Project.



30% of time on Project

**Oliver Saebj, PE | Design Engineer (Laguna Hills, CA)**

Oliver's water-related project experience includes sewer infrastructure design and facility site layout, wastewater operations analysis, and cost estimating. He was the design engineer for IRWD's sewer Siphon Improvement Project and has focused on sewer infrastructure planning for the Town of Somers, NY, and Coachella Valley Water District, and planning and execution support services for Encina Wastewater Authority.



5% of time on Project

**Cathy Greenman, PE | Modeling (Home Office, CA)**

Cathy specializes in wastewater collection system planning and hydraulic modeling projects. She has over 20 years' experience with numerous hydraulic modeling software, including InfoSWMM, InfoWorks, MIKE URBAN, H2OMap, and EPA SWMM 5, and is skilled in data analysis and report writing. Cathy has worked on modeling projects for OC SAN, City of Santa Ana, City of San Diego, City of Escondido, City of Pomona and many others.



5% of time on Project

**Tom Scalese, PE | Structural Engineer (Montana)**

Tom is a Professional Engineer with over 12 years of experience in structural engineering. His experience includes municipal wastewater design, industrial steel and concrete design, cast in place concrete tankage and temporary shoring. Tom is experienced with both new construction, structural evaluation, and reinforcing existing structures. His design proficiencies consist of classical approximations, computer aided analysis, and 3D modeling. His project experience includes both small and large projects for municipal, state, and private clients throughout the country. He was the structural engineer for the IRWD Sewer Siphon Improvements Project.

## Subconsultants

### V&A Consulting Engineers

V&A Consulting Engineers, Inc. (V&A) provides water, wastewater and transit agencies with specialized engineering solutions to combat the effects of aging infrastructure. They have been supporting our clients since 1979 with corrosion engineering services, field-based condition assessments, coating systems management, collection system flow monitoring and odor control solutions. Corrosion Engineering has earned V&A a national reputation as a company providing comprehensive and specialized services to assist owners in assessing and maintaining infrastructure assets.

### National Plant Services

National Plant Services (NPS) has been active in the sewer maintenance business for 40 years and have an experienced and dedicated staff that will make this project a success. They have significant experience in all aspects of siphon and sewer system inspection,

maintenance, and rehabilitation, which has made them true Sewer Experts. The NPS team is experienced in working on dozens of large and complex projects each year, and have developed a seamless way to plan, schedule, inspect, and analyze all work in scope.

### **Calvada Surveying**

Calvada Surveying was established in 1989 by Armando DuPont, PLS and maintains a company headquarters in Corona, California. The firm's long-standing philosophy has been to utilize the most advanced surveying technology available to produce highly accurate results for our clients and set the standard for excellence within the surveying industry. Because of this, they have developed an outstanding reputation for providing timely, high-quality service to cities and agencies throughout California.

### **Traffic Control Engineering**

Traffic Control Engineering, Inc. was organized on January 25, 1989 and specializes in preparing traffic control plans and detour plans for construction work in or about public streets, conducting traffic impact studies and alternative alignment evaluation for construction of various underground utility lines, and preparing traffic control plans for special events. Mr. David Kuan, PE, principal of the firm, has extensive working experience with both public and private sectors. Since its inception, the Firm has prepared traffic control plans for thousands of different projects, ranging from street improvements, storm drains, sewer lines, water/reclaimed water pipelines, drilling excavations, raised median landscaping, bus bays, oil pipelines, soundwalls, freeway widening, utility pipelines, fiber optic conduits, bike ride design and special event planning.





## C. Experience

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**Engineering Design Services for the Sewer Siphon  
Improvements Phase II**

## C | Experience

Woodard & Curran's engineers are experts in the analysis and design of sewer infrastructure projects and are nationally recognized in the water/wastewater industry. We prepare high-quality and cost-effective designs that result in facilities that are easy-to-operate and maintain. In achieving a successful project, our design engineers identify key issues early on and work with our client's engineers and operations staff to identify their preferences and design standards. Woodard & Curran is familiar with IRWD preferences and design standards having worked on recent IRWD projects including the Sewer Siphon Improvements Phase I project and the Woods Sewer Improvements Study.

### Representative Projects

The following table lists representative projects completed by our firm highlighting key requirements similar to this project. Following the table are selected detailed project descriptions and references.

Client/Project	SS Hydraulic Assessment	Sewer Condition Assessment	Sewer Infrastructure Rehab	SS Prelim/Final Design	SS Cleaning/CCTV
IRWD Sewer Siphon Improvements Phase 1	✓	✓	✓	✓	✓
Anaheim/Broadway Sewer Siphon Rehabilitation Design	✓		✓	✓	
Santa Rosa Master Plan and Condition Assessment	✓	✓			✓
Padre Dam Inverted Siphon Assessment	✓	✓			✓
Santa Clara Guadalupe Siphon Rehabilitation	✓		✓	✓	
Santa Clara Trimble Road Rehabilitation	✓	✓	✓	✓	
Santa Clara Walsh Trunk Sewer	✓	✓	✓	✓	✓
San Jose Sanitary Sewer Master Plan and Siphon Analysis	✓	✓	✓	✓	✓
Eastern MWD Flow Monitoring & Model Calibration	✓	✓	✓		
EBMUD Data Assessment and Modeling Project	✓	✓	✓		
OCSD Newhope-Placentia Trunk Replacement	✓	✓	✓		✓
OCSD Western Region Rehabilitation Study	✓	✓			
OCSD Collection System Capacity Study	✓	✓	✓	✓	
San Jose Sanitary Sewer Master Plan and Siphon Analysis	✓	✓	✓		
Santa Ana Sewer and Condition Assessment Master Plan	✓	✓			
SAWPA Inland Empire Brine Line	✓	✓	✓		
Stockton Tuxedo Avenue Sewer	✓	✓	✓	✓	



## Irvine Ranch Sewer Siphon Improvements

### Phase 1 | Irvine Ranch Water District

**Reference:** Malcolm Cortez, Principal Engineer, Irvine Ranch Water District; 949.453.5854, cortez@irwd.com

**Completion Date:** 2019 (Design Completion); 2022 (Construction Completion)

**Design Fee:** \$629,000 **Construction Cost:** \$8.5M

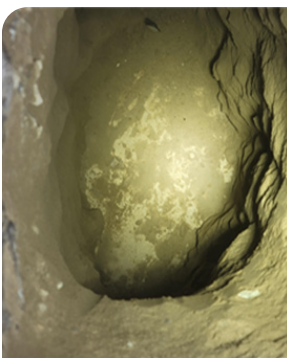
**Team Members Involved:** Kathleen Higgins, Glenn Hermanson, Jennifer Glynn, Justin Kraetsch, Oliver Saeby

**Provided condition assessment, analysis, and rehabilitation design of the four most critical sewer siphons within IRWD's system.**

IRWD completed a preliminary assessment of 19 inverted sewer siphons. Woodard & Curran was retained to design improvements to four of the siphons. The purpose of the Project was to design and construct improvements to increase the reliability and operability. The siphons are located near high traffic residential and commercial properties which require a high level of consideration during design to minimize interruption to the property occupants during construction. The Project also required easement and permitting coordination with the City of Irvine, County of Orange, Southern California Regional Rail Authority, the City of Tustin and various utility agencies. Traffic control plans were developed for work in accordance with local jurisdictional requirements as part of the permit approval process.

#### Project Highlights:

- Four critical sewer siphons, aging and blocked with debris
- Hydraulic/capacity evaluation
- Inlet/outlet structures condition assessment
- IRWD design and specifications
- Agency permits and coordination
- Cleaning, CCTV, and cured-in-place pipe (CIPP) lining specifications



## Magnolia & Broadway Sanitary Sewer Improvements | City of Anaheim

**Reference:** Lori Ishigo, Associate Engineer, City of Anaheim; 714.765.5268; lishigo@anaheim.net

**Completion Date:** 2022 (Design Completion); 2023 (Construction Completion)

**Design Fee:** \$153,000 **Construction Cost:** \$600,000

**Team Members Involved:** Kathleen Higgins, Mirko Maher, Glenn Hermanson, Jennifer Glynn, Justin Kraetsch

**Woodard & Curran provided design services for a broken siphon in the City's system.**

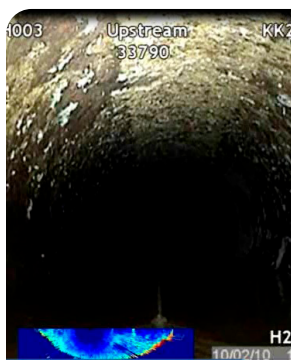
Woodard & Curran was selected to provide design services for a high-priority sewer improvement project that addresses a broken 8-inch diameter inverted sewer siphon crossing underneath a 93-inch diameter concrete storm drain in the City of Anaheim's Broadway



collection system. Woodard & Curran evaluated improvement alternatives consisting of repairing the broken siphon, construction of a new siphon, and constructing a new gravity sewer line to replace the siphon. The preliminary design report and final design plans, specifications, and cost estimates were developed for the recommended improvements. The critical components of the design include construction of a new 8-inch VCP sewer underneath the large 93-inch storm, minimizing sewer service interruptions, traffic control, and utility coordination. The final design is scheduled to be completed in August 2022 and construction in January 2023.

#### Project Highlights:

- Challenging clearances between pipes at utility crossings
- Fast track schedule
- Rehabilitating a broken siphon



## Master Plan and Condition Assessment of Siphons | City of Santa Rosa

**Reference:** Jason Roberts, Supervising Engineer, City of Santa Rosa; 707.543.3857

**Completion Date:** 2022

**Fee:** \$2.5M

**Team Members Involved:** Jen Glynn, Glenn Hermanson, Justin Kraetsch

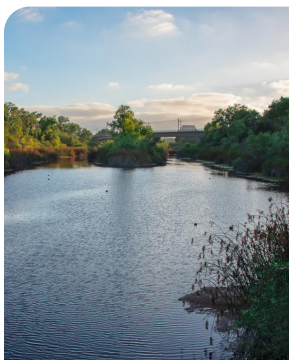
### Woodard & Curran provided inspection for 32 siphons in the City's system.

The large diameter trunk sewer network and siphons are some of the most critical components of the City of Santa Rosa's sanitary sewer system. As part of this overall master planning project, Woodard & Curran was selected to provide inspection planning, inspection, condition assessment, remaining useful life predications, and project prioritization for 13 miles of trunk sewer ranging in sizes from 33 - 66" in diameter. In addition, we provided inspection for 32 siphons in the City's system. Inspections of the trunk sewer and siphons were conducted using a combination of CCTV and sonar.

Inspection challenges included high peak daily water levels, depth of sediment, flow velocities, and location and access for inspection equipment as a majority of the trunk sewers are located in easements outside of the public right-of-way. In addition, we conducted man-entry inspections and physical testing at nine large structures along the trunk sewer system. Once the condition of the assets was determined, we then determined remaining useful life projections, and projects were identified and prioritized. A cost estimate for each identified project was provided. We leveraged our experience and industry knowledge to select appropriate rehabilitation solutions that balanced correctly addressing pipe condition, assuring constructability, minimizing permitting, and maximizing the use of the City's available budget. The City used these recommendations to develop a CIP for future maintenance and repairs of their trunk sewer system.

#### Project Highlights:

- Condition assessment and inspection of 32 siphons
- Rehabilitation solutions identified
- Operations and maintenance considerations for long term success



## Inverted Siphon Capacity and Condition Assessment | Padre Dam Municipal Water District (PDMWD)

**Reference:** Seval Sen, Engineer, Padre Dam Municipal Water District; 619.258.4631

**Completion Date:** 2018

**Fee:** \$148,000

**Team Members Involved:** Jen Glynn, Glenn Hermanson

**Woodard & Curran conducted capacity and condition assessment for this trunk pipeline, a double barrel inverted siphon that crosses under the San Diego River. The inverted siphons are 16-inch and 14-inch DIP.**

Woodard & Curran provided condition and capacity assessment of an inverted siphon (built in 1975) under the San Diego River. Approximately 1,800 lineal feet of asbestos cement pipe with ductile iron pipe transitions, inspection, cleaning and maintenance of the siphon was challenging due to the system's characteristics; moreover, PDMWD wanted a firm understanding of the condition and capacity of the infrastructure for upcoming projects. Services included flow monitoring, hydraulic modeling, and preparation of a Condition Assessment Work Plan to assess the overall condition and remaining useful life of the siphon system. Work included installation of flow monitoring equipment on the siphons and obtained flow monitoring data on each siphon for a two-week period per siphon.

### Project Highlights:

- Condition assessment and inspection of two inverted siphons
- Hydraulic modeling
- Operations and maintenance considerations for long term success



## Guadalupe Siphon Rehabilitation | City of Santa Clara

**Reference:** Falguni Amin, Principal Engineer, City of Santa Clara; 408.615.3015

**Completion Date:** 2013

**Design Fee:** \$44,000

**Team Members Involved:** Glenn Hermanson, Jen Glynn, Cathy Greenman

**Design was completed on a 14-day fast-track schedule.**

Woodard & Curran designed the rehabilitation improvements to two siphons under the Guadalupe River. The design included CIPP rehabilitation of two parallel 24-inch siphon pipes and two parallel 15-inch diameter siphon pipes. Prior to finalizing the siphon designs, we performed a hydraulic analysis on the operations of the siphons which determined the elevation of the weir boards that were then placed in front of two pipelines. The dry weather



flow was conveyed in two barrels which reduced odors and sediment deposition and then during a wet weather event the higher flows would overtop the weirs and be conveyed in all four barrels. The calculated surcharge had minor impacts upstream. Woodard & Curran overcame the challenges of accessing private property for critical construction activities by anticipating and applying for an encroachment permit since Guadalupe River and its levees are within SCVWD's right-of-way.

#### Project Highlights:

- Design and rehabilitation of two siphons
- Hydraulic modeling
- Fast-track schedule



## Trimble Road Sanitary Sewer Rehabilitation | City of Santa Clara

**Reference:** Falguni Amin, Principal Engineer, City of Santa Clara; 408.615.3015

**Completion Date:** 2013 (Design Completion); 2016 (Construction Completion)

**Design Fee:** \$479,000 **Construction Cost:** 8.6M

**Team Members Involved:** Glenn Hermanson, Cathy Greenman

**Design included the rehabilitation of two inverted siphon, one air jumper, and one grit trap.**

After performing an alternatives analysis, Woodard & Curran provided design for rehabilitation of existing 33-inch and 48-inch sections of a gravity sanitary sewer trunk for Santa Clara. The project had two siphons. One siphon crossed under Highway 101 and the second siphon crossed under a larger storm drain culvert. Both siphons were rehabbed using cured-in-place pipe. The air jumper on the second siphon was inspected during the predesign phase and rehabbed using cured-in-place pipe. Woodard & Curran designed a grit trap upstream of these siphons to decrease the amount of sediment that will be trapped in the siphons. The grit trap has been on-line for 4 years and the City's maintenance crews are very happy with its performance. One of the major components of the project was 4,440 feet of 48-inch CIPP and the bypass pumping plans necessary to support this work.

#### Project Highlights:

- Design and rehabilitation of two inverted siphons
- Bypass pumping and CIPP lining
- Operations and maintenance considerations for long term success included installation of a Grit trap.



## Walsh Avenue Trunk Sewer | City of Santa

Clara

**Reference:** Falguni Amin, Principal Engineer, City of Santa Clara; 408.615.3015

**Completion Date:** 2012

**Design Fee:** \$1.3M **Construction Cost:** \$8.2M

**Team Members Involved:** Glenn Hermanson, Jennifer Glynn

### Design included a new inverted siphon across San Tomas Aquino Creek.

The Walsh Avenue Trunk Sewer Improvements Project consisted of a feasibility study/ preliminary design, final design, and construction support services for new 30-inch sanitary sewer improvements along Walsh Avenue. The critical crossing for this project was the inverted siphon under San Tomas Aquino Creek. Our design was a two barrel design (18-inches each) with a 28-inch air jumper. The pipe material selected for the siphon and air jumper was HDPE to eliminate the potential for future corrosion. A grit trap was constructed upstream of the siphon to capture large grit particles. The siphon has been on-line since 2012. Maintenance crews empty the grit trap every 6-months. Tasks for the project included mapping and surveying, permitting, feasibility study, preliminary design, 65% design, 95% design, preparation of bid documents, bid phase services, construction phase services, and project close-out.

