

AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE MEETING
WEDNESDAY, AUGUST 19, 2026

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=m58d1bd3224d53075f8ae4bbabe9cccfb>

Meeting Number (Access Code): 2480 882 2972

Meeting password: h5eSQz25Cew

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.

CALL TO ORDER 9:30 a.m.

ATTENDANCE Committee Chair: Doug Reinhart _____
 Committee Member: Dan Ferons _____

<u>ALSO</u>	Paul Cook	_____	Kevin Burton	_____	Wendy Chambers	_____
<u>PRESENT</u>	Neveen Adly	_____	Paul Weghorst	_____	Steve Choi	_____
	Jim Colston	_____	Jason Manning	_____	Jose Zepeda	_____
	Eric Akiyoshi	_____	Belisario Rios	_____	Jacob Moeder	_____
	Brian Waite	_____	Lori Rigby	_____	Scott Giatpaiboon	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee orally on any item, you may attend the meeting in person and submit a "speaker slip" to the Committee Chair. Forms are provided at the front of the Committee Room. Public comments are limited to three minutes per speaker on each subject. If you wish to submit written comments to the Committee, please submit your public comment in advance of the meeting by emailing comments@irwd.com before 5:00 p.m. on Tuesday, August 18, 2026, and your remarks will be added to the record at the meeting.

COMMUNICATIONS

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

INFORMATION

- | | |
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| <ol style="list-style-type: none">4. <u>PROJECT STATUS REPORT – AKIYOSHI / MOEDER / RIOS / WAITE / BURTON</u>

Recommendation: Receive and file.5. <u>IRWD RESEARCH BUSINESS PLAN UPDATE – COLSTON / BURTON</u>

Recommendation: Receive and file.6. <u>UPDATE ON ADVANCED METERING INFRASTRUCTURE AND METER REPLACEMENT PROJECT – MCNULTY / NYE / WEGHORST</u>

Recommendation: Receive and file. | |
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ACTION

- | | |
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| <ol style="list-style-type: none">7. <u>EFFLUENT TRANSMISSION MAIN REACH A REHABILITATION CONSULTANT SELECTION – BOTELLO / RIOS / BURTON</u>

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Ardurra Group, Inc. in the amount of \$865,178 for engineering design services for the Effluent Transmission Main Reach A Rehabilitation, Project 11842.8. <u>SANTIAGO CREEK DAM IMPROVEMENT PROJECT CONSULTANT SELECTION FOR CONSTRUCTION MANAGEMENT AND INSPECTION SERVICES – SANCHEZ / MOEDER / BURTON</u>

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with HDR in the amount of \$38,371,000 for construction management and inspection services for the Santiago Creek Dam Improvement, Project 01813. | |
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OTHER BUSINESS

9. Directors' Comments
10. Adjournment

Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.

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August 19, 2026

Prepared by: E. Akiyoshi / J. Moeder /
B. Rios / B. Waite

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

ENGINEERING PROJECT STATUS REPORT

SUMMARY:

A status report of IRWD's Engineering Projects is presented to the Committee for information.

BACKGROUND:

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

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Engineering Project Status Report

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ENGINEERING PROJECT STATUS REPORT

	Project Name	Project No.	Code	Engineering Team			Planning/Study Phase		Design Phase						Construction Phase				General Project Info
				Group	Program Manager	Project Manager	Status	Completion	Status	Consultant	PDR / 30%	60%	90%	100%	Status	Contractor	In Service	Final Acceptance	Project Requested By
1	MWRP Tertiary Filter Rehabilitation	07892	7764	Treatment & Conveyance	Waite	Alvarez	Completed	Completed	Completed	HDR	Completed	Completed	Completed	Completed	In-Process	ICS	Aug-27	Sep-27	Operations
2	MWRP Fueling Facilities	07881/07882	7706	Treatment & Conveyance	Waite	Alvarez	Completed	Completed	Completed	AECOM	Completed	Completed	Completed	Completed	In-Process	ICS	Nov-26	Dec-26	Facilities
3	Coastal Zones B&D and Coastal Zone OC-63 to Zone 4 Pump Stations Rehabilitation	11568/13506	8426/8427	Treatment & Conveyance	Waite	Alvarez	Completed	Completed	In-Process	Carollo	Sep-26	Dec-26	Mar-27	Jun-27	Jul-27	-	-	Dec-28	Infrastructure Planning
4	MWRP 2025 Flows and Loads Update (Phase III Expansion)	01659/01797	N/A	Treatment & Conveyance	Waite	Alvarez	In-Process	Sep-26	N/A	HDR	-	-	-	-	N/A	-	-	N/A	Infrastructure Planning
5	BWTP Access Road Drainage Improvements	12521	tbd	Treatment & Conveyance	Waite	Alvarez	Completed	Completed	In-Process	In-House	Completed	Completed	Completed	Sep-26	Oct-26	-	-	Dec-26	Facilities
6	MWRP Handrail Safety Improvements	12525	8472	Treatment & Conveyance	Waite	Alvarez	Completed	Completed	In-Process	CDA	Completed	Completed	Completed	Sep-26	Oct-26	-	-	Aug-27	Safety & Security
7	Fleming Tank and Pump Station Improvements	10101	7614	Treatment & Conveyance	Waite	Burk	Completed	Completed	Completed	Tetra Tech	Completed	Completed	Completed	Completed	In-Process	Pacific Hydrotech	Jul-26	Oct-26	Infrastructure Planning
8	HWTP Interconnection Pipeline	13149	8327	Treatment & Conveyance	Waite	Burk	Completed	Completed	In-Process	West Yost	Completed	Completed	Completed	Oct-26	Nov-26	-	-	Jul-27	Infrastructure Planning
9	HWTP Pump Station Improvements	13174	8328	Treatment & Conveyance	Waite	Burk	Completed	Completed	In-Process	Adurra	Sep-26	Nov-26	Jan-27	Mar-27	May-27	-	-	Jul-28	Infrastructure Planning
10	Manning Pump Station Replacement	13191	8322	Treatment & Conveyance	Waite	Burk	Completed	Completed	In-Process	Lee & Ro	Completed	Completed	Completed	Completed	Sep-26	-	-	Jul-27	Infrastructure Planning
11	Wells 6, 12, 14, and 15 Site Improvements	11570	8312	Treatment & Conveyance	Waite	Foo	Completed	Completed	In-Process	Tetra Tech	Completed	Completed	Completed	Jul-26	Jan-27	-	-	Jan-29	Infrastructure Planning
12	Sand Canyon Headquarters and Operations Center HVAC Upgrades	12550/12551	8262	Treatment & Conveyance	Waite	Foo	Completed	Completed	Completed	Eng Resource Mech	Completed	Completed	Completed	Completed	Sep-26	-	-	Apr-28	Facilities
13	Silverado Canyon Bridge 174 Domestic Water Pipeline Improvements	11588	7836	Treatment & Conveyance	Waite	Foo	Completed	Completed	Completed	Mark Thomas	Completed	Completed	Completed	Completed	In-Process	Ferreira	Dec-27	Jan-28	OCPW
14	Silverado Canyon Bridge 175 Domestic Water Pipeline Improvements	11587	7618	Treatment & Conveyance	Waite	Foo	Completed	Completed	In-Process	Mark Thomas	Completed	Completed	Completed	Sep-26	May-28	-	Jun-28	Jul-28	OCPW
15	Silverado Canyon Bridge 177 Domestic Water Pipeline Improvements	11589	8147	Treatment & Conveyance	Waite	Foo	Completed	Completed	Completed	MBF Consulting	Completed	Completed	Completed	Completed	In-Process	Ferreira	Feb-28	Mar-28	OCPW
16	Operations Center Warehouse and Water Quality Storage Building	11854/11855	7796	Treatment & Conveyance	Waite	Foo	Completed	Completed	Completed	Stantec	Completed	Completed	Completed	Completed	In-Process	KPRS	Nov-26	Dec-26	Purchasing
17	Rehabilitation of Dyer Road Wellfield Well No. 7	13252	8320	Treatment & Conveyance	Waite	Foo	Completed	Completed	Completed	Richard Slade	Completed	Completed	Completed	Completed	In-Process	Best Drilling	Sep-26	Oct-26	Operations
18	DRWF Well 2 and IDP Well 107R Rehabilitation	13255/13254	tbd	Treatment & Conveyance	Waite	Foo	Completed	Completed	In-Process	Richard Slade	Aug-26	Oct-26	Oct-26	Nov-26	Feb-27	-	-	Oct-27	Operations
19	MWRP Biosolids Lift Station and Sewer Pipeline	12541	8098	Treatment & Conveyance	Waite	Murphy	Completed	Completed	Completed	Tetra Tech	Completed	Completed	Completed	Completed	In-Process	Paulus Engineering	Aug-27	Oct-27	Regulatory Compliance
20	Radio Tower Improvements	11154/11156/11157	8099	Treatment & Conveyance	Waite	Murphy	Completed	Completed	Completed	Civiltec	Completed	Completed	Completed	Completed	In-Process	Southern Contrating Co.	Completed	Aug-26	Automation
21	MWRP Biosolids Handling Improvements	12555	8412	Treatment & Conveyance	Waite	Murphy	Completed	Completed	In-Process	Carollo	Completed	Completed	Aug-26	Nov-26	Jan-27	-	-	Jan-29	Operations
22	Lake Forest Woods Sewer Improvements	11123	7936	Treatment & Conveyance	Waite	Murphy	Completed	Completed	Completed	Woodard & Curran	Completed	Completed	Completed	Completed	In-Process	GCI	Sep-26	Nov-26	Collections
23	Coastal Zone 1 to 2 and Zone 2 to 4 Pump Stations Rehabilitations	11912	7925	Treatment & Conveyance	Waite	Murphy	Completed	Completed	Completed	GHD	Completed	Completed	Completed	Completed	In-Process	SS Mechanical	May-27	Jul-27	Infrastructure Planning
24	East Irvine Zone 3-4 Pump Station Rehabilitation	12565	8428	Treatment & Conveyance	Waite	Ovcharenko	Completed	Completed	In-Process	Jacobs	Nov-26	Feb-27	Apr-27	Jun-27	Nov-27	-	-	Apr-28	Infrastructure Planning
25	SOCWA Pump Station Tank Wall Repair	12524	tbd	Treatment & Conveyance	Waite	Ovcharenko	On Hold	-	On Hold	-	-	-	-	-	On Hold	-	-	On Hold	Maintenance
26	LAWRP Tertiary Filter Piping Replacement	13634	8514	Treatment & Conveyance	Waite	Ovcharenko	Completed	Completed	In-Process	In-house/CDA	-	-	Aug-26	Sep-26	Nov-26	-	-	May-27	Maintenance
27	LAWRP Ponds Biosolids Removal and Land Application	13424	8388	Treatment & Conveyance	Waite	Spangenberg	Completed	Completed	Completed	In-House	Completed	Completed	Completed	Completed	In-Process	Synagro	Feb-27	Mar-27	Operations
28	Santiago Creek Dam Improvements	01813	7975	Dams & Storage	Moeder	Moeder	Completed	Completed	In-Process	AECOM/GEI	Completed	Completed	Completed	Sep-26	Feb-27	-	-	Jun-32	Infrastructure Planning
29	Rattlesnake Dam Risk Reduction Investigation	12101	N/A	Dams & Storage	Moeder	Moeder	In-Process	Sep-26	N/A	HDR	-	-	-	-	N/A	-	-	N/A	Dam Safety
30	Orange Heights Zone 6 Reservoir	07138	6892	Dams & Storage	Moeder	Moeder	Completed	Completed	On Hold	Tetra Tech	Completed	Completed	Completed	-	On Hold	-	-	-	Infrastructure Planning
31	Sand Canyon Dam Seepage and Instrumentation Upgrades	13232/12506	8101	Dams & Storage	Moeder	Bernal	Completed	Completed	In-Process	GEI	Completed	Completed	Completed	Sep-26	Nov-26	-	-	May-27	Dam Safety
32	BWTP Chemical Line Repair	13200	8436	Dams & Storage	Moeder	Bernal	Completed	Completed	Completed	Carollo	Completed	Completed	Completed	Completed	Sep-26	-	-	Apr-27	Maintenance
33	San Joaquin Reservoir Outlet Valve Replacement	13111	8223	Dams & Storage	Moeder	Bernal	Completed	Completed	Completed	In-House	Completed	Completed	Completed	Completed	In-Process	-	-	Dec-26	Dam Safety
34	San Joaquin Dam Drainage Improvements	13166	8269	Dams & Storage	Moeder	Bernal	Completed	Completed	Completed	JIG	Completed	Completed	Completed	Completed	In-Process	Orion Construction	Dec-26	Dec-26	Maintenance
35	Sewer Siphon Improvements Phase II	11841	7916	Dams & Storage	Moeder	Lu	Completed	Completed	Completed	Woodard & Curran	Completed	Completed	Completed	Completed	In-Process	Mike Pritch & Sons	Aug-26	Sep-26	Collections
36	San Joaquin Reservoir Filtration	10379	7622	Dams & Storage	Moeder	Lu	Completed	Completed	Completed	Carollo	Completed	Completed	Completed	Completed	In-Process	RC Foster	Sep-26	Nov-26	Infrastructure Planning
37	Rattlesnake Dam Outlet Pipeline Rehabilitation	12101	8422	Dams & Storage	Moeder	Lu	Completed	Completed	In-Process	MKN	Completed	Completed	Completed	Aug-26	Sep-26	-	-	Jun-27	Dam Safety
38	HWTP Supply Pipeline Vault Rehabilitations	13190	8437	Dams & Storage	Moeder	Lu	Completed	Completed	In-Process	WSC	Completed	Oct-26	Jan-27	May-27	Jul-27	-	-	Jul-28	Infrastructure Planning
39	El Modena NTS Improvements	05406	8434	Dams & Storage	Moeder	Lu	In-Process	Oct-26	-	-	-	-	-	-	-	-	-	-	NTS
40	Orange Heights Zn 5 to 6 and C+ to E Pump Stations	07136/07139	8286	Dams & Storage	Moeder	Lu	Completed	Completed	On Hold	Lee & Ro	-	-	-	-	On Hold	-	-	On Hold	Infrastructure Planning
83	Syphon Reservoir Off Site Mitigation	13519	8411	Dams & Storage	Moeder	Maari	In-Process	Nov-26	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning
84	Sand Canyon Dam Spillway Rehabilitation	12505	8466	Dams & Storage	Moeder	Maari	In-Process	Dec-26	-	-	-	-	-	-	-	-	-	-	Dam Safety
41	District-Wide Generator Fuel Storage Upgrades	11536/11537	7955	Dams & Storage	Moeder	Mwe	Completed	Completed	Completed	Psomas	Completed	Completed	Completed	Completed	In-Process	SS Mechanical	Aug-26	Nov-26	Infrastructure Planning
42	Lake Forest Zone 4 Tanks Rehabilitation	12568	8104	Dams & Storage	Moeder	Mwe	Completed	Completed	Completed	Cannon	Completed	Completed	Completed	Completed	In-Process	Orion Construction	Jul-27	Aug-26	Infrastructure Planning
43	Shaw Tank Replacement	12569	8331	Dams & Storage	Moeder	Mwe	Completed	Completed	In-Process	Tetra Tech	Completed	Aug-26	Oct-26	Jan-27	Mar-27	-	-	Apr-29	Infrastructure Planning
44	MWRP Acid Phase Digester Rehabilitation	12552	8435	Dams & Storage	Moeder	Mwe	Completed	Completed	In-Process	V&A	Completed	Completed	Completed	Aug-26	Sep-26	-	-	Aug-27	Maintenance
45	Sand Canyon Dam Liner Repair	12524	8465	Dams & Storage	Moeder	Mwe	Completed	Completed	Completed	In-House	Completed	Completed	Completed	Completed	Aug-26	-	Nov-26	Dec-26	Operations
46	Syphon Reservoir Improvements	03808	7847	Dams & Storage	Moeder	Radvar	Completed	Completed	Completed	AECOM	Completed	Completed	Completed	Completed	In-Process	Sukut	May-31	May-31	Infrastructure Planning
47	Eastwood Zn A-Syphon Pump Station Equipping	11831	8461	Dams & Storage	Moeder	Radvar	Completed	Completed	On Hold	AECOM	-	-	-	-	On Hold	-	-	On Hold	Infrastructure Planning
48	MWRP Influent Meters (North and South)	13651	tbd	Dams & Storage	Moeder	Radvar	In-Process	Feb-27	N/A	HDR	-	-	-	-	N/A	-	-	N/A	Operations
49	Santiago Creek Dam Improvements - Site Prep	01813	8411	Dams & Storage	Moeder	Sanchez	Completed	Completed	Completed	AECOM/GEI	Completed	Completed	Completed	Completed	In-Process	James W. Fowler Co.	Jan-27	Feb-26	Infrastructure Planning
50	Syphon Reservoir Improvements - Zone C to Syphon Intertie at Eastwood PS	03808	8444	Dams & Storage	Moeder	Sanchez	Completed	Completed	Completed	AECOM	Completed	Completed	Completed	Completed	In-Process	SS Mechanical	Aug-26	Sep-26	Infrastructure Planning
51	Harding Canyon Dam Rehabilitation/Removal Study	12513	N/A	Dams & Storage	Moeder	Sanchez	In-Process	Apr-27	N/A	Geosyntec	-	-	-	-	N/A	-	-	N/A	Dam Safety
52	I-5 Widening Sand Canyon 12 inch DW Relocation Seg 1	13205	8336	Development & Pipelines	Rios	Botello	Completed	Completed	Completed	JIG	Completed	Completed	Completed	Completed	In-Process	T.E. Roberts	Aug-26	Aug-26	OCTA
53	I-5 Widening Sand Culver 36 inch RW Relocation Seg 2	13204	8337	Development & Pipelines	Rios	Botello	Completed	Completed	Completed	JIG	Completed	Completed	Completed	Completed	In-Process	L&S	Sep-26	Oct-26	OCTA
54	Modjeska Grade Road DW Pipeline Relocation	13238	8285	Development & Pipelines	Rios	Botello	Completed	Completed	Completed	JIG	Completed	Completed	Completed	Completed	In-Process	T.E. Roberts	Nov-26	Dec-26	OCPW
55	Orange Heights SAC/Baker Pipeline Relocation	02766	6691	Development & Pipelines	Rios	Botello	Completed	Completed	Completed	MBI	Completed	Completed	Completed	Completed	On Hold	-	-	On Hold	Development