#### Project Highlights:

- Preliminary design and final design of new inverted siphon
- Permitting and agency coordination
- Operations and maintenance considerations for long term success included installation of a Grit trap.



## D. Schedule

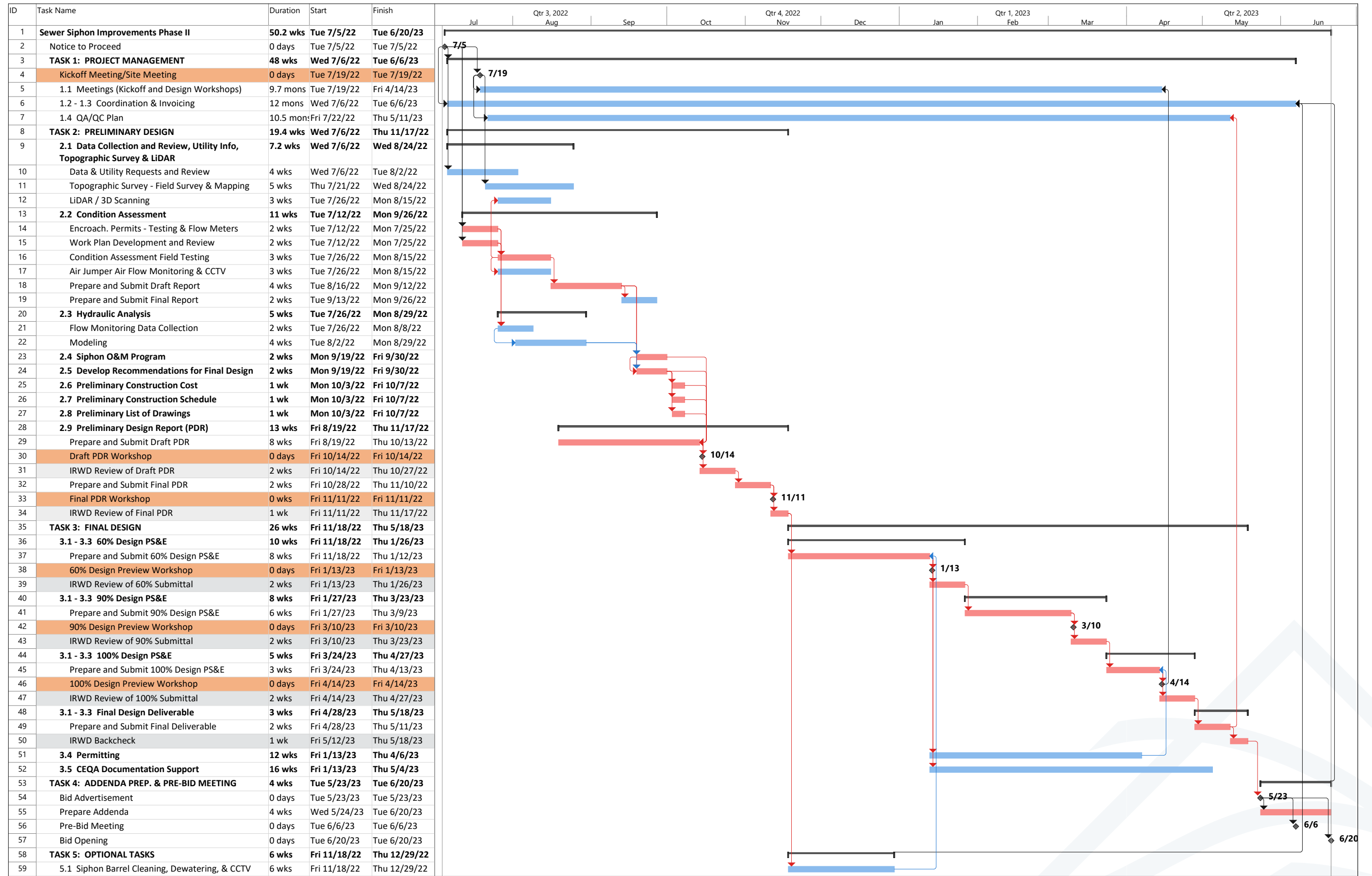
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**Engineering Design Services for the Sewer Siphon  
Improvements Phase II**

## D | Schedule

Presented on the following page is Woodard & Curran's schedule for the project. The scope of work, provided in Section 1 of our proposal, was applied to the development of this detailed project schedule. The major tasks and subtasks from the scope of work, including IRWD review time after submittals, are included herein.







## Sections F - J

---

**Engineering Design Services for the Sewer Siphon  
Improvements Phase II**

## F | Joint Venture

For this project, Woodard & Curran proposes to utilize **V&A Consulting Engineers, National Plant Services, Calvada Surveying, and Traffic Control Engineering** as subconsultants.

### **V&A Consulting Engineers**

V&A Consulting Engineers, Inc. (V&A) provides water, wastewater and transit agencies with specialized engineering solutions to combat the effects of aging infrastructure. They have been supporting our clients since 1979 with corrosion engineering services, field-based condition assessments, coating systems management, collection system flow monitoring and odor control solutions. Corrosion Engineering has earned V&A a national reputation as a company providing comprehensive and specialized services to assist owners in assessing and maintaining infrastructure assets.

### **National Plant Services**

National Plant Services (NPS) has been active in the sewer maintenance business for 40 years and have an experienced and dedicated staff that will make this project a success. They have significant experience in all aspects of siphon and sewer system inspection, maintenance, and rehabilitation, which has made them true Sewer Experts. The NPS team is experienced in working on dozens of large and complex projects each year, and have developed a seamless way to plan, schedule, inspect, and analyze all work in scope.

### **Calvada Surveying**

Calvada Surveying was established in 1989 by Armando DuPont, PLS and maintains a company headquarters in Corona, California. The firm's long-standing philosophy has been to utilize the most advanced surveying technology available to produce highly accurate results for our clients and set the standard for excellence within the surveying industry. Because of this, they have developed an outstanding reputation for providing timely, high-quality service to cities and agencies throughout California.

### **Traffic Control Engineering**

Traffic Control Engineering, Inc. was organized on January 25, 1989 and specializes in preparing traffic control plans and detour plans for construction work in or about public streets, conducting traffic impact studies and alternative alignment evaluation for construction of various underground utility lines, and preparing traffic control plans for special events. Mr. David Kuan, PE, principal of the firm, has extensive working experience with both public and private sectors. Since its inception, the Firm has prepared traffic control plans for thousands of different projects, ranging from street improvements, storm drains, sewer lines, water/reclaimed water pipelines, drilling excavations, raised median landscaping, bus bays, oil pipelines, soundwalls, freeway widening, utility pipelines, fiber optic conduits, bike ride design and special event planning.

## G | Conflict of Interest

Woodard & Curran does not have any actual, apparent or potential conflicts of interest that may result from the performance of any of the services under this contract.



## H | Contract

Woodard and Curran does not have any exceptions to IRWD's Professional Services Agreement.

## | | Insurance

Woodard & Curran Insurance Coverage:

<b>Insurance Required</b>	<b>Limit</b>	<b>Policy Number</b>	<b>Company</b>
Commercial General Liability	\$1 million per occurrence	6014561812	Continental Casualty Company
Personal & Adv Injury	\$1 million per occurrence	6014561812	Continental Casualty Company
General Aggregate	\$2 million per project/location	6014561812	Continental Casualty Company
Products – COMP/OP AGG	\$2 million per project/location	6014561812	Continental Casualty Company
Automotive Liability	\$1 million per accident	6014561843	National Fire Insurance Company of Hartford
Workers Compensation	\$1 million per occurrence	6017075447	Transportation Insurance Company
Professional Liability	\$1 million per claim/\$2 million aggregate	114135520	Continental Casualty Company

Note: Woodard & Curran’s current insurance policy is effective 02/23/2022 to 02/23/2023. A submittal from our insurance carrier can be provided to IRWD upon request.

## J | Public Work Requirement

**Woodard & Curran** - California Department of Industrial Relations (DIR): 1000046744,  
expires 6/30/2022.

**V&A Consulting Engineers** - California Department of Industrial Relations (DIR):  
1000007205, expires 6/30/2025

**National Plant Services** - California Department of Industrial Relations (DIR): 1000002703  
expires 6/30/2022

**Calvada Surveying** - California Department of Industrial Relations (DIR): 1000002703  
expires 6/30/2022



📍 24422 Avenida de la Carlota  
Suite 180  
Laguna Hills, CA 92653

☎ 949.420.5300

💻 [woodardcurran.com](http://woodardcurran.com)





June 13, 2022



Mr. Michael Lu  
Irvine Ranch Water District  
Michelson Water Recycling Plant  
3512 Michelson Drive  
Irvine, CA 92612

Re: **Updated Fee Proposal for Engineering Design Services for the Sewer Siphon Improvements Phase II**

Dear Mr. Lu:

Irvine Ranch Water District (IRWD) is seeking engineering services for the Engineering Design Services for the Sewer Siphon Improvements Phase II. Woodard & Curran has a full understanding of IRWD's project and unmatched qualifications for sewer siphon design. Based on our review of the request for proposal and discussions and meetings with IRWD staff, we have developed the attached fee proposal that corresponds to the scope of work in our proposal.

Included in the attached fee proposal are costs for labor, subconsultants, reproduction, and other direct costs for the Preliminary Design Report and Final Design. Also included is our standard rate table of hourly rates.

We are committed to working with IRWD to make this important project a success. If you have any questions about our fee proposal, please contact me at [Khiggins@woodardcurran.com](mailto:Khiggins@woodardcurran.com) or (949) 420-5313 or Mirko Maher at [Mmaher@woodardcurran.com](mailto:Mmaher@woodardcurran.com) or (925) 212-3757.

Sincerely,

WOODARD & CURRAN, INC.

A handwritten signature in cursive script that reads "Kathleen Higgins".

Kathleen Higgins, PE  
Principal-in-Charge

Tasks	Labor										Outside Services				ODCs		Total			
	Kathleen Higgins	Mirko Maher	Justin Kraetsch	Glen Hermanson/ Jen Glynn	Tom Scalse	Oliver Saebj	Cathy Greenman	Drafter	Admin.	Total Hours	Total Labor Costs (1)	V & A	National Plant	Calvada	TCE	Subtotal	Sub Consultant Total Cost (2)	ODCs	Total ODCs (3)	Total Fee
	PIC	PM	PE	Tech Advisor/ QA/QC	Structural Engineering	Design Engineer	Modeling	CAD	Admin.			Condition Assessment	CCTV	Survey	Traffic Control					
	\$330	\$315	\$245	\$330	\$260	\$205	\$295	\$170	\$120											
<b>Task 1: Project Management</b>																				
1.1 Meetings	2	24	24		24					74	\$20,340								\$0	\$20,340
1.2 Coordination and Project Status Reports		48	48			48				144	\$36,720								\$0	\$36,720
1.3 Project Invoicing		12	24						12	48	\$11,100								\$0	\$11,100
1.4 QA/QC Plan	1	4	8	62	48	1	1			125	\$36,990								\$0	\$36,990
Subtotal Task 1:	3	88	104	62	72	49	1	0	12	391	\$105,150	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$105,150
<b>Task 2: Preliminary Design</b>																				
2.1 Data Collection and Review, Utility Information & Topographic Survey and Laser 3D Scanning		4	16	2		48				70	\$15,680	\$16,855		\$41,072		\$57,927	\$60,823		\$0	\$76,503
2.2 Condition Assessment		2	12	8		16				38	\$9,490	\$128,887				\$128,887	\$135,331		\$0	\$144,821
2.3 Hydraulic Analysis			8	4		24	42			78	\$20,590	\$29,729				\$29,729	\$31,215		\$0	\$51,805
2.4 Siphon Operation and Maintenance (O&M) Program		4	16	4		24				48	\$11,420					\$0	\$0		\$0	\$11,420
2.5 Recommend Improvements for Final Design		4	32	2		24				62	\$14,680					\$0	\$0		\$0	\$14,680
2.6 Preliminary Opinion of Probable Construction Cost			8	2		24				34	\$7,540					\$0	\$0		\$0	\$7,540
2.7 Preliminary Construction Schedule		2	16	4						22	\$5,870					\$0	\$0		\$0	\$5,870
2.8 Preliminary List of Drawings		2	8			8				18	\$4,230					\$0	\$0		\$0	\$4,230
2.9 Preliminary Design Report (PDR)	2	24	40	8	48	80		54	4	260	\$59,200					\$0	\$0		\$0	\$59,200
Subtotal Task 2:	2	42	156	34	48	248	42	54	4	630	\$148,700	\$175,471	\$0	\$41,072	\$0	\$216,543	\$227,369	\$0	\$0	\$376,069
<b>Task 3: Final Design</b>																				
3.1.1 60% Final Design Plans		16	96	4	40	160		460		776	\$151,280				\$20,000	\$20,000	\$21,000	\$200	\$220	\$172,500
3.1.2 90% Final Design Plans	2	24	100	4	40	120		400		690	\$137,040				\$8,000	\$8,000	\$8,400	\$100	\$110	\$145,550
3.1.3 100% Final Design Plans		8	32	2	20	80		160		302	\$59,820				\$4,000	\$4,000	\$4,200	\$100	\$110	\$64,130
3.1.4 Final Design Plans		8	16	1	12	24		60		121	\$25,010				\$2,000	\$2,000	\$2,100	\$50	\$55	\$27,165
3.2 Project Manual			72	8	40	40				160	\$38,880					\$0	\$0		\$0	\$38,880
3.3 Opinion of Probable Construction Cost		4	8	4	24	24				64	\$15,700					\$0	\$0		\$0	\$15,700
3.4 Permits		8	48	8		60				124	\$29,220					\$0	\$0		\$0	\$29,220
3.5 CEQA Documentation Support		8	8			8				24	\$6,120					\$0	\$0		\$0	\$6,120
Subtotal Task 3:	2	76	380	31	176	516	0	1080	0	2261	\$463,070	\$0	\$0	\$0	\$34,000	\$34,000	\$35,700	\$450	\$495	\$499,265
<b>Task 4: Addenda Preparation and Pre-Bid Meeting</b>																				
4.1 Addenda Preparation and Pre-bid Meeting		6	27		12	12		22		79	\$17,825					\$0	\$0	\$50	\$55	\$17,880
Subtotal Task 4:	0	6	27	0	12	12	0	22	0	79	\$17,825	\$0	\$0	\$0	\$0	\$0	\$0	\$50	\$55	\$17,880
<b>TOTAL</b>	<b>7</b>	<b>212</b>	<b>667</b>	<b>127</b>	<b>308</b>	<b>825</b>	<b>43</b>	<b>1156</b>	<b>16</b>	<b>3361</b>	<b>\$734,745</b>	<b>\$175,471</b>	<b>\$0</b>	<b>\$41,072</b>	<b>\$34,000</b>	<b>\$250,543</b>	<b>\$263,069</b>	<b>\$500</b>	<b>\$550</b>	<b>\$998,364</b>
<b>Task 5: Optional Tasks</b>																				
5.1 Siphon Barrel Cleaning, Dewatering, and CCTV Inspection		8	24	8		16				56	\$14,320		\$260,000			\$260,000	\$273,000		\$0	\$287,320
Optional Tasks Subtotal:	0	8	24	8	0	16	0	0	0	56	\$14,320	\$0	\$260,000	\$0	\$0	\$260,000	\$273,000	\$0	\$0	\$287,320
<b>TOTAL with Optional Tasks</b>	<b>7</b>	<b>220</b>	<b>691</b>	<b>135</b>	<b>308</b>	<b>841</b>	<b>43</b>	<b>1156</b>	<b>16</b>	<b>3417</b>	<b>\$749,065</b>	<b>\$175,471</b>	<b>\$260,000</b>	<b>\$41,072</b>	<b>\$34,000</b>	<b>\$510,543</b>	<b>\$536,069</b>	<b>\$500</b>	<b>\$550</b>	<b>\$1,285,684</b>

1. The individual hourly rates include salary, overhead and profit.

2. Subconsultants will be billed at actual cost plus 5%.

3. Other direct costs (ODCs) such as reproduction, delivery, mileage (rates will be those allowed by current IRS guidelines), and travel expenses, will be billed at actual cost plus 10%.