ENGINEERING PROJECT STATUS REPORT																				
	Project Name	Project No.	Code	Engineering Team			Planning/Study Phase		Design Phase						Construction Phase				General Project Info	
				Group	Program Manager	Project Manager	Status	Completion	Status	Consultant	PDR / 30%	60%	90%	100%	Status	Contractor	In Service	Final Acceptance	Project Requested By	
56	Effluent Transmission Main Reach A Rehabilitation	11842	8438	Development & Pipelines	Rios	Botello	Completed	Completed	In-Process	Ardurra	Jan-27	Apr-27	Jul-27	Aug-27	Jan-28	-	-	Dec-28	Infrastructure Planning	
57	Effluent Transmission Main Reach B Replacement	11906	N/A	Development & Pipelines	Rios	Botello	Completed	Completed	In-Process	BKF	Completed	Oct-26	Dec-26	Feb-27	Mar-27	-	-	Oct-27	SOCWA	
58	San Joaquin Hills Road RW Pipeline Replacement	13113	8440	Development & Pipelines	Rios	Botello	Completed	Completed	In-Process	MKN	Completed	Sep-26	N/A	Dec-26	Jan-27	-	-	Jul-27	Infrastructure Planning	
59	Silkwood/Willowleaf RW Pipeline Replacement	10580	8441	Development & Pipelines	Rios	Botello	Completed	Completed	In-Process	Ardurra	Completed	Jul-26	N/A	Nov-26	Dec-26	-	-	Jun-27	Infrastructure Planning	
60	Recycled Water PRVs Decommissioning	13160	8305	Development & Pipelines	Rios	Ige	Completed	Completed	Completed	WSC	Completed	Completed	Completed	Completed	Completed	Ferreira	Completed	Completed	Infrastructure Planning	
61	Turtle Rock/Concordia RW Pipeline Replacement	13162	8321	Development & Pipelines	Rios	Ige	Completed	Completed	Completed	West Yost	Completed	Completed	Completed	Completed	Completed	Ferreira	Completed	Completed	Infrastructure Planning	
62	Irvine Business Complex Appurtenance Relocations Phase 3	12827	8096	Development & Pipelines	Rios	Ige	Completed	Completed	Completed	MBF Consulting	Completed	Completed	Completed	Completed	In-Process	T.E. Roberts	Jan-27	Jan-27	City of Irvine	
63	Modjeska Harding DW Pipeline Replacement	13525	8445	Development & Pipelines	Rios	Ige	Completed	Completed	In-Process	TBD	-	-	-	-	Jan-28	-	-	Sep-28	Infrastructure Planning	
64	EV Charging Facilities - Sand Canyon	12971	8382	Development & Pipelines	Rios	Ige	Completed	Completed	Completed	SCE/NV5	Completed	Completed	Completed	Completed	Aug-26	-	-	Nov-26	Operations	
65	EV Charging Facilities - Operations Center	12971	8382	Development & Pipelines	Rios	Ige	Completed	Completed	In-Process	SCE/BCF	Completed	Completed	Completed	Sep-26	Oct-26	-	-	Jan-27	Operations	
66	Warner Avenue RW Pipeline Replacement	13560	8512	Development & Pipelines	Rios	Ige	In-Process	Sep-26	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
67	Turtle Rock NTS Structural Assessment	12524	8511	Development & Pipelines	Rios	Kuan	In-Process	Sep-26	-	-	-	-	-	-	-	-	-	-	Operations	
68	PA 51 District 2 Marine Way Sewer (from Alton to Bake)	13539	8418	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Hunsaker & Associates	Completed	Completed	Completed	Completed	In-Process	FYDAQ	Jan-27	Jan-27	Development	
69	PA 51 Marine Way Stage 4 from Lynx to OCTA Rail (RA with Heritage Fields)	13099/13100/13101	8180	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Proactive	Completed	Completed	Completed	Completed	In-Process	FYDAQ	Feb-27	Feb-27	Development	
70	PA 51 Framework DW, SS, RW	13463/13464/13465	8301	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Huitt Zollars	Completed	Completed	Completed	Completed	In-Process	Sukut	Jan-27	Jan-27	Development	
71	PA 2, Gateway Village In Tract Backbone DW, RW (RA with City)	13466/13467	8379	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Fuscoe	Completed	Completed	Completed	Completed	In-Process	Independent	Jan-27	Jan-27	Development	
72	PA 2, Gateway Village Offsite DW (RA with City)	13482	8396	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Fuscoe	Completed	Completed	Completed	Completed	Sep-26	-	-	Jan-27	Development	
73	PA 2, Gateway Village Offsite SS (RA with City)	13483	8397	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Fuscoe	Completed	Completed	Completed	Completed	Sep-26	-	-	Jan-27	Development	
74	East Orange, Orange Heights Tract 16199 SS, RW (RA with TIC)	07484/07486	6762	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Wilson Mikami	Completed	Completed	Completed	Completed	Sep-27	-	-	Dec-28	Development	
75	East Orange, Orange Heights Tract 17995 DW, RW (RA with TIC)	07376/07377	7986	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Proactive	Completed	Completed	Completed	Completed	Sep-27	-	-	Dec-28	Development	
76	East Orange, Orange Heights Jamboree and Chapman DW SS, RW (RA with TIC)	07451/07452/07453	6815	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	MBI	Completed	Completed	Completed	Completed	Sep-27	-	-	Dec-28	Development	
77	East Orange, Orange Heights Neighborhood J2/J3 DW, (RA with TIC)	13324	8324	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Wilson Mikami	Completed	Completed	Completed	Completed	Sep-27	-	-	Dec-28	Development	
78	East Orange, Orange Heights Tract 17995 SS, RW (RA with TIC)	13441/13442	8352	Development & Pipelines	Rios	Kuan	Completed	Completed	Completed	Proactive	Completed	Completed	Completed	Completed	Sep-27	-	-	Dec-28	Development	
79	Water Resources Master Plan Update	12518	N/A	Infrastructure Planning	Akiyoshi	Robinson	In-Process	Dec-26	N/A	TBD	-	-	-	-	N/A	-	-	N/A	Infrastructure Planning	
80	Water Quality Laboratory Remodel Study	Op Budget	N/A	Infrastructure Planning	Akiyoshi	Edwards	In-Process	Jan-27	N/A	Austin Company	-	-	-	-	N/A	-	-	N/A	Water Quality	
81	Condition Assessment Plan for DRWF Pipeline (Non-Invasive)	12564	N/A	Infrastructure Planning	Akiyoshi	Jaramillo	In-Process	Jun-27	N/A	TBD	-	-	-	-	N/A	-	-	N/A	Infrastructure Planning	
82	BWTP Chemical Building Shower/Eyewash Pipe Lining	BWTP Op Budget	8442	Infrastructure Planning	Akiyoshi	Jaramillo	Completed	Completed	Completed	In-House	Completed	Completed	Completed	Completed	In-Process	ePipe	Completed	Dec-28	Safety & Security	
83	Chapman Tank Rehabilitation	12569	8330	Future	Moeder	Mwe	-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
84	Lake Forest Zone 5 East and West Tank Rehabilitation	13653	TBD	Future	Moeder	Maari	-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
85	MWRP Headwork Compactor Room Crane Improvements			Future	Moeder	Mwe	-	-	-	-	-	-	-	-	-	-	-	-	Maintenance	
86	DRWF Wells 1, 4, 5, 11, 13, and 18 Site Improvements	12620		Future	Waite	Burk	-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
87	Biosolids Gas System Modifications	13225		Future	Waite	Murphy	-	-	-	-	-	-	-	-	-	-	-	-	Maintenance	
88	Bayview LS Rehabilitation			Future	Waite	Ovcharenko	-	-	-	-	-	-	-	-	-	-	-	-	Operations	
89	Lake Forest Zone 4-5 West Pump Station Rehabilitation	12566		Future	Waite		-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
90	Turtle Rock Zone 3-4 Pump Station Rehabilitation	12567		Future	Waite		-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
91	MWRP & Biosolids Coating Repairs			Future	Future		-	-	-	-	-	-	-	-	-	-	-	-	Maintenance	
92	MWRP Secondary Skimming Improvements			Future	Waite	Alvarez	-	-	-	-	-	-	-	-	-	-	-	-	Operations	
93	MWRP CAS Blower Replacement			Future	Waite	Alvarez	-	-	-	-	-	-	-	-	-	-	-	-	Maintenance	
94	MWRP Electrical Assessment and Replacement			Future	Waite		-	-	-	-	-	-	-	-	-	-	-	-	Maintenance	
95	MWRP Backup Generation Assessment			Future	Waite		-	-	-	-	-	-	-	-	-	-	-	-	Operations	
96	University Park DW Pipeline Replacement Phase 1	13563		Future	Rios		-	-	-	-	-	-	-	-	-	-	-	-	NTS	
97	Portola Springs DW and RW Pipeline Rehabilitation	13561/13562		Future	Rios		-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
98							-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
99							-	-	-	-	-	-	-	-	-	-	-	-	Infrastructure Planning	
100							-	-	-	-	-	-	-	-	-	-	-	-	-	
101							-	-	-	-	-	-	-	-	-	-	-	-	-	
102							-	-	-	-	-	-	-	-	-	-	-	-	-	
103							-	-	-	-	-	-	-	-	-	-	-	-	-	

August 19, 2026
Prepared by: J. Colston
Submitted by: K. Burton
Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

IRWD RESEARCH BUSINESS PLAN UPDATE

SUMMARY:

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

BACKGROUND:

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

One of the components of the Research Business Plan is for staff to provide a status update on the research projects to the Engineering and Operations Committee on a quarterly basis. IRWD actively participates in the Technology Approval Group (TAG) sponsored by Isle Utilities. The TAG hosts numerous developing technology providers in order to match interested agencies with their technologies. The following are projects of interest to IRWD undertaken by the Water Research Foundation, and we are actively following them for potential benefits to IRWD:

- Enabling Sustainable Water Reuse in California Through Evaluation of Municipal Wastewater Reuse Concentrate Minimization and Treatment Technologies and Processes;
- Reliability of Bench-Scale Testing to Predict Pilot-Scale or Full-Scale PFAS Removal from Groundwater Using IX or Alternative Adsorbents;
- Unlocking the Nationwide Potential of Water Reuse;
- Treatment Strategies for the Removal of Lithium from Drinking Water; and
- Understanding the Mechanisms of Chlorine and Chloramine Impact on Opportunistic Pathogens in Distribution Systems.

The following research item has been added to our program since the last report:

DDW Lithium Treatment in Drinking Water Study – The California Division of Drinking Water (DDW) is researching the removal of Lithium from drinking water sources. This research was spurred in response to the Unregulated Contaminant Monitoring Rule No. 5 (UCMR5) which included monitoring for Lithium. After reviewing the results of UCMR5, DDW has initiated a data gathering effort to determine if existing drinking water treatment systems also remove Lithium from drinking water. Specifically, DDW has requested, with assistance from IRWD, to monitor IRWD's Irvine Desalter Project – Potable Treatment Plant (IDP-PTP). IRWD is supporting this request.

The following research item has been completed:

UCI / CDC Sponsored PFAS Epidemiological Study – UCI conducted a Centers for Disease Control (CDC) sponsored study of health impacts from the public drinking potable water tainted with Per- and Poly-fluoroalkyl substances (PFAS). Researchers added a PFAS Child Immune Study to this research. The data collection portion of the research has been completed. The data has been reviewed, and numerous scholarly manuscripts are under production. When further articles from the research are published, they will be brought forward to the Committee.

A summary of the current research projects is attached as Exhibit “A”.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit “A” – Research Projects Summary

Exhibit "A"

Research Projects Summary Table

No.	Project Title	Project Description	IRWD Contact	Organizations Involved	Type of Research	IRWD Participation Resource	Start Date	Projected Completion Date
1	Lithium treatment in drinking water	The California Division of Drinking Water (DDW) is researching the removal of Lithium from drinking water sources. This research was spurred in response to the Unregulated Contaminant Monitoring Rule No. 5 (UCMR5) which included monitoring for Lithium. After reviewing the results of UCMR5, DDW has initiated a data gathering effort to determine if existing drinking water treatment systems also remove Lithium from drinking water. Specifically, DDW has requested, with assistance from IRWD, to monitor IRWD's IDP-PTP facility. IRWD is supporting this request.	Lori Rigby	California Division of Drinking Water, IRWD, and OCWD	Monitoring and data evaluation	Sample collection and analysis	Aug-26	Aug-27

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August 19, 2026
Prepared by: A. McNulty
Submitted by: F. Nye / P. Weghorst
Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

UPDATE ON ADVANCED METERING INFRASTRUCTURE AND METER REPLACEMENT PROJECT

SUMMARY:

Findings from IRWD's 2024 Advanced Metering Infrastructure (AMI) and Meter Replacement Feasibility Study supported the District's moving forward with implementation of AMI district-wide. In April 2026, staff issued a Request for Proposals (RFP) for implementation of an AMI and Meter Replacement Project throughout IRWD's service area. Six vendors submitted proposals in response to the RFP. A multi-disciplinary review panel of staff evaluated and ranked the consultants based on the proposals and the findings from interviews. Staff intends to move forward with contract negotiations with Thirkettle Corporation (doing business as "Aqua-Metric") after determining that its AMI solution best aligns with IRWD's objectives and requirements. Upon completion of contract negotiations, staff expects to return to the Committee with recommendations to execute of a contract with Aqua-Metric, execute a variance with Arcadis for continued AMI implementation support, proceed with integrations with IRWD's new Customer Information System, and increase the budget amount for this project.

BACKGROUND:

IRWD completed the Advanced Metering Infrastructure and Meter Replacement Feasibility Study (with assistance from consultants at Arcadis) and presented the Study's findings to the Board on August 12, 2024. The study concluded that if IRWD were to implement AMI and replace its mechanical meters with static meters, the District could realize an estimated \$46.6 million in avoided costs and increased revenue, while achieving all of IRWD meter reading objectives. Based on the results of the Study, the Board authorized the General Manager to execute a Professional Services Agreement with Arcadis to assist with AMI planning and procurement, providing support in development of the RFP, administration of the RFP process, and assisting with AMI contract negotiations.

AMI and Meter Replacement Project Contractor Proposal Process:

In April 2026, staff issued a Request for Proposals for implementing an AMI and Meter Replacement Project throughout the IRWD service area. The RFP included 297 technical requirements spanning the following categories:

- Water Meters;
- Meter Box Lids;
- AMI Endpoints;
- Data Collection System;
- Portable Devices;
- AMI Software;

- System Integration;
- Implementation Services; and
- Field Installation Services.

In June 2026, staff received six proposals in response to the RFP that met many project objectives and presented qualified teams. Staff identified three vendors to advance to the interview and reference check stage of the process. A multi-disciplinary proposal review and interview panel found that Aqua-Metric's project implementation approach, technical expertise, proposed training and ongoing support throughout the 20-year project lifetime were the most aligned with IRWD's objective and requirements. Aqua-Metric included a thorough propagation study of the diverse topography of IRWD's service area. Based on its propagation study, Aqua-Metric is proposing a hybrid AMI solution using the Sensus FlexNet Network for most meters and a cellular communication strategy to fill in communications gaps where needed.

Aqua-Metric is an AMI solutions implementor with 33 years in the meter industry, 27 years of experience in AMI, with over 200 successful AMI implementations using Sensus meters. The vendor selection matrix is attached as Exhibit "A". Staff intends to enter into contract negotiations with Aqua-Metric to develop a final detailed scope of work, schedule, and project budget. At this Engineering & Operations Committee meeting, staff will present an overview of the vendor selection process, the proposed AMI solution, implementation approach, and IRWD's AMI procurement process. Staff's draft presentation is provided as Exhibit "B".

Next Steps:

In addition to contracting for implementation of AMI throughout IRWD's service area, the project will require continued support from the Arcadis team. The AMI solution will also require integration with IRWD's new SpryPoint Customer Information System and the purchase of SpryPoint's AMI module: SpryIDM. Concurrently with the contract negotiations between IRWD and Aqua-Metric, staff will ensure the project schedule is coordinated with these other efforts. Within three months and contingent upon successful negotiations with Aqua-Metric, staff expects to return to the E&O Committee with recommendations for:

- The final scope of work, schedule, and a contract award to Aqua-Metric;
- A variance to the Professional Services Agreement with Arcadis;
- Steps required to integrate SpryPoint and SpryIDM with IRWD's selected AMI approach (including a variance with SpryPoint, if needed); and
- Request for budget increase.

FISCAL IMPACTS:

Projects 12514 and 12515 are included in the FY 2026-27 Capital Budget in the amount of \$440,000 each. Upon conclusion of the contract negotiations with Aqua-Metric, a budget increase will be requested to provide funding for all costs associated with the AMI and meter replacement project.

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, Sections 15301, 15302, and 15303 which exempt: 1) the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public structures, facilities, or mechanical equipment, involving negligible or no expansion of existing or former use, such as existing facilities of publicly owned utilities; 2) the replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced, such as the replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity; and 3) construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. A Notice of Exemption for the project will be filed with the County Clerk and State Clearinghouse after contract award.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit “A” – AMI Vendor Selection Matrix
Exhibit “B” – Draft Presentation

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Water Meter Replacement and Advanced Metering Infrastructure														
Item	Description	Weights	Aclara		AquaMetric		Badger		Core & Main		Ferguson	Sensus		
A	TECHNICAL APPROACH													
1	Vendor Qualifications and Experience	15%	11.3%		12.1%		11.3%		10.8%		11.7%	13.6%		
2	Project Team Organization and Staffing	15%	10.1%		12.3%		8.4%		9.9%		12.7%	12.9%		
3	Project Approach and Capacity	20%	14.1%		16.9%		13.2%		13.4%		17.3%	15.6%		
4	System Capabilites and Ability to Meet Requirements	30%	23.6%		25.5%		22.0%		22.8%		26.1%	25.7%		
5	Pricing Proposal	20%	13.8%		20.0%		16.9%		16.4%		17.8%	19.0%		
	Total Weighted Score		72.9%		86.8%		71.9%		73.3%		85.5%	86.7%		
	Ranking of Proposers		5		1		6		4		3	2		
B	PROJECT COSTS													
Item	DESCRIPTION													
1	Estimated Acquisition Cost		\$91,938,006		\$59,679,337		\$71,422,086		\$74,910,639		\$64,161,635	\$63,254,138		
2	Estimated Lifecycle Cost (20 years)		\$92,250,057		\$67,752,501		\$79,459,054		\$80,841,993		\$79,827,618	\$70,478,647		
	Ranking of Proposers		6		1		4		5		3	2		
C	SHORTLIST INTERVIEWS													
	Interview Rankings		N/A, did not advance.		1		N/A, did not advance.		N/A, did not advance.		2	3		
D	OTHER													
Personnel														
Role			Years of Experience		Years of Experience		Years of Experience		Years of Experience		Years of Experience			
Project Manager			Dwayne Kiefer	30+	Anthony Barajas	25	TBD	N/A	Trent Kamins	12	Wesley Hughes	15+	Sunny Kumar & Troy Bryant	20 & 27+
Integration Lead			Jill O'Keefe	28	Chris Berg	24	TBD	N/A	Chuck Allen & Justine Burke	15+ & 10	Russell Gray	16+	Jaya Kumar	25+
Network Design Lead			Brian Walters	22	Chris Berg	24	N/A for Cellular	N/A	Dave Norman	14+	N/A for Cellular	N/A	Andrew Jenner	14
Network Deployment Lead			Sean Walsh & Cesar Ramirez	12+ & 22+	Chris Berg	24	N/A for Cellular	N/A	Dave Norman	14+	N/A for Cellular	N/A	Randy Arnston	45+
Installation Lead			Dave Milano	23	Roy Neves	18	TBD	N/A	Randy Bettencourt	10	Daniel Renteria	9	Arthur Burns	30
Training Lead			Gordon Van Metre	24+	Chris Berg	20+	Adrian Astorga	N/A	Joshua Finley	20+	Russell Gray	16+	Sarah Nickison	5
Sub Consultants														
Meter Supply			Kamstrup		Sensus & Master Meter		-		Kamstrup		Neptune		Master Meter	
Network Equipment			-		Sensus		-		Itron		Neptune		-	
Field Installations			Concord		Concord		UPA		Concord		Concord		UPA	
Collector Installation			ADB		J M Electrical Services		-		-		-		ADB	
Software			Harris		Harris		-		-		Harris		Harris	
Box & Lid Supply			-		B.L. Wallace-Distributor		-		Hubbell		-		DFW Plastics	
Project Management			-		-		-		-		-		AECOM	
Process Mapping			-		-		-		-		-		Zicali	
Community Relations			-		Ardurra		-		-		-		Ardurra	
Insurance														
General Liability			Yes		Yes		Yes		Yes		Yes		Yes	
Automobile			Yes		Yes		Yes		Yes		Yes		Yes	
Workers' Compensation			Yes		Yes		Yes		Yes		Yes		Yes	

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DRAFT



ADVANCED METERING INFRASTRUCTURE AND METER REPLACEMENT PROJECT

ENGINEERING AND OPERATIONS COMMITTEE
AUGUST 19, 2026

1

1

AGENDA

- Project Background
- Request for Proposals
- AMI Solution & Vendor Selection
- AMI Procurement Next Steps
- Questions



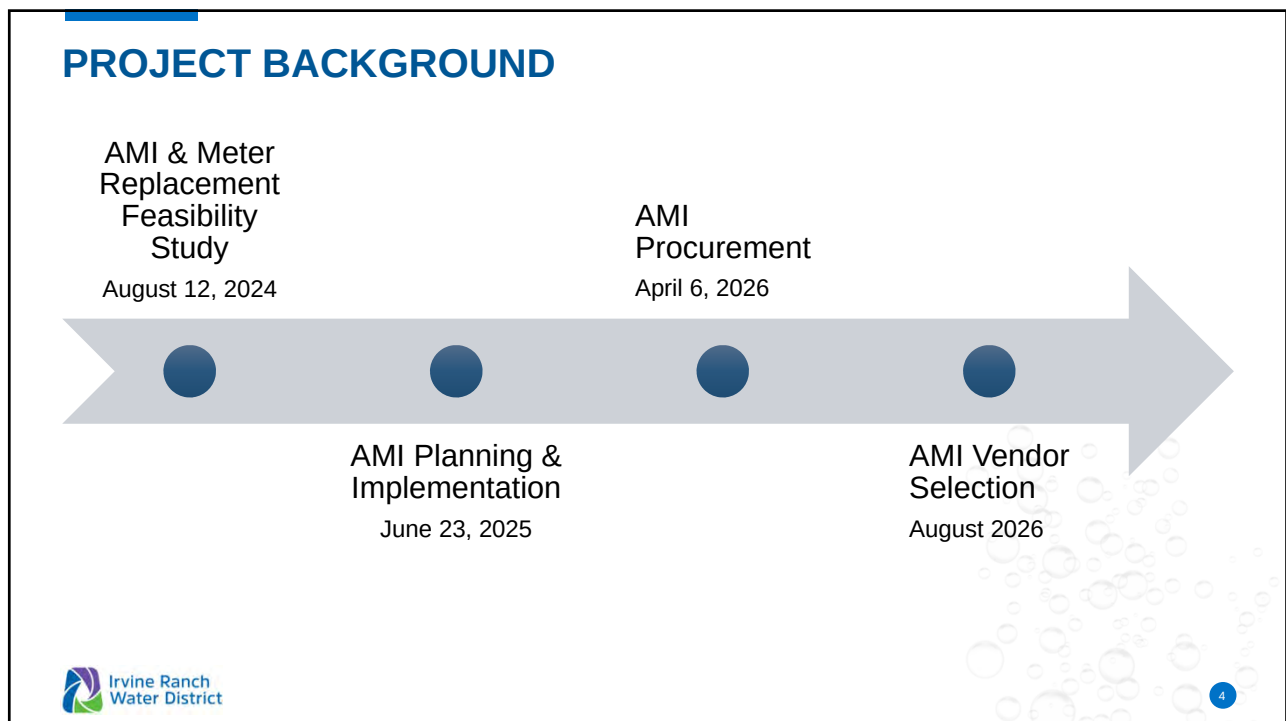


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2



3



4

2024 FEASIBILITY STUDY FINDINGS

- a) Determined current meter reading process was not sustainable;
- b) Switching to static meters increased meter accuracy and revenue;
- c) Nominal cost to add AMI to static meter replacement project;
- d) Estimated annual savings and revenue gain of \$3.9 million;
- e) Confirmed static meter compatibility with IRWD specifications; and
- f) Supported moving forward with detailed implementation plan and procurement.