4. Additional Woodard & Curran staff may perform work on the project, based on our standard billing rate schedule attached.

5. Although the Scope of Services is broken down into tasks and subtasks, the fee for each task is not an exact estimate. Woodard & Curran reserves the ability to adjust the budgets within and amongst tasks to balance the overall level of effort. Woodard & Curran will not exceed the total contracted budget without authorization from the District.

## Municipal Standard 2022

STAFF TYPE	HOURLY RATE
Project Assistant	\$120
Billing Manager	\$140
Designer 1	\$140
Graphic Artist	\$140
Graphics Manager	\$140
Marketing Assistant	\$140
Marketing Manager	\$140
Senior Accountant	\$140
Senior Project Assistant	\$140
Software Engineer 1	\$165
Designer 2	\$170
Designer 3	\$175
Senior Software Developer	\$175
Engineer 1	\$180
Geologist 1	\$180
Planner 1	\$180
Scientist 1	\$180
Senior Designer	\$180
Technical Specialist 1	\$180
Software Engineer 2	\$185
Software Engineer 3	\$200
Engineer 2	\$205
Geologist 2	\$205
Planner 2	\$205
Scientist 2	\$205
Technical Specialist 2	\$205
Engineer 3	\$235
Geologist 3	\$235
Planner 3	\$235
Scientist 3	\$235
Technical Specialist 3	\$235
Project Engineer 1	\$245
Project Geologist 1	\$245
Project Planner 1	\$245
Project Scientist 1	\$245
Project Specialist 1	\$245
Project Technical Specialist 1	\$245
Project Engineer 2	\$260
Project Geologist 2	\$260
Project Planner 2	\$260
Project Scientist 2	\$260
Project Specialist 2	\$260
Project Technical Specialist 2	\$260
Project Manager 1	\$280
Technical Manager 1	\$280
Project Manager 2	\$295
Technical Manager 2	\$295
Senior Project Manager	\$315
Senior Technical Manager	\$315
National Practice Leader	\$330
Senior Technical Practice Leader	\$330

### EXPENSES

Travel	\$0.585 / mile
Other Direct Costs	At Cost Plus 10%
Subconsultants/Subcontractors	At Cost Plus 5%

### NOTES

Mileage rate will change as the federal allowable rate is modified.

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June 27, 2022

Prepared by: M. Robinson / E. Akiyoshi

Submitted by: K. Burton

Approved by: Paul A. Cook



## ACTION CALENDAR

### CONDITION ASSESSMENT FOR PUMP STATIONS AND TANKS CONSULTANT SELECTION

#### SUMMARY:

The Condition Assessment for Pump Stations and Tanks project includes 11 pump stations and 11 tanks, with a focus on mechanical, electrical, and instrumentation and control. The work includes detailed condition assessment, cost estimating, and project packaging for design and construction. Staff recommends the Board authorize the General Manager to execute a Professional Services Agreement with HDR Engineering, Inc. in the amount of \$367,800.

#### BACKGROUND:

Phase 1 of the Capital Improvement Plan (CIP) Asset Management Program was recently completed and identifies capital repair and rehabilitation (R&R) projects for over 150 pump stations, tanks, lift stations, and well facilities. As a result of the CIP Asset Management Program, staff initiated the pump stations and tanks condition assessment project to complete a detailed condition assessment on critical facilities as recommended from the Phase 1 project.

The project scope of work includes asset level condition assessments using Level I (visual, non-invasive condition assessment) and Level II (more involved testing like pump/motor vibration analysis and electrical insulation testing) evaluations and includes cost estimation and project packaging for design and construction.

#### Consultant Selection:

Staff invited seven consultants to propose on the project: AECOM, HDR, Hazen & Sawyer, GHD, Stantec, Jacobs, and West Yost. Two consultants, AECOM, and GHD, declined to submit proposals early in the proposal process. While all teams were well qualified, HDR presented a well-balanced team, clear project approach, and an excellent project understanding that meets IRWD's goals and objectives for this project.

- Project Team: HDR is a proven leader in the Southern California area and this team recently completed successful condition assessment projects for City of San Diego, Long Beach Water Department, and the City of Carlsbad. The project manager, Michael Flores, has extensive capital asset management project experience and has led several successful asset related planning projects for IRWD.
- Project Understanding: HDR's proposal demonstrated a clear methodology for completing the work and showcased its solid project management and technical experience with detailed condition assessments for pump stations and tanks. The level of effort at each facility is on point and the level of inspection for the different mechanical, electrical, and instrumentation and control assets match with IRWD's project requirements.

- Technical Approach: HDR articulated a clear approach to condition assessment that uses industry standard methods to evaluate and analyze assets for R&R. Throughout the proposal, a field inspection plan was presented based on IRWD's facility list, project workflow, and approach for estimating the remaining useful lives of the assets.

The consultant selection matrix is provided as Exhibit "A", and HDR's scope of work and fee proposal are provided as Exhibit "B". Staff anticipates that the Condition Assessment project for pump stations and tanks will be completed in January 2023.

#### FISCAL IMPACTS:

The CIP Asset Management Condition Assessment, Projects 12252 and 12254, will be funded through replacement funds and are included in the FY 2022-23 Capital Budget. The existing budgets are sufficient to fund this phase of the project.

#### 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.

#### COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on June 21, 2022.

#### RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH HDR ENGINEERING, INC. IN THE AMOUNT OF \$367,800 FOR THE CONDITION ASSESSMENT FOR PUMP STATIONS AND TANKS, PROJECTS 12252 AND 12254.

#### LIST OF EXHIBITS:

Exhibit "A" – Consultant Evaluation Matrix

Exhibit "B" – HDR Scope of Services and Cost Estimate

# EXHIBIT "A"

## CONSULTANT EVALUATION MATRIX

### Condition Assessment for Pump Stations and Tanks Mechanical, Electrical, I&C Focus

Item	Description	Weights	Jacobs	HDR	Stantec	Hazen and Sawyer	West Yost
A	<b>TECHNICAL APPROACH</b>						
1	Project Understanding	30%	4	1	5	3	2
2	Project Approach	40%	4	1	4	4	2
3	Project Team	30%	4	1	4	3	2
	<u>Weighted Score</u>	<u>100%</u>	<u>4.0</u>	<u>1.0</u>	<u>4.3</u>	<u>3.4</u>	<u>2.0</u>
B	<b>SCOPE OF WORK</b>						
TASK		Task Hours	FEE	Task Hours	FEE	Task Hours	FEE
1	TASK 1 - Project Management	85	\$18,223	148	\$41,100	214	\$54,680
2	TASK 2 - Condition Assessment	368	\$75,606	700	\$184,700	1,234	\$296,426
3	TASK 3 - Capital Project Packagin and Prioritization	155	\$30,489	316	\$80,700	624	\$142,078
4	TASK 4 - Pump Stations and Tanks Capital Planning Report	21	\$4,053	274	\$61,300	906	\$205,538
	SUB-TOTAL ENGINEERING SERVICES, FEE	<b>629</b>	<b>\$128,371</b>	<b>1,438</b>	<b>\$367,800</b>	<b>2,978</b>	<b>\$698,722</b>
9.1	Optional Tasks					74	\$45,970
	TOTAL ENGINEERING SERVICES, FEE	<b>629</b>	<b>\$128,371</b>	<b>1,438</b>	<b>\$367,800</b>	<b>2,978</b>	<b>\$698,722</b>
	Avg \$/hr		\$204		\$256		\$235
D	<b>OTHER</b>						
	<b>Miscellaneous Items</b>						
	Multiplier		-		-		-
	Conflict of Interest		No		No		No
	Joint Venture		No		No		No
	Addendum Acknowledgement		N/A		N/A		N/A
	Scope of Work Exclusions		No		No		No
	Exceptions taken to IRWD Std. Contract		No		No		No
	Insurance (Professional & General Liability)		Yes, Certs Provided		Yes, Certs Provided		Yes, Certs Provided
	<b>Ranking of Consultants</b>		<b>4</b>		<b>1</b>		<b>5</b>
							<b>3</b>
							<b>2</b>

The "1" ranking is the staff recommended consulting team

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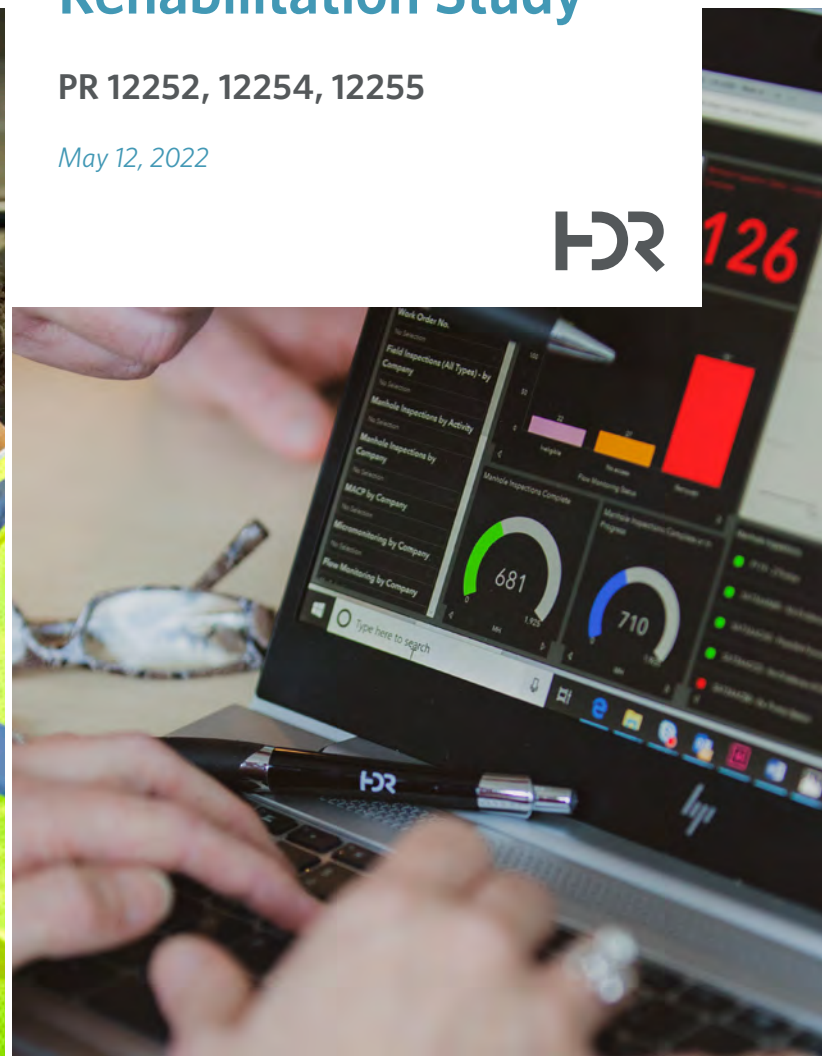
Irvine Ranch  
WATER DISTRICT

PROPOSAL

# Pump Stations and Tanks Condition Assessment Replacement and Rehabilitation Study

PR 12252, 12254, 12255

May 12, 2022





May 12, 2022

Irvine Ranch Water District  
**Mitch Robinson, Project Manager**  
15600 Sand Canyon Avenue  
Irvine, CA, 92618

**RE: Proposal – Pump Stations and Tanks Condition Assessment Replacement and Rehabilitation Study; PR 12252, 12254, 12255**

Dear Mr. Robinson and Members of the Selection Committee,

Thank you for inviting HDR Engineering, Inc. (HDR) to propose on your Pump Stations and Tanks Condition Assessment Replacement and Rehabilitation Study Project. We are excited about this opportunity and have met with your staff over the course of the last year to fully understand your goals for this project. This project is important because it represents a new way for Engineering Planning to support facility asset investment planning through systematic data collection, condition assessment, asset evaluation and project packaging, as well as through increased coordination between operations, maintenance and planning business units. We have been providing these services in Southern California for over 60 years and bring extensive knowledge in condition assessment with standard methodologies and processes for collecting different levels of assessment data to develop capital plans and scopes. Our team includes asset management practitioners that are highly effective in asset management program implementation, and they will work with you in collecting and managing data, performing asset investment planning, and making optimal decisions. These processes can be scaled for future asset investment planning delivery using internal or external resources. We recently performed condition assessment of San Diego's Point Loma Wastewater Treatment deploying multiple inspection teams and standardized data collection and assessment to develop capital plans for the entire plant. Our approach will benefit this project and IRWD in the following ways:

**Proven Leadership in Asset Management and Commitment to IRWD's Success.**

**Michael Flores, IAM** leads HDR's Asset Management Practice Group and brings a deep understanding of condition assessment, asset management, and asset investment planning. He is certified in asset management by the Institute of Asset Management and understands how the outputs of this project fit into the larger picture of IRWD's asset management program development. He will manage HDR's project delivery team to stay on schedule and budget, streamline data collection to make the best use of the time spent by our respective teams, and he will guide our team to design smart project packages in alignment with IRWD's project delivery strategy and priorities.

**Expertise in Data Collection at the Right Level of Detail to Make Optimal Decisions.**

The up-front preparation for condition assessment field visits is critical to defining the right level of detail for data collection. We utilize a multi-level approach to data collection designed to collect the data necessary for decision-making. This reduces the burden for on-going condition monitoring data collection and reduces the "data noise" that can reduce asset evaluation efficiency. **Mandira Sudame, PE** and **Badri Badriyha, PhD, PE** utilized this approach for the Point Loma Wastewater Treatment Plant Condition Assessment, one of the largest treatment facilities in the nation. Using this approach, capital assets and select maintenance asset types will receive more detailed condition assessment with condition assessment criteria linked to primary failure modes enabling our evaluators to better estimate remaining useful life leading to improved decision-making and investment timing.

[hdrinc.com](http://hdrinc.com)

3230 El Camino Real, Suite 200, Irvine, CA 92602-1377  
T 714.730.2300 F 714.730.2301

### Efficient Work Execution.


Our team will be utilizing state-of-the-art data collection tools configured to collect code-based condition, reliability and performance data and organizing this data and photos according to the specific assets provided from IRWD's Maximo asset registry. **Tom McCormack** has managed multiple implementations of Survey123 for our condition assessment projects. Assessment data is transmitted to a cloud database in real-time, enabling both real-time progress tracking and asset evaluation and investment planning to occur in parallel with condition assessment data collection.

### Smart Project Packaging Aligned with IRWD's Project Delivery Strategy.


HDR utilizes an asset evaluation process that uses business intelligence to enable efficient asset level decision-making and project packaging. **Shannon Wall, PE** will lead asset investment planning and project packaging. She joined HDR from Tacoma Water, where she was responsible for implementing asset management and asset investment planning. Shannon will collaborate closely with IRWD staff to design project packages in alignment with your project delivery strategies and constraints. She will be supported by **Eric Packer, EIT**, the lead developer of HDR's asset management business intelligence tools.

Thank you for inviting us to propose on this project. HDR has been partnering with IRWD for many years bringing knowledge of your system and successful project delivery and we are excited for the opportunity to collaborate and partner with you. Michael and his team have the full support of HDR and my personal commitment that we will deliver a successful project that will deliver smart investment plan for your pump stations and tank as well as advance your evolution to a new way of delivering asset investment planning in an efficient, effective, and collaborative manner. Please contact Michael Flores at **714.730.2385** or **Michael.Flores@hdrinc.com** if you have any questions regarding our proposal.