5

AMI IMPLEMENTATION PLANNING OVERVIEW

1. Detailed Implementation Plan
 - Funding
 - Procurement
 - Data management
 - Change management
 - Customer outreach
 - Deployment
2. AMI Procurement
 - AMI Request for Proposals (RFP)
 - RFP administration and evaluation support
 - Contract negotiations
3. AMI Implementation Project Management



6



7

IRWD AMI STEERING COMMITTEE

★ Amy McNulty Water Efficiency Manager	★ Ryan Matuska Customer Service Manager
★ Jason Manning Director of Maintenance Operations	★ Joe Lam Automation Manager
★ Mohit Saini Applications Manager	★ Mike Mroczek Water Efficiency Analyst
Andrea Scholz Human Resources Analyst	Christopher Smithson Director of Financial Planning and Data...
★ David Perez Water Maintenance Supervisor	Deniene Rivenburg Senior Communications Analyst/Deput...
Jessie Muncy Senior Risk Analyst	★ Mitchell Robinson Senior Engineer
★ Tiffany McBride Customer Service Supervisor	

The Steering Committee's purpose is to guide and oversee the project to ensure it's completed successfully.

★ *Proposal Evaluation Committee, consisting of stakeholders, project managers, and senior staff.*

8

8

AMI VENDOR RESPONSIBILITIES

- Supply and install new static water meters;
- Retrofit existing OMNI turbine meters with AMI endpoints;
- Deploy the communication network infrastructure;
- Provide software platforms for data management;
- System integration;
- Project management;
- User training for IRWD staff;
- Ongoing technical support to ensure a smooth transition; and
- Deliver a fully operational solution that meets IRWD's objectives and requirements.



9

9

TECHNICAL REQUIREMENTS

Number of Requirements

1. Water Meters (45)
2. Meter Box Lids (10)
3. AMI Endpoints (32)
4. Data Collection System (25)
5. Portable Devices (16)
6. AMI Software (87)
7. System Integration (13)
8. Implementation Services (26)
9. Field Installation Services (43)

Priority Assignment Scoring

- Must Have
- Strongly Desired
- Desired



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PROPOSAL EVALUATION

- Technical requirements
- Vendor qualifications
- Implementation team
- Project approach
- Pricing
- Interviews
- References



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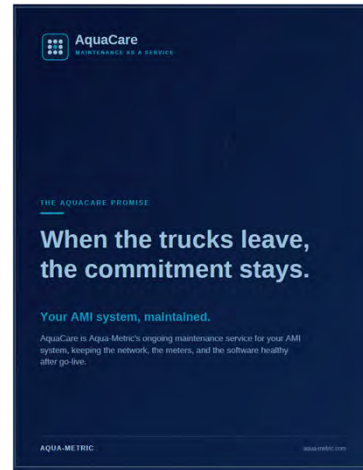
AMI SOLUTION AND VENDOR SELECTION



12

IMPLEMENTATION VENDOR: AQUA-METRIC

- Experienced implementation team
 - 33 years in meter industry
 - 27 years in AMI
 - Over 200 Sensus implementations
(examples include: Eastern MWD, Chino, Laguna Beach, Santa Ana)
- Experience with installation contractor
- Experience with SpryPoint
- Few subcontractors / consultants
- After care program – 12 months no charge
- Southern California based company
- Price



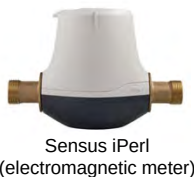
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PREFERRED AMI SOLUTION: SENSUS

Industry leader with demonstrated network and meter performance.

- Industry leader – 150 years of water metering experience;
- Innovative – 697 granted patents plus 113 pending;
- FlexNet AMI platform supports over 50 million endpoints worldwide;
- Network delivers over 875 million messages of operational data daily; and
- Manufactures meters domestically (Uniontown, Pennsylvania).



Sensus iPerl
(electromagnetic meter)



Sensus Cordone1
(ultrasonic meter)



SmartPoint



Base Station



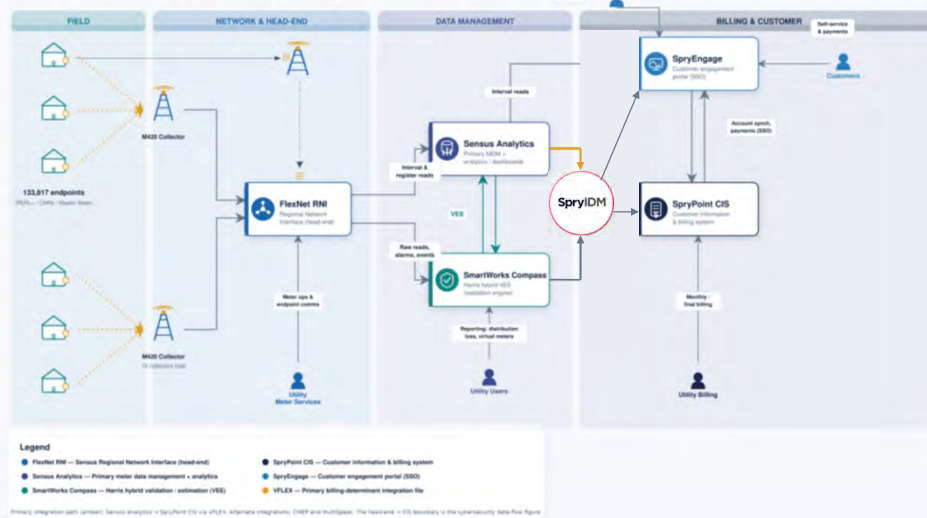
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INTEGRATION ARCHITECTURE

IRWD Advanced Metering Infrastructure — Solution Architecture

Field endpoints to customer bill: one integrated data chain, delivered and owned by a single accountable Prime.



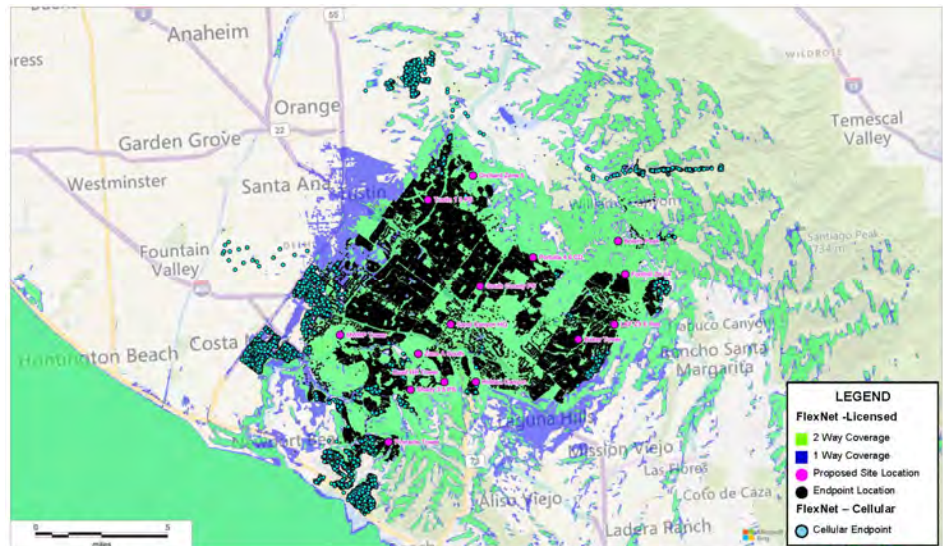
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PROPAGATION STUDY

Antenna locations

Name
Baker Tower
Bolero Peak
Foothill Zn 6A Res.
Hidden Canyon Pump Station
LKF Z5 E Res
MWRP Tower
Orchard Zone 5 Reservoir
Pinnacle Tower
Portolla 4-6 & C-D
Quail Hill Tower
Sand Canyon H.Q.
Shady 3-5 P.S.
South County P.S.
Tustin 1-3 P.S.
Zone A South Reservoir



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AMI PROCUREMENT NEXT STEPS

- ✓ Develop Requirements
- ✓ Issue Request for Proposals (RFP)
- ✓ Proposal Evaluation
- ✓ Interviews
- ✓ References
- ☐ Contract Negotiations
- ☐ Contract Award
- ☐ Complete Procurement Phase
- ☐ Begin Initial Deployment Phase