Sincerely,  
**HDR Engineering, Inc.**



Anna Lantin, PE  
Vice President



Mike Flores, IAM  
Project Manager



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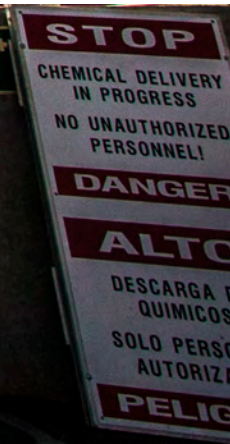
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# A

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## SCOPE

## A. SCOPE

### PROJECT UNDERSTANDING

This project is more than just delivering a Condition Assessment Report; it is about understanding the importance and timing of repair and rehabilitation investments need at the District's higher risk pump stations and tanks to provide reliable service well into the future. HDR employs data-driven processes and tools to conduct objective, multi-faceted condition assessment and asset evaluation to prioritize future capital improvement investments so that your water facilities

remain reliable, efficient, and able to serve your customers. We accomplish this by employing a high level of communication and collaboration throughout the project.

*To visualize the process, we developed the Project Workflow diagram on the following page. The sections below describe each Task.*



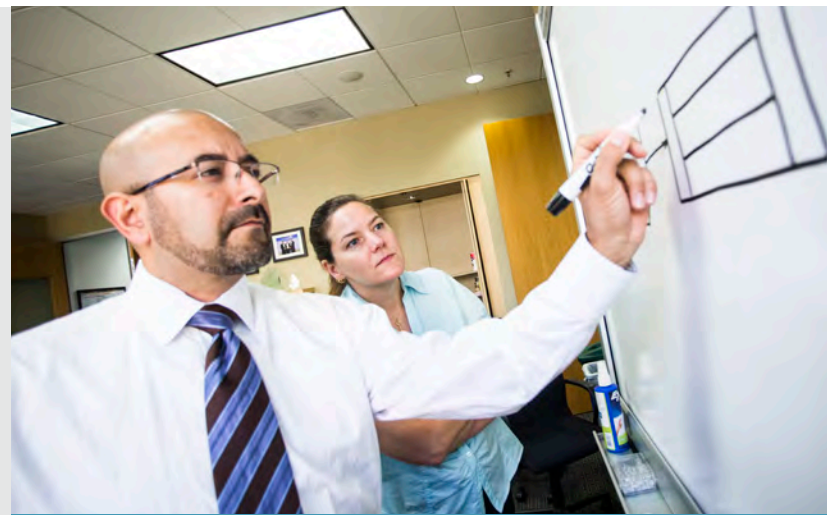
### TASK 1: PROJECT MANAGEMENT

#### TASK OBJECTIVE

IRWD deserves a well-managed Project that includes frequent communication between District staff and the HDR team, which meets the schedule and stays within the approved budget. The following outlines our approach to managing your project to a successful conclusion.

#### TASK DELIVERABLES

Kickoff Meeting Agenda and Minutes; Project Management Plan; Project Action Item Tracking Log; Project Decision Tracking Log; Workshop Agendas and Minutes.



*Every project requires oversight and management to stay on task and schedule.*

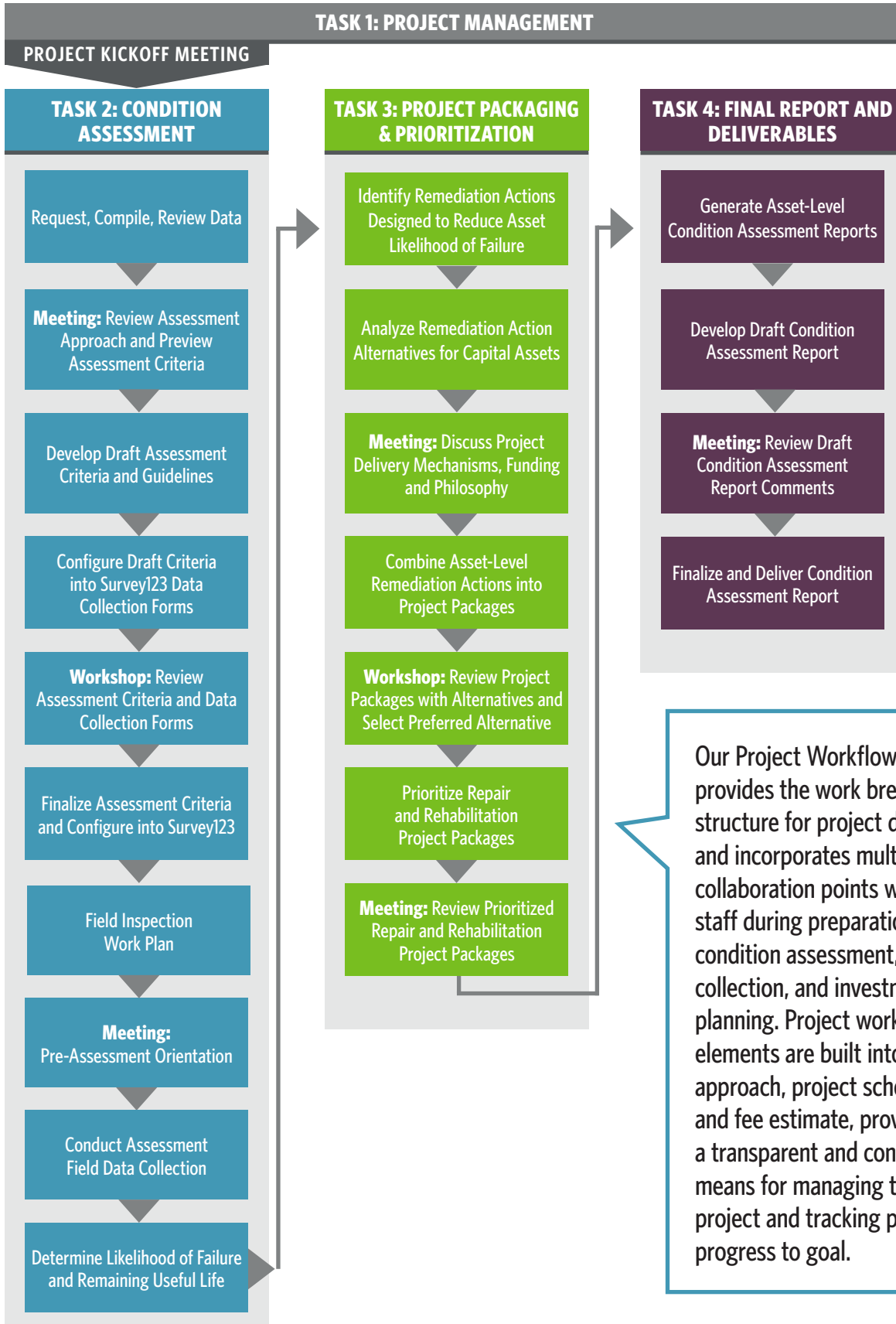
### JOB SET-UP & PROJECT MANAGEMENT PLAN

HDR's internal job set-up will be completed upon receipt of the District's NTP. As part of initial job set-up and in accordance with HDR standards, we will prepare a Project Management Plan (PMP). The PMP guides the project throughout its life to provide effective management of work and delivery.

**COMMUNICATION** will be largely driven by Michael Flores to and from the District. We will define more detailed communication delegation and other protocols at the project kickoff meeting. We will rely heavily on email for informal communications, but we will contact you by phone or meet in person, as more efficient discussions are required.

**REGULAR MEETINGS** with the District will be the cornerstone of formal project interaction, which falls in line with our proposed progress informal meetings. Michael Flores would like to schedule bi-weekly meetings with Mitch Robinson, the District's Project Manager, to keep information flowing and to monitor our project risk register that we will include as part of our project management approach. It is anticipated these meetings will last no longer than 30-minutes, but will allow a free flow discussion on key items needing attention. HDR will also lead workshops at each major milestone, as requested in your RFP. This will not only inform the District of project progress but help expedite IRWD's review of submittals.

## PROJECT WORKFLOW





**SAFETY** is an embedded part of our culture and a consistent emphasis on every project. We problem solve and attack safety concerns head-on through pro-active training and site solutions that focus on improving project safety. We will implement a safety plan to address the safety, health, protection, and security for our personnel. Similar to any other hazard, COVID-19 also presents hazards and challenges. We will utilize a COVID-19 Checklist, follow Exposure Notification and Isolation Protocols, and communicate COVID-19 Health & Safety Measures to team members.

**COST CONTROL** is critical to delivering the scope of work for the approved budget. Project costs are monitored using business intelligence tools to provide a vivid picture of accomplishments, work in progress, milestones and future activities. Weekly project cost reports are generated internally from our Electronic Business System accounting based on actual timesheet charges by project staff. They will also be reviewed by Michael to assess current budget status. Our invoicing will include a project progress report outlining percent complete by task.

**SCHEDULE CONTROL** is critical to delivering the scope of work to meet the set project deadline. Project progression is monitored over multiple time frames to track percent complete along with remaining budget. The schedule for this project is 7 months and will require us to focus on not only delivering quality but meeting the schedule.

We've provided a custom schedule in Section D that identifies key deliverable dates along with key workshops and meetings with the District that is further outlined in our schedule approach.

**QUALITY** begins with a mindset shared by all members of our team. It starts by clearly understanding your expectations and making a commitment to meeting them every time. At the start of the project, HDR will prepare a four-part Quality Management Plan to provide

seamless coordination, communication, and project execution. This document becomes a valuable reference guide for the entire team, including you, whether you want to contact someone on the team, identify milestones or review the budget, this document keeps the team focused on the project and meeting the expectations of District staff.

HDR performs **INDEPENDENT PEER REVIEWS** Before final production and delivery of submittals, all materials will be independently reviewed by knowledgeable staff who have not been involved in the development of the deliverables. These peer reviews will provide a fresh set of eyes on the deliverables to point out inconsistencies, remove redundancies and search for ways to benefit each deliverable without sacrificing quality.

**INTERNAL MANAGEMENT REVIEWS** at project inception and at intervals throughout the project confirm that scope, budget, and schedule are on track. Additional quality control is provided by technical leaders who perform technical reviews of deliverables during project execution. All of these activities and their outcomes are tracked in HDR's project management system to document that quality and risk management processes are followed and monitored.

At our **KICKOFF MEETING** we will introduce the team, review project goals and strategies, discuss the work plan and schedule, and identify next steps. Prior to the Kickoff meeting, we will complete our review of the information requested in Task 2 so that we can take the opportunity after the Kickoff meeting to discuss the information reviewed, verify our understanding, and identify additional actions to take during our initial analysis.

Throughout the project we will have workshops to present and discuss key milestones, obtain stakeholder input, and set the path forward for the remainder of the work.

*We understand the importance of meeting project schedules. We can complete this project in **7 months** to provide you a solid database of your assets and a clear understanding of the repair and rehabilitation investments needed for the next 10 years.*





## TASK 2: CONDITION ASSESSMENT

### TASK OBJECTIVE

Understanding the condition of each asset helps to determine the likelihood of failure and remaining useful life. We will collect physical information on the condition of your facilities to enable identification of safety, maintenance, repair and rehabilitation actions to reduce risk.

### TASK DELIVERABLES

Inspection logs and summarized condition, performance and reliability data; remaining useful life estimate; asset-level likelihood of failure framework and scores; workshop agenda and minutes.



*HDR used Survey123 to perform objective and consistent condition assessments of more than 2,400 assets for the City of San Diego’s Point Loma Wastewater Treatment Plant. We propose using Survey123 for this project to eliminate errors in data transfers and makes the field information instantly available to import into the risk model.*

Our first effort, before the kickoff meeting, will be to prepare a data report so that we can review it and get a head start in understanding the assets being assessed. HDR will then compile asset data and perform a desktop assessment of assets using the asset age, materials, operating environment, available performance data and IRWD staff input. The goal is to sort the assets and identify the level of physical condition assessment required to appropriately decide on repair and rehabilitation actions. **This inexpensive desktop risk assessment is used to optimize the labor-intensive physical assessments.** This process will help reduce staff time when accompanying the inspection team. We will hold a workshop to review the desktop assessment and to confirm the assessment approach, including the level of visual, performance and reliability assessment for each type of asset.

HDR uses ArcGIS Survey123 to collect field data. Survey123 captures data, photos, videos, and notes that will be uploaded to cloud storage or stored on the mobile device for later upload via WIFI. Survey123 can generate high quality printable documents from data and photos captured with this platform. We have developed standard questions for each type of asset and will review these questions with you during our workshop and adjust the questions as mutually agreed. We will use these questions to methodically assess the physical condition of each asset based on visual observations, performance data and data collected using predictive maintenance tools.

As outlined in Task 2B of the RFP, the baseline approach is to conduct the condition assessment at the asset level. While asset level approach will unquestionably provide a comprehensive evaluation, **HDR has identified opportunities to streamline the analysis, reduce the condition assessment level of effort, and maintain high level condition assessment information to support decision-making.** A failure analysis approach would look critically at facilities and evaluate how failures occur and focus the in-depth condition assessment on those elements most likely to contribute to failures. Other items that fail without significant system impact or that have well-defined failure responses would receive a more limited condition assessment. IRWD has, in fact, already initiated this approach by designating assets as capital or maintenance and thereby identifying the typical response to failures. The failure analysis approach would be conducted during the workshop to Review Assessment Approach and Preview Assessment Criteria to identify the key failure modes and asset classes targeted for more detailed evaluation. One reason that this approach is feasible for this project is due to the project’s focus on pump stations and tanks. There are many similarities across the facility pumping and tank sites and failure analysis results can be applied similarly to many of these site’s facilities and rapidly reduce the number of assets requiring a detailed analysis. In the end, this approach will result in collection of high value data from the condition assessment effort and will limit the amount of data collection on assets not requiring action and in those areas that do not significantly impact the project objectives.



KEY ISSUE	OUR PROPOSED SOLUTION	BENEFIT TO IRWD	WHERE WE'VE DONE THIS BEFORE
<p><b>Assessment Detail and Level of Effort.</b> Condition assessment data can be expensive to collect. In some cases, a simple 1 to 5 condition assessment score is sufficient to support decision-making, yet for more complex and higher value assets, a simple 1 to 5 condition assessment score is not sufficient to support optimal decision-making. In addition, although IRWD has consequence of failure at the facility level, it is not clear whether this includes assessment of consequence of failure at the asset level. Depending on the purpose and configuration of specific assets in these pump station and tank systems and sub-systems, the failure of specific assets will have varying impact on the facility's ability to function and deliver service to customers.</p>	<p><b>Asset Class Condition Assessment Criteria and Asset-Level Consequence.</b> HDR utilizes a standardized 1 to 5 condition assessment scoring for rapid condition assessment of assets for master planning-level condition assessment. In general, HDR will collect a 1 to 5 condition assessment score at the asset level for all assets. We will work closely with IRWD operations, maintenance and technical engineering staff to isolate and remove high-performing asset in good condition from further assessment, enabling our respective teams to focus more attention on assets requiring action. HDR maintains a comprehensive library of supplementary condition assessment criteria for various water facility asset classes to enable our condition assessment teams to document specific visual, performance, and measured data points using pulldown fields and code-based data collection. This enables our asset evaluation team the ability to easily drill down into specific field observations and quickly identify the set of safety, maintenance, repair and rehabilitation actions needed to reduce likelihood failure and extend asset life. HDR proposes to collect this more detailed condition assessment data for capital assets and select maintenance asset classes based on key failure modes discussion during review of preliminary assessment criteria.</p>	<p><b>Data Collected at Right Level of Detail Needed to Make Optimal Decisions.</b> Collecting data at the right level of detail provides the asset evaluation team and IRWD with the information needed to efficiently make optimal decisions on actions IRWD can take to reduce facility failure risk, while at the same time minimizing the data "noise" created by collecting too much data, especially extraneous data not resulting in any form of action. This makes the best use of HDR staff time and both IRWD staff time and IRWD's capital investments.</p>	<p><b>Contra Costa Water District.</b> HDR worked with Contra Costa Water District to assess asset condition using a 1 to 5 scale as well as through use of multiple drilldown inspection criteria.</p>



## PHYSICAL ASSESSMENTS PROVIDES THE BASIS FOR ANALYZING RISK

Visual assessment goes beyond what the eye can see. The following sections highlight the areas where we will focus our physical assessments and how we will collect certain data.

### STRUCTURAL ELEMENTS

- All metal surfaces including but not limited to access hatches, stairs, handrails, platforms, pipe supports, beams and columns will be visually assessed for corrosion
- Visual observations of concrete surfaces, including walls, joints and linings will be documented with photographs and videos.
- As-needed in-site soluble salt testing beneath the lining blemishes to evaluate the concentration of aggressive ions (e.g., chloride, sulfate and nitrates) harmful to concrete.