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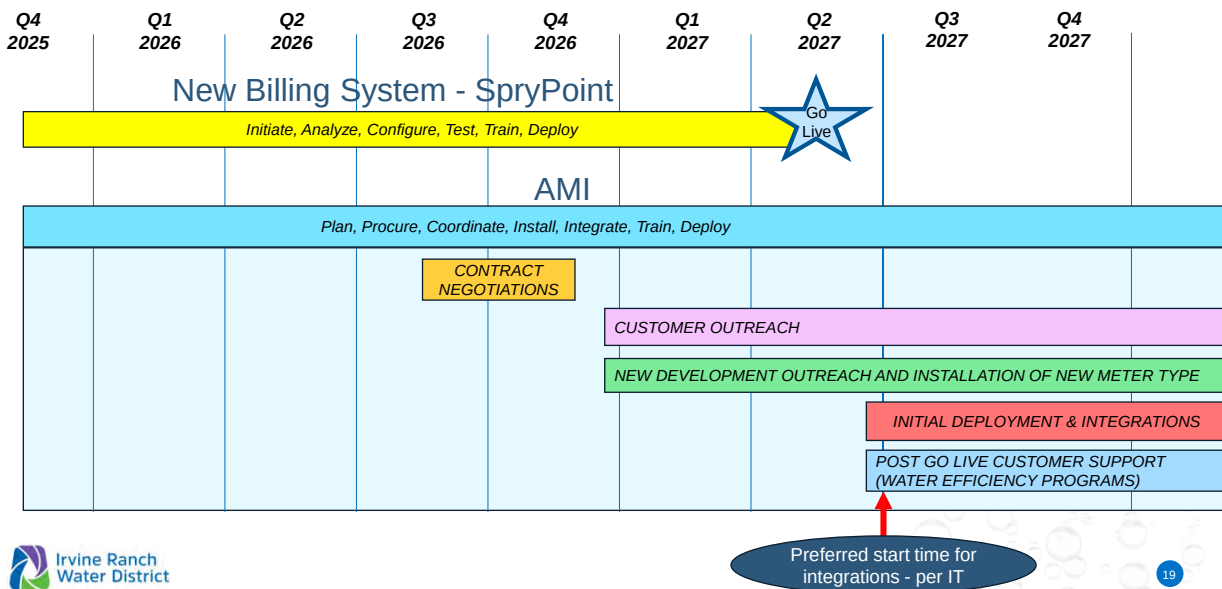
CONTRACT NEGOTIATIONS

- Meters
- Sensors
- Software
- Performance criteria
- Cost
- Schedule
 - Coordination with CIS
 - Deployment strategy
 - Project milestones



18

COORDINATED SCHEDULE (TENTATIVE)



19

OPTIMIZING AMI AT IRWD

- Establish the foundation for the future:
 - Customer expectations;
 - Distribution system leak detection;
 - Real time water balances; and
 - Integrated data.
- AMI user group participation.
- Customer outreach approach (post implementation):
 - Leak alerts;
 - Over-budget (chronic / severe); and
 - Seasonal usage patterns.
- Meter performance monitoring
- Other system diagnostics and monitoring.



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NEXT STEPS

1. Complete negotiations with Aqua-Metric:

- Finalize AMI Implementation Scope of Work, Cost, and Schedule

2. Recommend Board authorization to:

- Award a contract for Aqua-Metric;
- Process a Variance with Arcadis;
- Integrate with SpryPoint and SpryIDM; and
- Increase the project budget.



QUESTIONS

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August 19, 2026

Prepared by: B. Botello / B. Rios

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

EFFLUENT TRANSMISSION MAIN REACH A REHABILITATION CONSULTANT SELECTION

SUMMARY:

This Project will rehabilitate and / or replace approximately 11,900 feet of 21-inch reinforced plastic mortar pipe (Techite pipe) of Reach A of the Effluent Transmission Main (ETM), thereby improving the reliability of this critical pipeline. Staff solicited proposals from five consultants for the design of the pipeline rehabilitation. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement with Ardurra Group, Inc. in the amount of \$865,178 for engineering design services for the ETM Reach A Rehabilitation project.

BACKGROUND:

Reach A of the ETM, constructed in 1979, consists of 11,900 feet of 21-inch pipe that conveys secondary treated wastewater effluent under pressure from the Los Alisos Water Recycling Plant (LAWRP) and brine reject from the Irvine Desalter Project and Shallow Groundwater Unit Treatment Site to the discharge point of the El Toro Water District (ETWD) Water Recycling Plant. Reach A starts at IRWD's Ocean Outfall Pumping Station located at LAWRP and is routed through the cities of Lake Forest, Laguna Hills, and Laguna Woods, terminating at the confluence with Reach B of the ETM adjacent to the ETWD Water Recycling Plant. A project location map is included as Exhibit "A". The ETM segments downstream of Reach A are operated by ETWD and the South Orange County Wastewater Authority (SOCWA).

Techite pipe was a lightweight, corrosion resistant, and cost-competitive piping alternative, especially in large-diameter and high-pressure applications, manufactured up until the 1980s. Techite pipe, which is reinforced plastic mortar pipe, incorporates a sand filler (silicate) to economically increase wall thickness and pipe stiffness for large diameter buried applications greater than 12 inches. A history of structural failures nationwide lead to the discontinuation of Techite pipe manufacturing in the mid-1980s. Due to the fragility of the pipe, Techite pipe has been susceptible to failures, typically caused by excavations and installations adjacent to the pipe. Most recently, Reach A experienced a failure in March 2025. Based on field observations, the break in the force main was due to a rock penetrating the pipe.

This pipeline project will rehabilitate and / or replace 11,900 feet of 21-inch Techite pipe of Reach A and all existing pipeline appurtenances connected to the force main. Reaches B and C of the ETM, located downstream of Reach A, were also originally constructed with Techite pipe. ETWD and SOCWA are currently managing a separate project to replace Reach B and a small portion of Reach C, which is a pressure pipeline. IRWD is actively coordinating with ETWD and SOCWA and will align the design and construction of Reach A with the replacement efforts of Reach B and C. The project will also require coordination with the multiple jurisdictions it is crossing, including the Laguna Woods Golf Course.

Consultant Selection:

On April 22, 2026, IRWD issued a Request for Proposals for engineering design services to five consultants: Ardurra, BKF Engineers, CDM Smith, Woodard & Curran, and WSC. On June 3, staff received proposals from all five consultants. Following an initial review and screening of the proposals, two consultants, Ardurra and Woodard & Curran, were invited for interviews on July 22.

While all five proposals met the project objectives and presented qualified teams, Ardurra's project understanding, approach, and experience presented greater overall value. Ardurra emphasized the importance of developing a constructability-focused rehabilitation sequencing plan during the preliminary design phase that will consider local jurisdiction requirements for the number of open excavations and available pipelining crews to complete rehabilitation work. An understanding of the potential sequencing of the work is critical for completing the work within the pipeline shutdown window constraints. Ardurra also understood that the existing fragile pipe requires protection and careful handling during construction and provided example details for properly handling and connecting to the existing pipeline based on their experience with Techite pipe rehabilitation projects. Recently, Ardurra's project manager successfully completed the design for IRWD's Technology Drive Recycled Water Pipeline Replacement project and provided construction support.

Based on the overall value of Ardurra's proposal and staff's recent experience with Ardurra's team on other capital projects, staff recommends awarding a Professional Services Agreement to Ardurra in the amount of \$865,178. The consultant selection matrix is provided in Exhibit "B", and Ardurra's proposal is provided in Exhibit "C".

FISCAL IMPACTS:

ETM Reach A Rehabilitation, Project 11842, is included in the FY 2026-27 Capital Budget. The existing budget is sufficient to fund the project's design phase.

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under California Code of Regulations Title 14, Division 6, Chapter 3, Article 19, Sections 15301 and 15302, which exempt 1) the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public structures, facilities, or mechanical equipment, involving negligible or no expansion of existing or former use, such as existing facilities of publicly owned utilities used to provide public utility services and 2) the replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced, such as the replacement or reconstruction of existing utility systems and / or facilities involving negligible or no expansion of capacity.

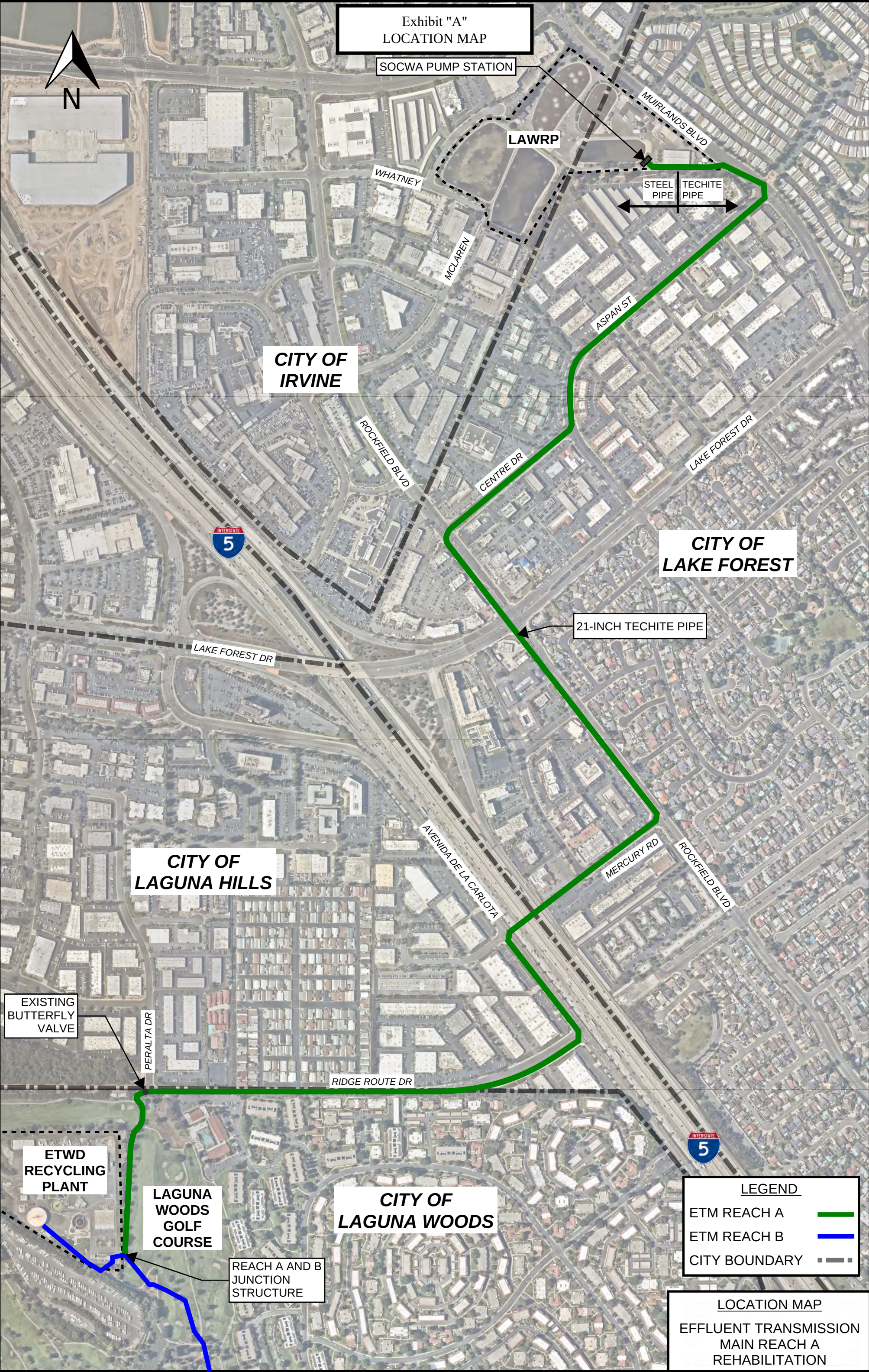
RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with Ardurra Group, Inc. in the amount of \$865,178 for engineering design services for the Effluent Transmission Main Reach A Rehabilitation, Project 11842.