### MECHANICAL ELEMENTS

- All exposed and reasonably accessible mechanical equipment and components, including equipment, pump assemblies, motors, engines, gears, valves, piping and appurtenances will be visually inspected.
- From the manufacturer's name plates and maintenance information, HDR will record the following:
  - Pump head in feet;
  - Capacity in gallons per minute;
  - Impeller diameter in inches for each pump; and
  - Horsepower and RPM for the motors.
- HDR will observe the equipment for vibrations, sounds, temperature, alignment, and odor. Any field observations such as cavitation, vibration or noises will be made by sensory observation without the use of special instruments.
- Mechanical components identified by operators may be tested for thermography, vibration, insulation resistance, performance testing. Vibration will be monitored using a handheld accelerometer.
- The readily available operating logs at each facility will be reviewed.
- To the extent feasible, HDR will conduct performance testing by working with IRWD staff to operate the equipment within the typical operating ranges to simulate normal operating conditions.

### ELECTRICAL ELEMENTS

- HDR will assess electrical components including the distributive Control Systems, power centers and Motor Control Centers.
- HDR will observe SCADA operations of specific assets.

- HDR will perform a visual assessment of the electrical gear to document MCC, switch gear, power supply systems and backup power generation. Visual assessment will include instrumentation such as pressure gauges, pressure switch, temperature switch, seal water, actuators, solenoid valves, pneumatic valves and flow meters.

### SITE & SAFETY ELEMENTS

- Each building and structure will be assessed for condition and functionality of the space.
- Drainage and erosion around each structure and within the overall site will be documented.
- Visual inspections accompanied with photographic documentation will be provided.

It is expected that some assets will be difficult to assess and evaluate and HDR has identified approaches for this situation. The difficulty may arise for a variety of reasons, ranging from proprietary data limitations to physical access challenges, such as hazardous

**We wrote the book! HDR is an industry leader in infrastructure condition assessment and has developed standard methodologies and guidelines for collecting different levels of condition assessment data (e.g. visual, non-destructive, destructive) for use at various phases of capital planning and project scoping. We re-publish our Condition Assessment and Rehabilitation Guide annually to provide our clients and industry with readily available information.**



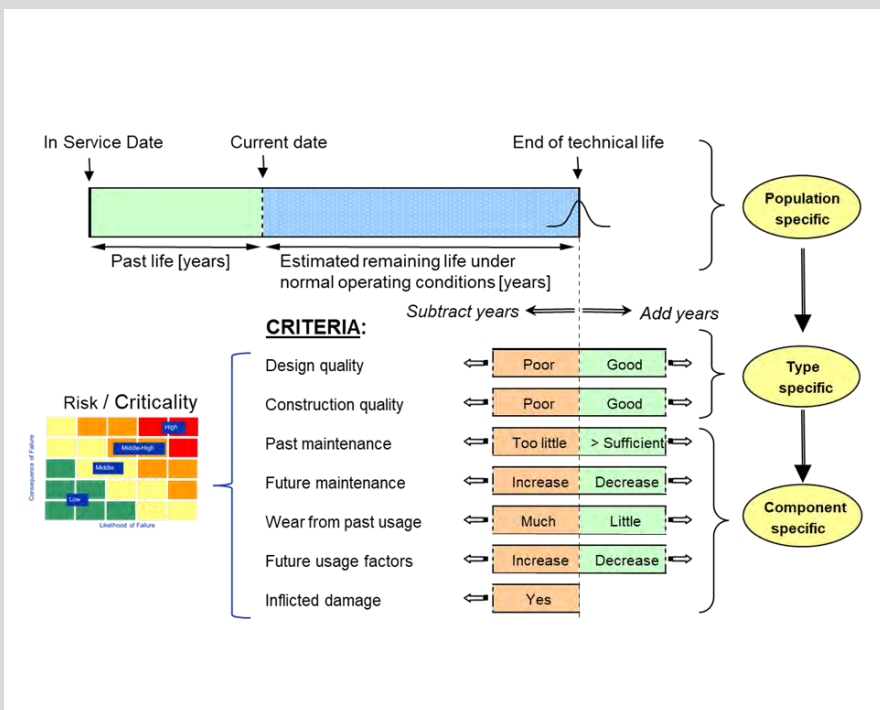
atmospheres. In these cases, HDR typically uses an approach that includes:

- Establish guidelines with the District during planning that identifies potential difficulties that may be encountered.
- Look to age-based analysis when condition-based analysis is challenging. While not as informative as condition-based, it does provide a baseline assessment of remaining useful life that can be included with other assets in the hierarchy to establish a provisional replacement priority.
- Consider a cursory failure analysis to supplement the age-based analysis. If the failure analysis or asset type indicates a low risk, the age rating will generally be appropriate.

- If the failure analysis shows a higher level of concern, we will recommend a higher level of inspection effort be undertaken, such as excavation or specialized testing. If the inspection costs, level of effort, or risk are prohibitive, the asset will be identified for early replacement due to the risk and information uncertainty. The approach provides a reasonable level of due diligence to justify the replacement action.
- Identify redesign elements to avoid the uninspectable situation in the future.

**HDR has used this approach for projects including JCW and Springfield and it provides a positive way forward when these difficulties are encountered.**

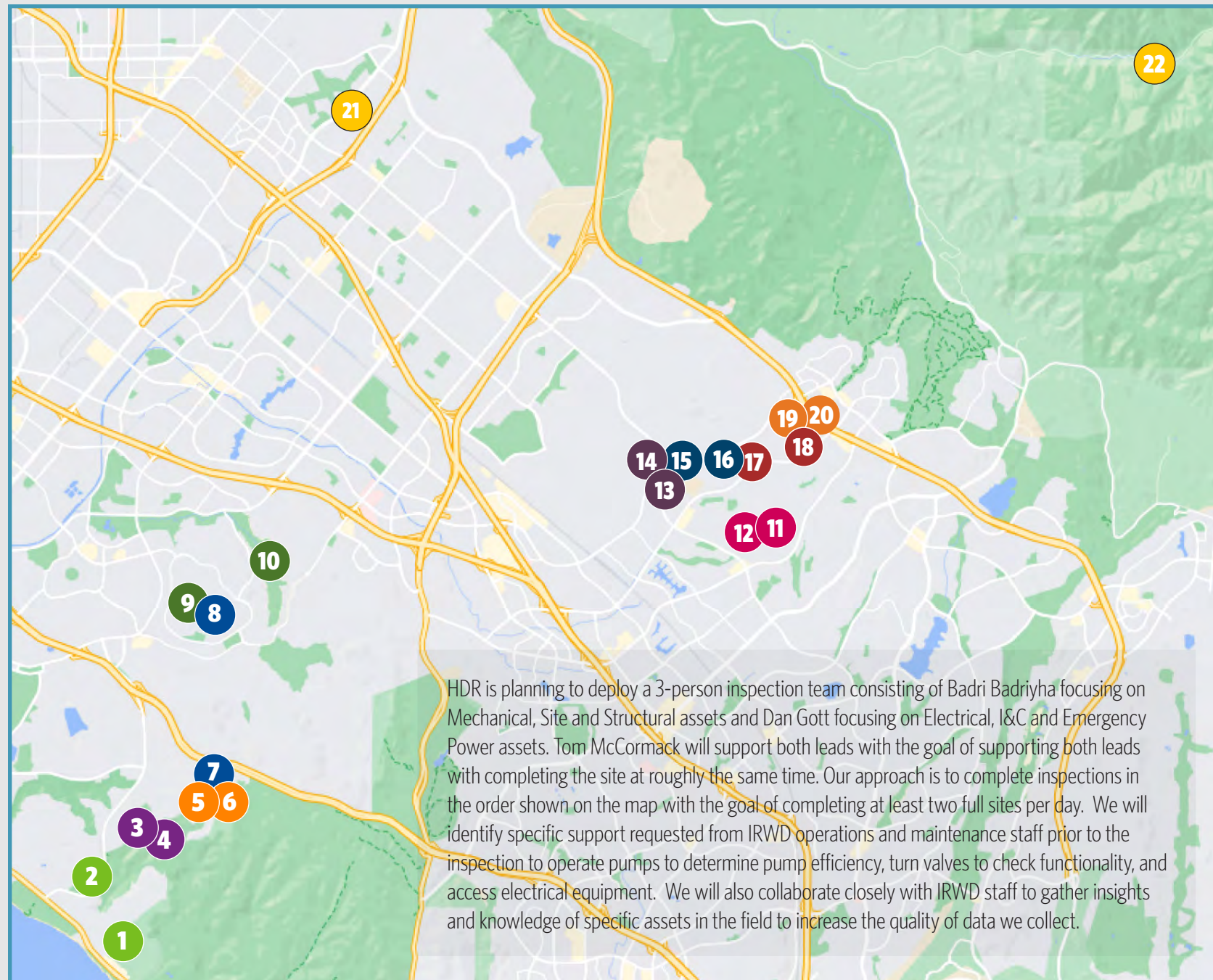
KEY ISSUE	OUR PROPOSED SOLUTION	BENEFIT TO IRWD	WHERE WE'VE DONE THIS BEFORE
<p><b>Estimating Remaining Useful Life Based on Nominal Life and Age is Inaccurate at Asset Level.</b></p> <p>A typical method for estimating remaining useful life is to use asset age and nominal life. This method is inaccurate at the asset-level since actual asset life will depend on many factors including whether the asset was install correctly, how well the asset is maintained, the operating environment, etc.</p>	<p><b>Use Available Knowledge of Operating Conditions, Maintenance Context, Visual Observations and Predictive Data to Evaluate Remaining Useful Life.</b> HDR will use available data and knowledge of assets to estimate remaining useful life at the asset level. For maintenance assets, HDR will utilize the 1 to 5 condition scoring collected at the asset level to estimate the percentage of nominal life remaining. For capital assets, HDR will incorporate additional criteria to further refine this evaluated remaining useful life.</p>	<p><b>Improved Decision-Making and Investment Timing.</b> Having a more accurate estimate of remaining useful life will enable IRWD.</p>	<p><b>Johnson County Wastewater Facility Asset Management Program</b></p>



HDR used condition assessment data to evaluate the remaining useful life of assets. Original remaining useful life estimates using age and nominal life resulted in many asset with negative remaining useful life indicating these assets were beyond useful life. Evaluation of the remaining useful life based on analysis of condition assessment and maintenance data resulted in remaining useful life estimate more aligned with staff intuition.



## CONDITION ASSESSMENT FIELD INSPECTION PLAN



GROUP	ID	FACILITY NAME	NUMBER OF ASSETS		
			Electrical, I&C and Emergency Power	Mechanical, Site and Structural	Total
1	1	Crystal Cove Zn 2-4 PS	31	43	74
	2	Coastal Zn 2 Tank	7	30	37
2	3	Coastal Zn 4 Tank	11	34	45
	4	Coastal Zn 4-6 PS	51	52	103
3	5	Coastal Zn 6 Tank	21	47	68
	6	Coastal Zn G Tank	4	21	25
4	7	Coastal Zn G-H PS	35	38	73
	8	Turtle Rock Zn 3-4 PS	50	64	114
5	9	Turtle Rock Zn 3 Tank	16	32	48
	10	Turtle Rock Zn A-B PS (TR Irr)	49	52	101
6	11	Lake Forest Zn D West Tank (LAWD ZnB)	3	9	12
	12	Lake Forest Zn 4-5 West PS (LAWD Zn 1-2)	25	30	55
7	13	East Irvine Zn 3-4 PS	38	39	77
	14	East Irvine Zn 3 Tank #1	31	55	86
8	15	East Irvine Zn 3 Tank #2	12	22	34
	16	East Irvine Zn 4 Tank	9	38	47
9	17	Foothill Zn 4-6 PS	67	74	141
	18	Lake Forest Zn D PS (LAWD Zn B)	29	36	65
10	19	Lake Forest Zn 5 (LAWD Zn 2) West Tank	15	46	61
	20	Lake Forest Zn 5-6 West PS (LAWD Zn 2-3)	36	27	63
11	21	Tustin Ranch 1-3 PS	48	53	101
	22	SCWD Chapman Tank	4	14	18
<b>Total Assets</b>			<b>592</b>	<b>856</b>	<b>1448</b>

### FIELD INSPECTION WORK PLAN

A field inspection work plan is a key component before conducting field inspections. The workplan serves as a road map delineating items such as but not limited to accessibility, safety, inspection procedures, data collection, recording protocols, and field forms customized to document observations, inspection efforts, tests, and detailed schedule.

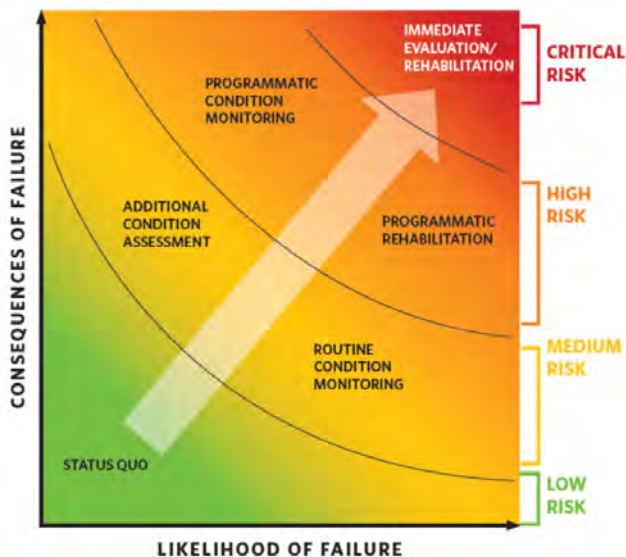
As part of developing the Work Plan, our team will schedule a day of field reconnaissance to visit critical/key pump stations and reservoir/tank sites to better assist in developing the work plan. The field reconnaissance will be schedule about two weeks after the kickoff meeting. A draft work plan will be submitted to IRWD and followed up with a review meeting. Once all review comments are reconciled, the final work plan will be submitted.

*Badri Badriyha and Tom McCormack recently completed condition assessment inspection and capital improvement project development for mechanical, site and structural assets at City of San Diego's Point Loma Wastewater Treatment Plant. Dan Gott recently led the electrical and instrumentation condition assessment inspections for Contra Costa Water District's Treated Water Rehabilitation and Replacement Plan, which included pump stations and tank assessment. Tom McCormack configured the data collection tools and performed data management for both projects. Data is stored in a cloud database and available immediately for progress tracking and review. Together, this team brings to IRWD the experience to efficiently collect high quality data and make the best use of IRWD staff time.*

To develop the initial renewal and improvement options, HDR will focus on the asset-level condition and risk assessment to develop an initial snapshot of asset risks. HDR will develop preliminary assessment factors for Likelihood of Failure (LOF) to combine with the District's Consequence of Failure (COF) for each asset type. The data will be compiled into an Asset Evaluation Database. Risk scores will be calculated for each asset to prioritize maintenance and capital asset needs. An Asset Health Dashboard will provide a visual means to analyze the data to support "drawing the line" on assets requiring near-term investments and those which can benefit from longer planning horizons.

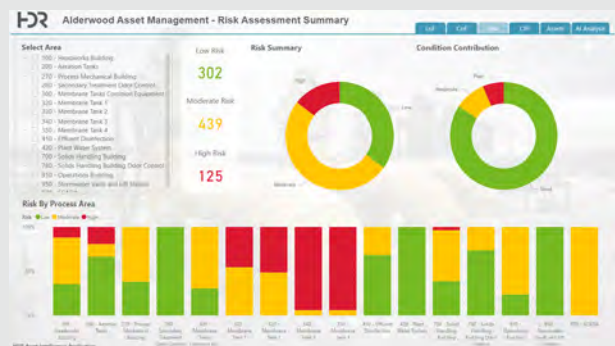
Failure in an asset management framework means not meeting the desired level of service. Level of service is a defined service goal that relates to capacity, availability, structural integrity, reliability, responsiveness, environmental acceptability, and cost. LoF is typically considered as the probability that an event will occur or as the projected frequency of occurrence of an event. Factors to estimate LOF include asset condition, remaining useful life, redundancy and work order history. This LoF score will combine with the District's CoF score for these facilities to determine how each asset compares to each other.