LIST OF EXHIBITS:

Exhibit "A" – Location Map
Exhibit "B" – Consultant Selection Matrix
Exhibit "C" – Ardurra Proposal and Fee

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Exhibit "B"

CONSULTANT SELECTION MATRIX

Effluent Transmission Main Reach A Rehabilitation											
Item	Description	Weights	Ardurra		BKF		CDM Smith		Woodard & Curran		WSC
A	TECHNICAL APPROACH										
1	Project Understanding and Approach	25%	1		5		4		2		3
2	Related Project Experience	25%	2		5		1		3		4
3	Project Team and Staff Qualifications	20%	1		4		5		2		3
4	Scope of Work	20%	1		4		5		2		3
5	History of Performance	10%	1		5		3		2		4
	Weighted Score		1.05		2.55		2.30		1.10		1.75
	Ranking of Consultants		1		5		4		2		3
B	SCOPE OF WORK										
TASK	DESCRIPTION	Task Hours	Fee	Task Hours	Fee	Task Hours	Fee	Task Hours	Fee	Task Hours	Fee
1	Project Management	340	\$92,864	280	\$76,160	206	\$51,490	474	\$157,000	276	\$105,330
2	Preliminary Design	562	\$135,286	507	\$128,519	379	\$93,380	906	\$231,757	460	\$113,872
3	Final Design	1,728	\$637,028	1,404	\$853,438	2,525	\$923,471	1,610	\$910,835	1,272	\$972,362
	TOTAL ENGINEERING SERVICES FEE WITHOUT OPTIONAL SERVICES	2,630	\$865,178	2,191	\$1,058,117	3,110	\$1,068,341	2,990	\$1,299,592	2,008	\$1,191,564
	Optional Services	-	-	-	-	-	-	-	-	-	-
	Supplemental Ground Survey	-	-	58	\$12,838	-	-	-	-	-	-
	Additional Potholing and Utility Locating (10 potholes)	-	-	-	-	-	-	10	\$23,065	-	-
	Hot-Mix Asphalt Repairs for Potholes (40) and Geotechnical Borings (13)	-	-	-	-	-	-	-	\$54,210	-	-
	Traffic Control Allowance (12 sheets)	-	-	-	-	-	-	-	\$91,350	-	-
	Enhanced Utility Locating (GPR/EM)	-	-	-	-	-	-	-	-	290	\$70,250
	TOTAL ENGINEERING SERVICES FEE INCLUDING OPTIONAL SERVICES	2,630	\$865,178	2,249	\$1,070,955	3,110	\$1,068,341	3,000	\$1,468,217	2,298	\$1,261,814
C	OTHER										
	Technical Drawings										
	Total Sheets	57	dwgs	75	dwgs	61	dwgs	52	dwgs	52	dwgs
	Engineering Services Fee per Design Drawings	\$15,179		\$14,279		\$17,514		\$28,235		\$24,266	
	Personnel										
	Role	Years of Experience		Years of Experience		Years of Experience		Years of Experience		Years of Experience	
	Project Manager	Parasto Azami	14	Nancy Baker	30	Alberto Acevedo	54	Kraig Erickson	20	Jon Ganz	29
	Principal-in-Charge	Safa Kamangar	29	Roger Chung	30	-	-	Jennifer Glynn	30	Justin Pickard	23
	Trenchless Rehab Lead & Tech Advisor	Jamie Fagnant	24	-	-	Cindy Preuss	26	Jennifer Glynn	30	Mirko Maher	27
	Project Engineer	Chang Ye	21	Adam Brown	18	Chris Ott	21	Justin Kraetsch	11	Adam Donald	10
	QA/QC	Joseph Reichmuth	27	Tyler Hunt	26	Eros Yong	29	Mike Matson	42	Mirko Maher	27
	Design Engineer	Judy Beik	7	Scott Greenwood	10	Julia Chivington-Buck	17	Dylan Merlo	-	David Williams	3
	Traffic Control Engineer	Jennifer Rosales	31	-	-	-	-	-	-	-	-
	Surveyor	-	-	Joe Nelson	14.00	-	-	-	-	-	-
	Sub Consultants										
	Traffic Control	-		AET & Associates and Traffic Control		RK Engineers		AET & Associates		AET & Associates and Traffic Control	
	Potholing	TC Mueller		Engineering		T2 Utility Engineers		T2 Utility Engineers		WestLAND Group, Inc.	
	Survey	Calvada Surveying, Inc.		Certerra		Guida Surveying		KDM Meridian		WestLAND Group, Inc.	
	Geotech	AESCO		Ninyo & Moore		Ninyo & Moore		Ninyo & Moore		Kleinfelder, Inc.	
	Insurance										
	General Liability	Yes		Yes		Yes		Yes		Yes	
	Automobile	Yes		Yes		Yes		Yes		Yes	
	Workers' Compensation	Yes		Yes		Yes		Yes		Yes	

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PROPOSAL FOR

ENGINEERING DESIGN SERVICES FOR THE EFFLUENT TRANSMISSION MAIN REACH A REHABILITATION

JUNE 3, 2026 AT 4:00PM

BRIAN BOTELLO | PROJECT MANAGER
IRVINE RANCH WATER DISTRICT
BOTELLO@IRWD.COM | 949.453.5360
15600 SAND CANYON AVENUE, IRVINE, CA 92618

C-1



June 3, 2026

Brian Botello | Project Manager
Irvine Ranch Water District
botello@irwd.com | 949.453.5360
15600 Sand Canyon Avenue, Irvine, CA 92618

**Subject: Proposal for Engineering Design Services for the Effluent Transmission Main
Reach A Rehabilitation Project**

Dear Brian,

Ardurra Group, Inc. (Ardurra) is pleased to submit this proposal in response to Irvine Ranch Water District's (IRWD's) Request for Proposal (RFP) for Engineering Design Services for the Effluent Transmission Main Reach A Rehabilitation Project (PR 11842). We appreciate the opportunity to support IRWD on this important wastewater infrastructure rehabilitation effort.

This project includes rehabilitation of approximately 11,900 linear feet of 21-inch Techite pipe within Reach A of the Effluent Transmission Main (ETM) system, replacement of the existing Reach A isolation valve, and development of construction sequencing that accommodates operational shutdown requirements.

Ardurra's advantage lies in our strong understanding of IRWD standards and local agency requirements through extensive prior projects, and experience delivering complex pipeline rehabilitation projects, specifically related to Techite and cured-in-place pipe (CIPP) rehabilitation. Our Irvine-based team has successfully partnered with IRWD on numerous water, recycled water, and wastewater infrastructure improvements and understands the importance of practical, cost-effective, and constructible design solutions.

Ardurra's core technical team, Parasto Azami, Safa Kamangar, and Jamie Fagnant, offer decades of combined experience in the design, rehabilitation, and installation of CIPP liners, with a collective portfolio exceeding 50 miles of successfully installed CIPP liner systems. They are supported by additional locally based technical staff experienced in trenchless rehabilitation, permit/utility coordination, and construction phasing. Our team also brings direct experience with Techite pipeline rehabilitation, including the Vallecitos Water District Emergency Bypass Lining Project. This experience, combined with our familiarity with IRWD's procedures and standards, positions our team to efficiently deliver a high-quality project with responsive coordination throughout design.

In preparation of this proposal, we performed an existing utilities investigation and have preliminarily identified the proposed access site locations. Our team is committed to delivering technically sound and reliable solutions that support IRWD's operational goals while minimizing impacts to the surrounding community.

Please contact me at **949.836.5807** or **pazami@ardurra.com** with any questions regarding this proposal. Ardurra appreciates the opportunity to partner with IRWD and looks forward to supporting the successful delivery of this important project.

Sincerely,

Ardurra Group, Inc.



Parasto Azami, PE
Project Manager



Safa Kamangar, PE, PMP, CCM, QSD/P
Principal-in-Charge
Authorized Signer



ARDURRA

FIRM NAME

Ardurra Group, Inc.

ADDRESS

16310 Bake Parkway
Irvine, CA 92618



POINT OF CONTACT

Parasto Azami, PE
Senior Project Manager
pazami@ardurra.com
949.836.5807

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PROJECT UNDERSTANDING

The Irvine Ranch Water District (IRWD) Effluent Transmission Main (ETM) Reach A Rehabilitation Project involves rehabilitation of approximately 11,900 linear feet of existing 21-inch Techite (reinforced plastic mortar pipe, RPMP) force main constructed in 1979. The pipeline is a critical regional transmission facility that conveys secondary treated wastewater effluent from the Los Alisos Water Recycling Plant (LAWRP), along with brine reject flows from the Irvine Desalter Project (IDP) and Shallow Groundwater Unit Treatment Site (SGU) to the El Toro Water District (ETWD) system for ocean disposal. ETM serves more than 127,000 customers within the IRWD and ETWD service areas and conveys flows of up to 15 million gallons per day (MGD).

IRWD identified Reach A as a priority rehabilitation project due to the known long-term structural reliability concerns associated with Techite pipe. Previous industry experience and nationwide failures of RPMP pipelines have demonstrated that aging Techite pipe can become increasingly susceptible to structural distress. Based on IRWD's prior studies and current industry practice, Ardurra understands the IRWD's preferred rehabilitation approach is primarily pressure-rated cured-in-place pipe (CIPP) lining, supplemented with localized open-cut replacement where geometry, bends, casing crossings, or constructability constraints prevent reliable lining installation.

The project also includes replacement of the existing Reach A isolation valve and associated pipeline segment near the Reach A and Reach B interface just outside of the Laguna Woods Golf Course. This segment will be designed as a separate early bid package and will include open-cut replacement. Exhibit A provides an overview of the project site.

The liner will be designed in accordance with ASTM F1216 and ASTM F1743, depending on the selected installation method, and sized to accommodate internal operating pressure requirements and anticipated external loading conditions. The liner will function as a fully structural Class IV liner capable of maintaining hydraulic reliability even in the event of host pipe deterioration.