In a workshop we will work with IRWD staff to identify an appropriate mix of LOF factors and then link them to the COF factors to show how the resulting scores relate to achieving service levels. **Working with District staff, we will develop weighting factors so that the most important parameters receive the highest weight. This provides alignment between the risk assessment and what is most important to you and your facilities and optimize their performance. The figure below shows where your assets could fall on the risk spectrum.**



HDR is not including any additional consequence of failure assessment in the proposed scope and fee and will utilize IRWD's facility level consequence to prioritize projects. IRWD may wish to incorporate asset-level consequence into the assessment to enable the ability to refine project packaging decisions if financial constraints require downsizing the scope of packaged projects.

**HDR will then finalize risk scoring that can be presented in the Asset Health Dashboard, similar to the one below that we prepared for the city of Alderwood which shows the risk results for all the assessed assets.**



*HDR developed tools for the City of Alderwood condition assessment project to support asset management decision-making, including a **business intelligence dashboard** shown here. We can configure the decision-support tool to conform to the City's asset management needs. Mobile data collection tools **save data creation time, improves accuracy, and can be used by the City for future assessments.***





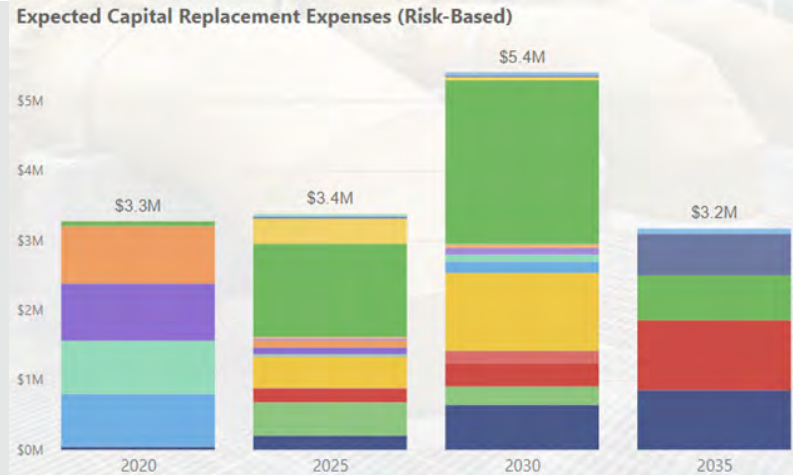
## TASK 3: CAPITAL PROJECT PACKAGING AND PRIORITIZATION

### TASK OBJECTIVE

A well thought-out plan with reliable estimated project costs will help IRWD schedule its repair and rehabilitation efforts over the next decade and beyond to extend asset life and save costs. This task will develop remedial activities, estimate their costs and develop a reasonable schedule for staff to implement.

### TASK DELIVERABLES

Repair and Rehabilitation Recommendations; Estimated Costs for Asset Recommendations; Schedule for Implementation of the Various Recommendations; Workshop Agenda and Minutes.



*Example from the City of Alderwood showing capital replacement risk-based expenses for a 15 year period by facility area.*

By prioritizing your capital and operational needs, you will achieve protection of health and safety, reduce risk, extend asset life, and reduce overall costs of your facilities. **Using defensible decision-making processes and decision support tools we will help you build an infrastructure plan over a 10-year planning horizon** and a longer horizon for more granular efforts when planning long-term renewal efforts. Knowing the deterioration rate of each asset we can estimate how much life remains and what repair or rehabilitation expenditures will be needed to extend the asset life or to replace the asset. This approach will reflect IRWD's utility performance goals, and acknowledge current budgetary and resource constraints and commitments.

In developing costs, HDR will use existing cost data for similar projects to develop planning level (AACE Class 5) costs. These costs will assist in developing project budgets and scheduling.

HDR will facilitate a workshop to confirm key assumptions, data inputs and methodology used to estimate project costs and schedule. We will also review preliminary observations and CIP recommendations to confirm alignment with your overall goals. We will also review maintenance recommendations for assets that need renewal but may have a lower priority. With input from IRWD staff, we will refine the near-term remedial action recommendations.

KEY ISSUE	OUR PROPOSED SOLUTION	BENEFIT TO IRWD	WHERE WE'VE DONE THIS BEFORE
<p><b>Project Packaging Not Aligned with IRWD Project Delivery Strategy.</b> The assessment will generate a wide array of repair and rehabilitation actions, which will need to be packaged into projects that are ideally aligned with IRWD's strategy for project delivery. If these project packages are not aligned with IRWD's project delivery strategy, this will require the projects to be disaggregated causing additional effort.</p>	<p><b>Collaborative Process to Understand IRWD's Project Delivery Strategies and Funding Constraints.</b> HDR will facilitate a meeting with IRWD staff to understand IRWD's project delivery strategy and project packaging preferences. We will create project packages with sub-units that can be easily disaggregated, if needed. Asset level repair and rehabilitation decisions will drive the project scope and cost.</p>	<p><b>Facilitates Constraints Analysis and Optimizing Investment Planning,</b> allowing IRWD to manage rates and cash flow. The remaining useful life of assets included in the project package combined with project prioritization will enable assignment of project timing.</p>	<p><b>Alderwood Wastewater Treatment Plant Capital Investment Planning.</b> HDR assessed and developed prioritized project packages for Alderwood's Wastewater Treatment Plant.</p>



## TASK 4: FINAL REPORT AND DELIVERABLES

### TASK OBJECTIVE

The Condition Assessment Report will be compiled such that it stands the test of time. We pride ourselves on well written, concise reports with appropriate figures and graphics that convey critical information efficiently and effectively.

### TASK DELIVERABLES

Draft Condition Assessment Report; Comment Response Log; Final Condition Assessment Report.



*All deliverables will document the decisions made and data generated so you can make informed decisions will into the future.*

Clear and concise documentation of the work efforts is a key element for a comprehensive assessment document like your Condition Assessment Report and gathering the information developed in Tasks 2 and 3 requires diligent planning and data management. The Condition Assessment Report will summarize and document the work developed during the assessment and asset investment planning effort, incorporate and integrate evaluations from each task, and provide a comprehensive set of project recommendations for your pump stations and tanks. Our Project Manager, Mike Flores, will lead the Report preparation, keeping your end goals in mind from the start of the project to promote understanding and acceptance of the key findings and recommendations.

Our approach begins with developing a report outline at the start of the project, identifying key elements, and preparing each deliverable

in the prior tasks with the foresight that each will be integrated into the Condition Assessment Report. Upon completion of the analyses and assessments, the recommendations will then be discussed with IRWD staff in a workshop setting. This collaborative process allows for discussion of strategic and creative ideas, tempered with the realities of project execution constraints and affordability. Following this workshop, we will compile a clear and well documented draft Condition Assessment Report for your review and comment.

After IRWD provides comments, HDR will review and respond to those comments, followed by discussion with IRWD staff to address and resolve comments prior to incorporation into the final Condition Assessment Report. The report will be organized in a manner that you can utilize specific sections for presentations to various audiences, whether to your Board, staff, or the public.

KEY ISSUE	OUR PROPOSED SOLUTION	BENEFIT TO IRWD	WHERE WE'VE DONE THIS BEFORE
<b>Data is Voluminous and Difficult to Understand.</b> Wading through thousands of data points can be overwhelming. Many professionals are challenged with accessing, handling, and analyzing large volumes of data. Different stakeholders will find value in the data and analysis outcomes at different levels and for different purposes.	<b>Leverage Business Intelligent (BI) Dashboards to Easily Access and Display Data.</b> HDR is proficient in using Microsoft's Power BI to access, query and display data in a simple manner to quickly understand what the data means, key performance indicators, make intelligent decisions and inform stakeholders in a way that builds consensus.	<b>IRWD will have the Tools to Continue BI Access Long After Project is Complete.</b> IRWD is already using Power BI. The HDR Team will be using Power BI for project delivery and will leave these tools and dashboards with IRWD staff so you can continue interfacing with your data and grow with it over the years to come.	<b>City of San Diego, City of Alderwood, and Contra Costa Water District</b> are just a few of the clients that benefitted from the Power BI dashboard.



## INTEGRATED QUALITY MANAGEMENT SYSTEM APPROACH

Project reviews occur throughout project execution to facilitate communication between the project manager and HDR management. Our quality management system utilizes the data, reports, and figures captured through project controls and project management plan. Managing the quality of deliverables is essential to minimizing cost and schedule overruns on projects.

Because quality is a critical element of our program, we use senior level subject matter experts to conduct an independent review of our deliverables before we submit them to you. This independent review provides consistency in all our deliverables, improves your product because of the depth of experience, and enhances the process for future submittals.

HDR will provide a QA/QC program that adheres to IRWD standards, regulations, policies, and procedures for all work performed for the duration of this contract. Our responsibilities for quality include all levels of HDR personnel—from our Chief Executive Officer to senior management to the project team. Responsibilities are documented in our procedures, defining how HDR delivers products and services to you. Our focus on and attention to quality also extends to our subconsultants, and typically includes our subconsultants developing and submitting a QA/QC Plan for review.



### Our goal is to set the industry benchmark for excellence in services.

We accomplish this through work well done, staying true to purpose, and exercising discipline. To achieve quality in our work, we have developed a Quality Management System (QMS). Our QMS provides an important framework to reach the highest levels of quality—both for you and for ourselves.

We focus on continual opportunities for improvement throughout our daily activities to achieve client satisfaction and meet performance expectations. The QMS includes programs, policies, and business processes for:

- **Management Responsibility.** Management actively promotes quality in our business activities and defines responsibilities for maintaining our focus on quality.
- **Resource Management.** Resources are trained, available, and committed to providing quality services.
- **Professional Service Delivery.** Processes and procedures are in place that promote quality in the delivery of our products and services.
- **Measurement, Analysis, and Improvement.** Continual improvement is achieved through performance measurement and identification of areas for improvement.





B



TEAM



## B. TEAM

IRWD requires a highly qualified, capable team of experts that can help perform assessment, needs identification and planning required to deliver the Pump Stations and Tanks Condition Assessment Replacement and Rehabilitation Study. HDR is proposing an experienced team of fully committed staff that will work in partnership with your staff.

**Michael Flores** will serve as HDR's Project Manager and your primary point of contact on this project. Michael is a highly experienced project manager, serves as the chair of HDR's Asset Management Practice Group and leads HDR Facility Asset Management initiative. Michael has led facility condition assessment and asset investment planning for the Johnson County Wastewater Facility Asset Management Program and Point Loma Wastewater Treatment Plant Condition Assessment. Michael is also certified by the Institute of Asset Management as an asset management practitioner and is qualified to assess asset management programs to ISO 55000 series standards.

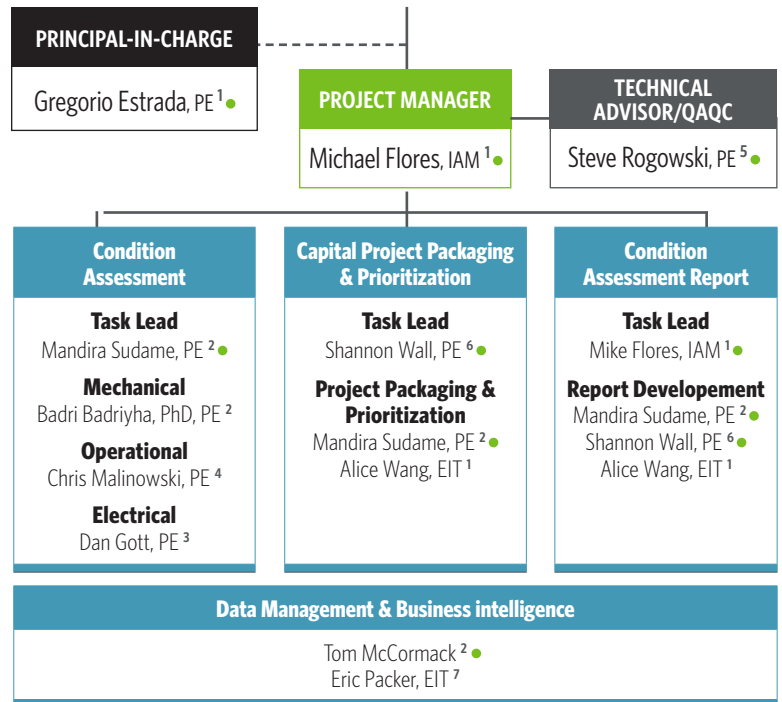
Michael will be supported by technical advisor, **Steve Rogowski**. Steve is a former Operations Manager, Asset Manager and Capital Program Manager for Metro Water Recovery in Denver, Colorado and was responsible for development of capital plans to manage system reliability. His experience working directly with Operations and Engineering staff to assess, identify and plan capital improvements is perfectly aligned with the scope of this project.

Mike is will also be support by task leads, **Mandira Sudame** and **Shannon Wall**. Mandira has more than 20 years of experience and offers our clients a practical design approach as well as easy-to-operate facilities. Mandira recently served as Project Manager for the condition assessment and recommended upgrades for 23 sewer pump stations for the City of San Diego. Shannon Wall has over 31 years of experience and has led asset management program development, capital asset investment portfolio management, and risk-based modeling for decision-making support. Prior to joining HDR, Shannon was the Planning & Engineering Manager at Tacoma Water where she led the development and implementation of the utility's \$50 Million annual water infrastructure capital improvement program.

**Complete resumes for staff listed on our organizational chart are available in the Appendix.**



**Project Manager**  
 Mitch Robinson, PE



● Key staff    <sup>2</sup> San Diego, CA    <sup>4</sup> Houston, TX    <sup>6</sup> Gig Harbor, WA  
<sup>1</sup> Irvine, CA    <sup>3</sup> Folsom, CA    <sup>5</sup> Fort Collins, CO    <sup>7</sup> Anchorage, AK

### SCHEDULE OF TIME CONTRIBUTED

AVERAGE PERCENTAGE OVER LIFE OF PROJECT (%)

TEAM MEMBER   CLASSIFICATION	5	10	15	20
Michael Flores   Project Manager	█	█		
Steve Rogowski   Technical Advisor/QC	█			
Gregorio Estrada   Principal	█			
Mandira Sudame   Sr. Technical Expert	█	█		
Shannon Wall   Sr. Technical Expert	█	█		
Chris Malinowski   Sr. Technical Expert	█			
Badri Badriyha   Sr. Engineer	█	█		
Dan Gott   Sr. Electrical Engineer	█	█		
Tom McCormack   Utility Mgmt Consultant	█	█	█	
Alice Wang   EIT	█	█	█	
Eric Packer   EIT	█			



## MEET THE TEAM

The key to efficient project delivery is assigning qualified profession staff who can deliver results. We have established working relationships with many municipalities and water districts and will bring those resources to support this project.



**MICHAEL FLORES** PROJECT MANAGER /  
 CONDITION ASSESSMENT REPORT LEAD

Michael (Mike) has more than 28 years of experience in the water and wastewater field with a primary focus on infrastructure management, operations, maintenance, and capital program planning. He has managed or served as a senior technical resource on several large and complex projects, focused on planning and implementing business process changes and information management solutions for wastewater collection system operations, maintenance, and capital planning programs. **Most recently, Michael was the Project Manager for the Orange County Sanitation District's Asset Management Plan Update which provided a roadmap for prioritizing the collection of condition assessment data, analyzing the likelihood and consequences of failure, and documenting the process to developing and updating the District's ongoing capital improvements.**



### RELEVANT EXPERIENCE

- ✓ Orange County Sanitation District, Asset Management Plan
- ✓ Johnson County Wastewater, Facility Asset Management Plan
- ✓ City of San Diego, Point Loma Wastewater Treatment Plant Facilities Condition Assessment and CIP
- ✓ City of Carlsbad, Water, Wastewater and Recycled Water Master Plan
- ✓ City of Los Angeles, Sewer Rehabilitation and Replacement Program Plan and Implementation
- ✓ Clark County Water Reclamation District, Facility Asset Management Implementation Roadmap



**STEVE ROGOWSKI, PE** TECHNICAL ADVISOR

Steve has led asset management program development including facility condition assessment and rehabilitation, maintenance program development and computerized maintenance management system support of reliability initiatives, and facility rehabilitation programs. **He provided leadership across multiple assignments including strategic planning, comprehensive facility planning, and capital program management in excess of \$100M/year.** He brings exceptional industry and practical utility experience with maintenance best practices, utility operations, and asset management program element implementation, paired with strong collaboration skills to develop cross-functional programs to achieve utility objectives.



### RELEVANT EXPERIENCE

- ✓ Dallas Water Utilities, Water Production Facilities Master Plan
- ✓ IRWD, Placement Planning Model Cost Update
- ✓ Metro Wastewater Reclamation District, 2018 Facility Plan
- ✓ Johnson County Wastewater, Facility Asset Mgmt. Plan, Ph. 3
- ✓ City of Springfield, Southwest Wastewater Treatment Plant Master Plan
- ✓ Clarifier Maintenance Program, City of St Petersburg, Florida



**GREGORIO ESTRADA, PE** PRINCIPAL IN CHARGE

As the Principal-in-Charge, Gregorio has been working with IRWD for more than 13 years on critical projects ranging from planning, design, and construction. He has successfully delivered large-scale projects in advanced treatment such as IRWD's \$167M Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities as well as IRWD's \$87.5M Michelson Water Recycling Plant's MBR Facility. He is also highly-skilled in building group-consensus amongst key stakeholders with differing agendas, performing economic evaluations and risk assessments, and assisting in negotiations with regulatory agencies. **His history and relationships with IRWD staff brings a solid understanding of all of IRWD's facilities, design standards, company culture, and staff preferences that will increase our team's efficiency and understanding for this project.**



### RELEVANT EXPERIENCE

- ✓ Irvine Ranch Water District, Michelson Water Reclamation Plant Expansion
- ✓ Irvine Ranch Water District, Water Quality Evaluation for Michelson Water Recycling Plant proposed Diversions to San Diego Creek and Newport Bay
- ✓ Irvine Ranch Water District, Biosolids/Energy, Management Plan
- ✓ City of San Mateo, Nutrient Removal and Wet Weather Flow Management Upgrade and Expansion



**MANDIRA SUDAME, PE** **CONDITION ASSESSMENT LEAD**

Mandira has more than 20 years of experience in planning, designing, and constructing wastewater treatment facilities projects throughout Southern California. With her experience, creativity, and strong technical background, Mandira offers our client a practical design approach as well as easy-to-operate facilities. Mandira understands how to design wastewater facilities that staff can easily operate and run efficiently. **Recently, Mandira managed the condition assessment and recommended upgrades for 23 sewer pump stations for the City of San Diego. As Project Manager, Mandira effectively led the HDR team to deliver the best possible solutions for thr City of San Diego.**



**RELEVANT EXPERIENCE**

- ✓ *City of San Diego, Point Loma Wastewater Treatment Plant Facilities Condition Assessment and CIP*
- ✓ *Irvine Ranch Water District, Michelson Water Reclamation Plant Expansion*
- ✓ *Irvine Ranch Water District, Michelson Water Recycling Plant Tertiary Filters Improvements*



**BADRI BADRIYHA, PhD, PE** **CONDITION ASSESSMENT (MECHANICAL)**

Dr. Badri Badriyha is a Senior Project Engineer in the water group at our San Diego office. Dr. Badriyha has designed drinking water and wastewater treatment plants, pump stations, water transmission pipelines, and sewer systems. Mr. Badriyha conducted his research on micro- and nano-membrane use for water treatment and reverse osmosis, activated carbon adsorption of synthetic organic compounds, and biodegradation of pesticides in water. **Most recently, Dr. Badriyha completed the condition assessment inspection and capital improvement project development for mechanical, site and structural assets at City of San Diego's Point Loma Wastewater Treatment Plant.**



**RELEVANT EXPERIENCE**

- ✓ *City of San Diego, Point Loma Wastewater Treatment Plant Facilities Condition Assessment and CIP*
- ✓ *West Basin Municipal Water District, Recycled Water Master Plan Update*
- ✓ *Orange County Sanitation District, Asset Management Plan Update*
- ✓ *Poseidon Resources, Poseidon Ultimate New Intake Evaluation*



**CHRIS MALINOWSKI, PE** **CONDITION ASSESSMENT (OPERATIONAL)**

Chris Malinowski's engineering experience stems from his practical and hands-on knowledge of working with and operating pump stations, treatment plants, and water distribution systems. His involvement with start-up of facilities, such as with the City of San Jose, allows him to look for solutions that will optimize the long-term operations of facilities. **Similar to his work for the City of Dallas in assessing and developing a long-range capital improvements plan, Chris will work with the District to evaluate the mechanical, structural and electrical components of the systems to find opportunities for capital and operational improvements.** Chris' uncanny ability to anticipate operator's needs has been developed by working with municipalities and other industrial sites.



**RELEVANT EXPERIENCE**

- ✓ *Irvine Ranch Water District, Replacement Planning Model Cost Assumption Update*
- ✓ *Dallas Water Utilities, Water Production Facilities Strategic Plan*
- ✓ *San Jose Water Company, Montevina Water Treatment Plant Improvements Progressive Design-Build*



**DAN GOTT, PE** **CONDITION ASSESSMENT (ELECTRICAL)**

Dan has more than 29 years of experience administering and directing all aspects of electrical, instrumentation, and control systems for water, wastewater, and industrial facilities and systems. His experience has included planning, design, programming and configuration, construction support, equipment inspection and testing, facility startup, and training in system operations and maintenance (O&M) for water, wastewater treatment plants and pumping stations. **Dan recently led the electrical and instrumentation condition assessment inspections for Contra Costa Water District's Treated Water Rehabilitation and Replacement Plan.**



**RELEVANT EXPERIENCE**

- ✓ *Contra Costa Water District, Treated Water Rehabilitation and Replacement Plan*
- ✓ *Irvine Ranch Water District, Michelson Water Reclamation Plant*
- ✓ *Irvine Ranch Water District, Cienega Selenium Treatment Facility*
- ✓ *Central Coast Water Authority, Asset Management / Capital Improvement Program (CIP) Process Review*



**SHANNON WALL, PE** CAPITAL PROJECT PACKAGING AND PRIORITIZATION LEAD

Shannon Wall is a licensed electrical engineer with over 31 years of experience in engineering, asset management, and utility management. Shannon has experience in leading asset management program development, capital asset investment portfolio management, and risk-based modeling for decision-making support. **In her role as Planning & Engineering Manager at Tacoma Water, Shannon led the development and implementation of the utility's \$50 Million annual water infrastructure capital improvement program.**



**RELEVANT EXPERIENCE**

- ✓ Tacoma Water, Planning & Engineering Manager
- ✓ Tacoma Power, Asset Investment Planning Manager
- ✓ Los Angeles Department of Water and Power, Asset Management Program Implementation
- ✓ Idaho Power, Asset Management Strategic Plan



**ALICE WANG, EIT** PROJECT PACKAGING & PRIORITIZATION / REPORT DEVELOPMENT

Alice has worked on a variety of HDR's water and wastewater treatment projects throughout Texas and California. Responsibilities include analyzing drinking and sewage water quality data, performing condition assessments, providing construction services such as design calculations and submittal reviews, developing design plans and details, and modeling using GIS. Alice delivers enthusiasm, great attention to detail, strong communication, and a positive attitude within a team environment. **Alice has worked on several IRWD projects such as the Sewer Treatment Master Plan and the Salt Model Refresh Update bringing familiarity of your standard and protocols.**



**RELEVANT EXPERIENCE**

- ✓ Irvine Ranch Water District, Sewer Treatment Master Plan
- ✓ Irvine Ranch Water District, Salt Model Update
- ✓ Goleta Water District, Corona Del Mar Water Treatment Plant Asset Inventory
- ✓ Orange County Sanitation District, Asset Management Plan Update
- ✓ Burbank Water and Power, Risk and Resilience Assessment and Emergency Response Plan for Compliance with America's Water Infrastructure Act



**TOM McCORMACK** DATA MANAGEMENT/ BUSINESS INTELLIGENCE

Tom is a utility performance and information technology expert with 7 years of experience. His background includes work in Asset Management/CMMS development and updates to new systems as well as design, development, and implementation of new databases primarily in Microsoft Access. Tom has performed a wide range of work in ESRI ArcGIS using ArcSDE geodatabases and tools to manage geospatial data. **Tom has worked with Michael on the most recent OCSD Asset Management Plan Update where he served as Utilities Lead.**



**RELEVANT EXPERIENCE**

- ✓ Contra Costa Water District, Treated Water Rehabilitation and Replacement Plan
- ✓ City of San Diego, Point Loma Wastewater Treatment Plant Facilities Condition Assessment and CIP
- ✓ City of San Diego, Recycled Water System Condition Assessment and Optimization Plan
- ✓ Orange County Sanitation District, Asset Management Plan Update



**ERIC PACKER, EIT** DATA MANAGEMENT/ BUSINESS INTELLIGENCE

Eric is a business intelligence engineer and deputy-lead of HDR's national Power BI technology group. Eric's education background bridges mechanical engineering and data science, and his professional focus is on applying next-generation technology solutions to support data-driven engineering management decisions. Eric supports utility management projects throughout the country, and has developed custom data analysis solutions for clients in Washington, Idaho, New York, Texas, Tennessee, North Carolina, Nevada, and Alaska in the past year. **Eric developed Asset Management Business Intelligence Tools for Alderwood Wastewater Treatment Plant and will be leading development of business intelligence tools on this project.**



**RELEVANT EXPERIENCE**

- ✓ City of Homer, Asset Management Plan
- ✓ City of Angleton, WWTP and Lift Station Assessment
- ✓ AWWU, ERWWTF Asset Management Plan
- ✓ Johnson County Wastewater, Integrated Plan Delivery
- ✓ Galveston County, WWTP Conditions Assessment





C



EXPERIENCE

## C. EXPERIENCE

Our team has worked on several similar projects to yours. The following projects below represent successful partnerships with our clients - providing cost-saving solutions, reaching performance goals, and creating programs that are right-sized for each client.



### 2021 Treated Water Master Plan

#### CONTRA COSTA WATER DISTRICT

HDR is developing a comprehensive, integrated water master plan that identifies capital improvements needed to meet current demands and expand the distribution system to accommodate future growth. The treated water distribution system consists of approximately 820 miles of pipeline, 40 water storage reservoirs with a total treated water storage capacity of approximately 72 million gallons, 31 pumping stations, and eight pressure zones. HDR updated water demand projects for existing and buildout conditions, updated the hydraulic model, and identified and developed capital improvements needed to address system deficiencies for existing, intermediate, and buildout conditions. The District desired to develop a proactive planning roadmap for its future, building on the diligent planning and sustainable maintenance programs already being implemented to deliver an uninterrupted supply of water to customers in an economically efficient and environmentally responsible manner. The master plan update provided an opportunity to evaluate existing and future conditions and identify potential responses for operational improvement and capital investment, as well as updating District planning tools for both current and ongoing decision making. HDR's team developed an effective Treated Water Master Plan for the District that provided the right balance to consider replacing aging infrastructure, as well as verifying reliability and increasing capacity in order to meet growth and development.

The master plan integrated evaluations and recommendations from the District Treated Water Pipeline Renewal and Replacement Study, which developed a sustainable, data-driven program for pipeline renewal and replacement that could be improved over time as better data are developed and analyses are refined. Guidelines and procedures were developed during this project that were integrated with the District's existing processes to provide a sustainable solution.

HDR developed a sustainable, 10-year pipeline renewal/replacement plan that provided the District with the ability to consistently make key capital-funding decisions for pipeline replacement. The approach developed pipeline risk factors (condition, likelihood of failure, and consequence of failure) to more effectively assess remaining useful life, calculate risk, and prioritize pipeline replacement.

**Control of Costs:** HDR is completing the project within budget. Project costs and metrics were tracked internally and reported monthly in client progress summaries.

**Quality of Work:** HDR has a strong working relationship with Client and continues to provide support services and evaluations on the Client systems. HDR selection for ongoing work is due to the quality of the project team and the work products delivered to the Client.

**Ability to Meet Schedule:** HDR is on target to meet all project deadlines. Schedules and milestones have been reviewed and coordinated with Client throughout the project duration.

#### CLIENT REFERENCE

Jill Mosley, Senior Engineer;  
Contra Costa Water District, Contra Costa, CA  
P: 925.688.8127  
E: jmosley@ccwater.com

#### DATES

2020 - Ongoing

#### CONTRACT VALUE

\$280K

**The Treated Water Master Plan successfully executed a basis of planning approach, using early workshops to identify water supply boundaries, criteria, and level of service goals, which informed the analysis and evaluations of subsequent tasks.**



## Point Loma Wastewater Treatment Plant Facilities Condition Assessment and CIP

CITY OF SAN DIEGO

HDR completed a comprehensive system based, plant wide condition assessment of all liquid and solids process areas at the Point Loma Wastewater Treatment Plant (PLWTP) including the Gas Utilization Facility. PLWTP is the City of San Diego's largest wastewater treatment facility and has been operated since 1963 with several upgrades and modifications over the years. The last major upgrade occurred in the late 1990s under the Clean Water Program. PLWTP has a design capacity of 240 million gallons per day (mgd), a peak wet weather capacity of 432 mgd, and it treats an average flow of about 139 mgd.

The objective of this project included reducing maintenance efforts and running PLWTP more efficiently by:

- Assessing condition of structural, mechanical, and electrical components of assets within each process area
- Making recommendations for repair and rehabilitation
- Identifying upgrades and replacements
- Prioritizing improvements and presenting a preliminary schedule

HDR has conducted visual inspections and non-destructive tests to assess physical condition and functional characteristics of equipment and structures related to each process. HDR developed customized criteria specific assessment forms to inspect each asset within a process area. The assessment forms were developed for structural, mechanical and electrical components of each asset. ArcGIS's cloud-based Survey 123 platform was used to gather the inspection data.

**HDR performed visual assessments of all 80+ asset classes at the Point Loma WTP using objective and consistent criteria; assessed asset risks and remaining useful life; and displayed the results using Power BI business intelligence tools. Our results identified a 10-year capital improvements and operations plan, allowing the City to budget and plan without interruption to service.**



We developed a risk assessment framework to analyze the likelihood of failure and consequence of failure. This led to the development of a risk assessment strategy with a targeted timeframe to address each risk category.

We analyzed data collected during field inspection efforts and developed recommendations on projects for repair, rehabilitation, and replacement. The projects are categorized as activities that can be performed with City crews and as capital projects that require budgeting and scheduling. Costs were developed using a Class 5 cost estimate format. The final condition assessment report summarized the findings and recommendations.

**Control of Costs:** HDR completed the work on budget, including the increases the City added to cover additional scope items requested by the Client.

**Quality of Work:** HDR performed QC on the asset data, reports and cost estimates that allowed the City to clearly present options to stakeholders.

**Ability to Meet Schedule:** All work and deliverables were provided on the mutually adjusted timeline that the parties adapted to perform field assessments during the height of the pandemic.

**CLIENT REFERENCE**  
Yazmin Morlan, Project Manager;  
City of San Diego, CA  
P: 619.432.9785  
E: YMorlan@sandiego.gov

**DATES**  
2019 - 2022

**CONTRACT VALUE**  
\$1.58M

## Facility Asset Management Plan

### JOHNSON COUNTY WASTEWATER (JCW)

HDR is providing implementation support for Johnson County Wastewater's Facility Asset Management Program. This program is focused on the improved usage of data and best practices to drive asset management decisions for pump station and treatment plant assets. This is enabling JCW to improve confidence in planning and delivery of renewal and improvement projects, operation and maintenance programs, and forecasting the corresponding CIP and O&M budgets needed to sustain a high level of service.

This program began with the assessment of JCW's current practices and identification of over 80 opportunities for improvement by the team and JCW. HDR facilitated a series of workshops to refine, prioritize and organize a multi-year implementation plan to improve asset management using a continual improvement approach.

HDR has focused on implementing near-term improvements to provide immediate benefits to JCW. This includes refining JCW's Asset Hierarchy within the Lucity CMMS. Early implementation efforts also focused on developing JCW's condition assessment program. HDR supported JCW with developing asset class inspection and scoring criteria to support consistent data collection. HDR and JCW staff conducted pilot inspections to test the inspection process leading to improvements in inspection criteria selection and increases in data collection efficiency. HDR also supported JCW with implementing risk assessment within wastewater facilities at the facility, process and asset levels. HDR also worked with JCW staff to develop asset onboarding protocol with a web-based portal to coordinate efforts between construction projects and maintenance activities to align asset data management with the program goals. These initial improvements to the condition assessment program, risk assessment and asset hierarchy have served as fundamental building blocks to help JCW achieve their long-term program goals.

**Control of Costs:** HDR has consistently completed project scope and achieved project goals on the Facility Asset Management Program within the authorized project budget. At the same time, HDR has continuously finds cost savings for O&M and capital projects.

**Quality of Work:** Client continues to expand scope and re-select HDR because of our quality performance.

**Ability to Meet Schedule:** Routinely meet interim and final milestones.

#### CLIENT REFERENCE

Aaron Witt, Chief Engineer; Johnson County Wastewater, Johnson County, KS  
P: 913.715.8546  
E: Aaron.Witt@jcw.org

#### DATES

2016 - Ongoing

#### CONTRACT VALUE

\$835K



**HDR is providing wide array to technical support to JCW to implement the Facility Asset Management Program ranging from asset management professionals, business analysts, condition assessment specialists, and information technology experts. HDR is bringing the right resources to the team to drive project success and to deliver results efficiently and with high quality. One example is the development of the condition assessment program, which required asset management professionals to reengineer the condition and risk assessment business processes, condition assessment specialists to work with JCW maintenance staff to refine assessment criteria and data collection forms, and information technology expertise to configure data collection devices and changes to JCW's Lucity maintenance management system to store the new data.**





## Tank Rehabilitation Master Plan

LONG BEACH WATER DEPARTMENT (LBWD)

The Long Beach Water Department owns 36 steel water tanks located at two tank farms: the Alamitos Reservoir complex and the J. Will Johnson Reservoir complex. The Alamitos Reservoir complex contains 21 potable water tanks and 3 recycled water tanks. J. Will Johnson Reservoir complex contains 12 potable water tanks. HDR provided engineering services for assessment and evaluation of existing interior coating, corrosion, cathodic protection, structural integrity, and seismic safety at all 36 water tanks.

Services included field investigations and developing and engineering report (Master Plan) detailing the findings of each tanks condition assessment, including existing interior coating and its estimated remaining useful life, sufficiency of current cathodic protection system, seismic risk for the tanks structure, and piping and appurtenances.

The Master Plan provides recommendations for rehabilitating each tank focusing on deficient items that may impact tank structural integrity, a tank rehabilitation schedule by priority, and the interim potential remedial methods to protect the current shell coating.

HDR also supported Long Beach Water Department with converting Alamitos Tank 19 and Tank 20 from potable water to recycled water and designed a new pump station, including all of the associated mechanical, electrical and instrumentation infrastructure.

**Control of Costs:** HDR completed all tasks under budget.

**Quality of Work:** HDR's approach and results focused the client on priorities.

**Ability to Meet Schedule:** All tasks were completed on schedule.

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### CLIENT REFERENCE

Danna Monzon, Project Manager;  
Long Beach Water Department, Long Beach, CA  
P: 562.570.2325  
E: Danna.Monzon@lbwater.org

### DATES

2019 - 2021

### CONTRACT VALUE

\$321K

**HDR provided a consistent and comprehensive assessment of 36 reservoirs to prioritize the improvements over 15 years, allowing the City to make the needed investments at the right time.**



## Recycled Water Condition Assessment & Optimization Plan

CITY OF SAN DIEGO

HDR completed the San Diego Recycled Water Condition Assessment and Optimization Plan in 2020. We performed a market assessment for expansion of the non-potable system, hydraulic modeling and optimization of the distribution system operations, condition assessment of the 20 year old infrastructure, prioritization of asset improvements, conducted life cycle analyses, prepared business case evaluations for recommended projects, and developed a CIP schedule.

Using data from the City's EPANET hydraulic model we developed a criticality analysis of pipelines and valves, which informed consequence of condition assessment, rehabilitation and replacement projects. Through extensive field work and a desktop risk and performance analyses, we worked closely with City staff to identify pipeline, pump station, reservoir, chlorination facility and valve deficiencies to develop solutions that minimized risk and streamlined operations.

A final Recycled Water Master Plan and Condition Assessment report included several memoranda including SCADA, condition assessment and O&M manuals. Because of the excellent work we accomplished in doing condition assessment work for the recycled water system, we were asked to present a 4-day workshop to 40 of the City's potable water operations staff. The HDR team developed curricula for pipeline, pump station, valves and reservoirs assessment and attendees were awarded continuing education credits.

**Control of Costs:** HDR completed the project within budget.

**Quality of Work:** Client's satisfaction with primary scope items initiated additional tasks and emergency assistance by HDR.

**Ability to Meet Schedule:** HDR met all project deadlines.

### CLIENT REFERENCE

Hooman Partow, Recycled &  
Potable Water Program Manager;  
City of San Diego, CA  
P: 619.533.7577  
E: hpartow@sandiego.gov

### DATES

2018 - 2021

### CONTRACT VALUE

\$1.68M

**In collaboration with City staff, HDR developed a transparent assessment process, providing the basis of a 20-year CIP and Operations Master Plan, and equipped staff with the tools and training to continue the assessment process into the future.**





## Carlsbad Water, Wastewater and Recycled Water Master Plan

CITY OF CARLSBAD

HDR prepared Potable Water, Recycled Water and Sewer Master Plan Updates for the City of Carlsbad to identify needed improvements for existing and future conditions and development of a capital improvement plan to address deficiencies. To ensure consistency among the data analyzed, assumptions made, HDR took a basis of planning approach, so that the master plan documents are compatible, reliable, and defensible.

Over the past decade, the economic recession, combined with a multi-year drought, resulted in significantly reduced water and recycled water demands and sewer flows, and consequentially reduced revenues to Carlsbad. As the economy rebounds and extreme drought conditions recede, there is also a need to adjust the current plans to correspond with the new General Plan, to reflect a “new normal” in water use behaviors, and to incorporate new opportunities for supplies. By updating these three master plans, the resulting capital improvement programs will help guide Carlsbad in spending precious funds in the most cost-effective manner.

As part of this effort, HDR created a new water demand forecasting tool to help Carlsbad assess variables associated with water demand projections. The demand forecasting model developed for this Master Plan update incorporated the following elements:

- Spatial correlation of water demands at the parcel/TAZ level
- Alignment with SANDAG TAZ data, City’s land use databases, general plan and other planning resources
- Integration with other platforms: hydraulic models/GIS DB/AM
- User friendly graphic and model interface dashboards

- Incorporation of potential water conservation savings into demand projections
- Bookend Forecasting for low, medium, and high ranges
- Scenario-based forecasting
- What-ifs and sensitivity analysis

**Control of Costs:** HDR completed the project within budget. Project costs and metrics were tracked internally and reported monthly in client progress summaries.

**Quality of Work:** Client continues to re-select HDR for ongoing services due to the quality of work performed and value of knowledge delivered.

**Ability to Meet Schedule:** HDR met all project deadlines due to coordination with Client throughout the project duration.

### CLIENT REFERENCE

Stephanie Harrison, Asset Manager;  
City of Carlsbad, CA  
P: 760.603.7356  
E: Stephanie.Harrison@carlsbadca.gov

### DATES

2017 - 2021

### CONTRACT VALUE

\$1.12M

**To prioritize operational and capital efforts, HDR used a performance based approach to evaluate the Carlsbad Water Facilities and produced a 10-year outlook that saves the City \$13M per year.**



## AWIA Risk & Resilience and Emergency Response Planning Support

### BURBANK WATER & POWER

Following the seven-step J100-10 process, as detailed by the American Water Works Association, HDR led a series of workshops to identify BWP's critical assets and determine their vulnerability to likely threats from both malevolent acts and natural hazards. HDR developed and used an Excel-based tool facilitate the process and document the J100-10 requirements. The process also included evaluating cyber systems, financial systems, and chemical storage for vulnerabilities. Using this information, we evaluated the consequences and risks of failure to develop mitigation measures.

HDR also assisted BWP with updating its Emergency Response Plan and conducted training of staff on using the ERP and responding to emergencies. The HDR team worked closely with BWP staff to develop the ERP and customize the operational requirements of BWP. Our innovative approach to ERP planning allows BWP staff to quickly transition into emergency response positions from their day-to-day roles.

Based on these collaborative efforts, BWP properly and timely certified compliance with the strict deadlines established by law.

**Control of Costs:** HDR provided monthly updates on the budget and percent spent, which allowed the client to track that the project costs were staying within budget.

**Quality of Work:** The HDR team provided high quality, detailed documents that the Client used to document next steps and garner approval for projects.

**Ability to Meet Schedule:** The project had regulatory deadlines and HDR beat these deadlines, helping the client to avoid penalty charges.

#### CLIENT REFERENCE

Asif Sheikh, Principal Civil Engineer;  
City of Burbank Water and Power, CA  
P: 818.238.3500  
E: ASheikh@burbankca.gov

#### DATES

2019 - 2020

#### CONTRACT VALUE

\$225K

**Working closely with City staff, we identified and focused on critical assets to maximize return on investment and improve the overall resiliency of the system.**





D



SCHEDULE







# E



## BUDGET





## E. BUDGET

### FEE ENCLOSED SEPARATELY

One copy of the budget proposal, including fee schedules and breakdown of the fee by task, is submitted separately in a sealed envelope per the RFP.





F



JOINT  
VENTURE





## F. JOINT VENTURE

HDR is submitting as the prime consultant and not as a joint venture.

We will not be utilizing any subconsultants on this project.



# G

## CONFLICT OF INTEREST



## G. CONFLICT OF INTEREST

We know there is potential for a conflict of interest when a firm works with a number of clients. And because we work with a lot of public agencies, the possibility of working with two agencies simultaneously that have conflicting interests does exist.

We are not aware of any projects or relationships that would cause a conflict-of-interest on this project. We have a strong set of protocols and guidelines in place to handle possible conflicts of interest. The following four points are keys to our Policy for Conflict of Interest Resolution:

### EDUCATION

We educate employees on the principles of conflict-of-interest prevention. Employees are provided with a written policy outlining Engineering Business without Conflict.

### DISCLOSURE

We fully disclose to each client any relationships, contracts, or teaming agreements that might present a conflict of interest or provide an unfair business advantage. Each person working on a project is responsible to disclose any circumstances that could present a conflict of interest.

### DELINEATION

We structure teams and assign personnel in ways that avoid inappropriate sharing or crossover of confidential or sensitive information. When necessary due to project circumstances, individuals who are positioned on teams where information-sharing would present a conflict are reassigned to maintain clear separation between project teams.

### DOCUMENTATION

We require formal commitment from our personnel with regard to avoiding conflict of interest. When necessary due to project circumstances, we require employees to sign a "Firewall Agreement Form" tailored to the client/project in question to formalize their commitment to maintaining separation between internal teams and/or sources of information that could give rise to a conflict of interest or unfair business advantage.

***It is our understanding that HDR does not have any existing conflicts of interest prohibited by law to submit for the Pump Stations and Tanks Condition Assessment Replacement and Rehabilitation Study.***







H



CONTRACT





## H. CONTRACT

We have no modifications to the standard terms and conditions.





# INSURANCE



# I. INSURANCE



## CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
06/16/2021

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).

<b>PRODUCER</b> Willis Towers Watson Midwest, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 372305191 USA	<b>CONTACT NAME:</b> Willis Towers Watson Certificate Center <b>PHONE (A/C, No. Ext):</b> 1-877-945-7378 <b>FAX (A/C, No.):</b> 1-888-467-2378 <b>E-MAIL ADDRESS:</b> certificates@willis.com														
	<table border="1"> <thead> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A: Liberty Mutual Fire Insurance Company</td> <td>23035</td> </tr> <tr> <td>INSURER B: Ohio Casualty Insurance Company</td> <td>24074</td> </tr> <tr> <td>INSURER C: Liberty Insurance Corporation</td> <td>42404</td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </tbody> </table>		INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Liberty Mutual Fire Insurance Company	23035	INSURER B: Ohio Casualty Insurance Company	24074	INSURER C: Liberty Insurance Corporation	42404	INSURER D:		INSURER E:		INSURER F:
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<b>INSURED</b> HDR Engineering, Inc. 1917 South 67th Street Omaha, NE 68106															

**COVERAGES**

**CERTIFICATE NUMBER:** W21262337

**REVISION NUMBER:**

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	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Contractual Liability <input checked="" type="checkbox"/> Deductible: \$100,000 GENL AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC OTHER:	Y	Y	TB2-641-444950-031	06/01/2021	06/01/2022	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 4,000,000
A	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY <input checked="" type="checkbox"/> Comp/Co11 <input checked="" type="checkbox"/> Ded. \$1,000	Y	Y	AS2-641-444950-041	06/01/2021	06/01/2022	COMBINED SINGLE LIMIT (Ea accident) \$ 2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
B	<input type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 0	Y	Y	EUO(22)57919363	06/01/2021	06/01/2022	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000
C	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	WA7-64D-444950-011	06/01/2021	06/01/2022	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

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

Workers Compensation Deductible - \$250,000

Certificate Holder is named as Additional Insured on General Liability, Automobile Liability and Umbrella/Excess Liability on a Primary, Non-contributory basis where required by written contract. Waiver of Subrogation applies on General Liability, Automobile Liability, Umbrella/Excess Liability and Workers Compensation where required by written contract. Umbrella/Excess policy is Follows Form over General Liability, Auto Liability and Employers Liability.

**CERTIFICATE HOLDER**

**CANCELLATION**

Sample	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 
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# J



## PUBLIC WORK REQUIREMENT



# J. PUBLIC WORK REQUIREMENT



State of California  
**Department of Industrial Relations**

Contractor Information	Registration History	
	Effective Date	Expiration Date
<b>Legal Entity Name</b> HDR ENGINEERING, INC.	06/14/18	06/30/19
<b>Legal Entity Type</b> Corporation	06/19/17	06/30/18
<b>Status</b> Active	06/30/16	06/30/17
<b>Registration Number</b> 1000018262	07/07/15	06/30/16
<b>Registration effective date</b> 07/01/21	04/06/15	06/30/15
<b>Registration expiration date</b> 06/30/22	07/01/19	06/30/20
<b>Mailing Address</b> 3230 EL CAMINO REAL, SUITE 200 IRVINE 92602 CA United States of America	07/01/20	06/30/21
<b>Physical Address</b> 3230 EL CAMINO REAL, SUITE 200 IRVINE 92602 CA United States of America	07/01/21	06/30/22
<b>Email Address</b> jennifer.freidin@hdrinc.com		
<b>Trade Name/DBA</b>		
<b>License Number (s)</b> Other:1279161		

Legal Entity Information	
<b>Corporation Entity Number:</b>	C0168406
<b>Federal Employment Identification Number:</b>	470680568
<b>President Name:</b>	CHARLES OREILLY
<b>Vice President Name:</b>	
<b>Treasurer Name:</b>	
<b>Secretary Name:</b>	
<b>CEO Name:</b>	ERIC KEEN
<b>Agency for Service:</b>	
<b>Agent of Service Name:</b>	C T CORPORATION SYSTEM
<b>Agent of Service Mailing Address:</b>	1917 S. 67TH STREET OMAHA 68106 NE United States of America

Worker's Compensation	
<b>Do you lease employees through Professional Employer Organization (PEO)?:</b>	No
<b>Please provide your current worker's compensation insurance information below:</b>	
PEO InformationName	PEO Phone Email
<b>Insured by Carrier</b>	
<b>Policy Holder Name:</b>	HDR ENGINEERING, INC.
<b>Insurance Carrier:</b>	LIBERTY INSURANCE CORPORATION
<b>Policy Number:</b>	WA7-64D-444950-011
<b>Inception date:</b>	06/01/21
<b>Expiration Date:</b>	06/01/22