In preparation of this proposal, Ardurra reviewed available record drawings, evaluated site conditions, and performed a preliminary desktop utility review and site reconnaissance. As a result, we have preliminarily identified proposed access sites and replacement segments as shown in Appendix 1 and performed initial liner thickness calculations.

The following considerations guided this effort:

- Eliminating horizontal and vertical bends that could impede proper CIPP installation.
- Limiting individual CIPP installation segments to approximately 700 feet due to the weight limitations associated with transportation and handling of the resin-impregnated liner. Preliminary liner thickness calculations were based on 85 psi pressure testing (recommended 15-20 psi above the 68 psi operating pressure) and a resin modulus suitable for pressure pipe applications. The resulting liner thickness and installation requirements support limiting installation lengths to approximately 700 feet.
- Incorporating intermediate access sites within curved pipeline segments to facilitate proper liner installation and curing.
- Strategically locating access sites away from street intersections and near existing air/vacuum valves and blow-offs to reduce traffic control, replacement, and restoration costs.

Successful implementation of the project will require a constructability-focused design approach that minimizes operational risk, reduces community impacts, and maximizes rehabilitation efficiency within the available shutdown windows.

To support these objectives, the proposed project team includes construction management professionals with extensive experience on comparable pressure pipe rehabilitation projects who will provide input during design to improve constructability and reduce construction-related risks.

The Ardurra Team has calculated the required CIPP liner thickness for the existing 21-inch Techite pipe in accordance with ASTM F1216-22 for a partially deteriorated pressure pipe condition. The analysis assumed no groundwater, 68 psi working pressure, and 85 psi test pressure. Using a CIPP material strength of 2,250 psi flexural and 4,500 psi tensile strength, the required liner thickness was determined to be 0.36 inch.

KEY PROJECT CHALLENGES

SHUTDOWN WINDOW CONSTRAINTS

ETM Reach A cannot be removed from service for extended periods without significant operational coordination. IRWD plans to maximize the available shutdown duration by diverting brine flows from the IDP and SGU to the Michelson Water Recycling Plant as part of a separate project. Even with the diversion in place, the allowable shutdown duration will remain no more than six (6) months and be dependent on seasonal recycled water demand and reservoir operating conditions. Construction sequencing and rehabilitation planning must therefore be carefully coordinated to complete the work within one or two available shutdown windows.

Proposed Solution: With the assistance of our construction management team, Ardurra will develop a constructability-focused rehabilitation sequencing plan during preliminary design that:

- Segments the lining work into manageable installation reaches.
- Prioritizes replacement of critical bends and appurtenances early in the schedule.
- Coordinates outage requirements with IRWD operations staff.
- Evaluates phased construction alternatives if a single shutdown window is not feasible.

EXISTING TECHITE PIPE CONDITION

Reach A consists primarily of aging Techite pipe, a brittle reinforced plastic mortar pipe material with a documented history of structural failures nationwide. This requires protection and careful handling of the existing pipe during the construction at removed segments and access sites where new pipe will be connected to the existing lined pipe.

Proposed Solution: The Ardurra Team has extensive previous experience with Techite pipe rehabilitation projects, including Vallecitos Water District's Emergency Bypass Lining Project. Shown in **Figure 1** is one of several details developed for properly handling and connection to the existing lined pipe. We will use this basis and our experience gained during the construction of this project to develop the required detail specific to ETM Reach A Rehabilitation Project.

REACH A/REACH B INTERFACE COORDINATION

The downstream Reach A and Reach B interface presents an important operational and constructability constraint. IRWD anticipates replacement of the existing Reach A isolation valve and adjacent bend segment prior to the primary lining work. Reach B shutdown durations are expected to be limited to approximately seven days.

Proposed Solution: Ardurra will prepare separate contract documents for the Reach A isolation valve replacement segment and coordinate sequencing with the larger rehabilitation effort. Additionally, we will coordinate with the Reach B design team (BKF) to ensure proper alignment and connection details are developed.

This early work will:

- Improve operational isolation between Reach A and Reach B.
- Reduce construction risk during the primary rehabilitation shutdown.
- Improve flexibility for future maintenance activities.

PIPELINE ACCESS SITES AND STAGING

As shown in **Appendix 1**, Ardurra anticipates approximately 27 Pipeline Access Sites (PAS) or replacement locations along Reach A to support liner insertion, staging, and transition construction. PAS locations will be finalized during the design phase to minimize traffic disruption, reduce surface restoration impacts, and improve installation reliability.

Within roadway corridors, PAS locations will prioritize:

- Mid-block staging areas.
- Utility conflict avoidance.
- Reduced traffic control impacts.

Within the Laguna Woods Golf Course corridor, PAS locations will prioritize:

- Existing cart paths.
- Maintenance access roads.
- Previously disturbed areas where feasible.

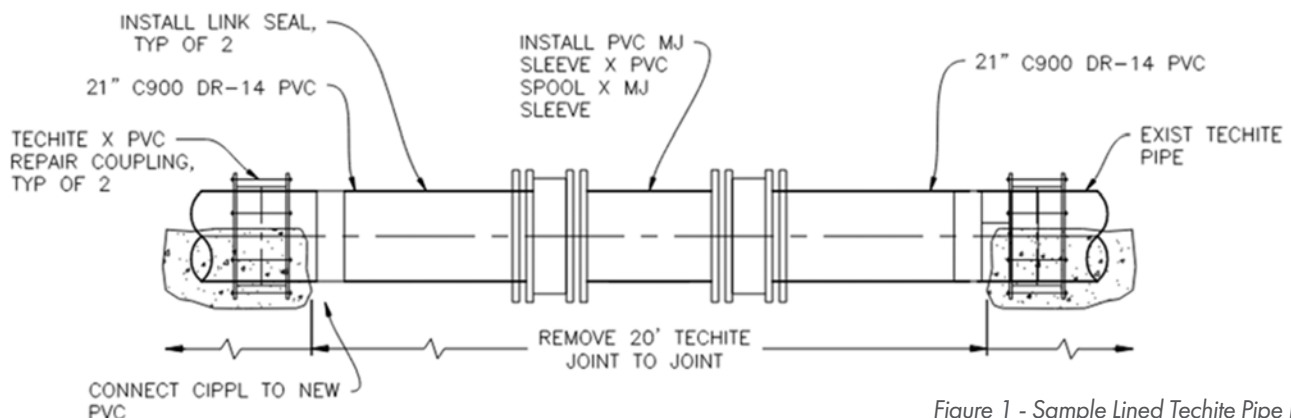


Figure 1 - Sample Lined Techite Pipe Repair

Jamie Fagnant, Technical Lead, has extensive experience with pipeline rehabilitation projects, particularly the rehabilitation of Techite pipes. She brings a unique perspective to the team through her experience with the design, evaluation, and construction support of complex rehabilitation projects.

HYDRAULIC AND OPERATIONAL EVALUATION

The rehabilitation design will include evaluation of hydraulic impacts associated with liner thickness and reduced internal diameter.

Ardurra will verify that the rehabilitated pipeline maintains adequate conveyance capacity while satisfying pressure and structural design requirements.

Ardurra will also coordinate closely with IRWD operations staff to develop a construction sequencing plan compatible with reservoir operations, pump station shutdown limitations, and seasonal recycled water demand.

PERMITTING AND AGENCY COORDINATION

The project corridor traverses multiple jurisdictions including the Cities of Lake Forest, Laguna Hills, and Laguna Woods, as well as areas near Interstate 5 (I-5) and the Laguna Woods Golf Course. Ardurra's team has extensive experience coordinating trenchless rehabilitation and pressure pipeline improvements within heavily constrained roadway corridors throughout Southern California including specific experience with Caltrans permitting for CIPP lining crossing under I-5. The project will require significant coordination associated with:

- Traffic control and roadway encroachment permits from several cities.
- Utility conflict coordination.
- Caltrans coordination near I-5 crossings.
- Laguna Woods Village for golf course access and restoration requirements.
- Orange County Public Works for storm drain channel crossing on Ridge Route.

ARDURRA'S CALTRANS KNOWLEDGE

Ardurra has recently worked with Caltrans to obtain encroachment permits for the IRWD, Vallecitos Water District, City of San Luis Obispo, City of Guadalupe, and Templeton CSD. Ardurra has established a close working relationship with Caltrans staff and can efficiently coordinate approval of the necessary encroachment permits.

DESIGN APPROACH

Our design approach starts with close coordination with IRWD's project manager as well as other stakeholders to ensure their concerns and requirements are efficiently addressed during the design phase. The design approach will continue with the following steps:

1. Following the kickoff meeting, Ardurra will provide a data request log to IRWD and will obtain encroachment permit requirements from jurisdictional agencies.
2. Ardurra will perform a comprehensive review and evaluation of all available existing information, including record drawings, GIS data, utility information, geotechnical reports, operational data, previous studies, and applicable agency standards and criteria.
3. Based on this information, the team will perform field investigations and site reconnaissance as needed to verify existing conditions, identify potential constraints, and confirm constructability considerations, followed by the topographic survey of the project limits.
4. Using the collected data and building upon the preliminary work completed during preparation of this proposal, Ardurra will develop preliminary design concepts and alternatives, including access site requirements, hydraulic considerations and liner thickness design, and maintenance considerations.
5. The preliminary design phase will include coordination with IRWD to review findings, discuss design assumptions, and refine the preferred approach.
6. Following approval of the preliminary design, the team will advance the project into final design by preparing detailed construction plans, technical specifications, calculations, and an opinion of probable construction costs (OPCC) at multiple submittal stages as defined in our scope of work. Throughout the design process, Ardurra will maintain close coordination with IRWD's project manager to ensure the project objectives, schedule, operational requirements, and permitting needs are successfully incorporated into the final design documents.



**PRIVATE BUSINESS
AREA COORDINATION**

CHALLENGE

The proposed pipeline alignment is located in the parking lot of Rockfield Place Shopping Center where maintaining continuous access to businesses and preserving parking availability are critical.

APPROACH

Conduct early coordination with property owners and other stakeholders. Strategically locate access pits and construction work areas to minimize disruptions to traffic circulation, parking operations, and business access throughout construction.

TRAFFIC CONTROL

CHALLENGE

Rockfield Blvd. and Centre Drive are very heavy truck traffic areas since the surrounding areas contain industrial and warehouse uses.

APPROACH

Detailed Traffic Control Plans for Rockfield Blvd. and Center Drive will be developed during the design phase to allow adequate time for City approval. This will prevent delays during construction related to submittal review and approval.

**GOLF COURSE AREA
COORDINATION**

CHALLENGE

The pipeline alignment crosses Laguna Woods golf course where construction activities may impact playability, landscaping, irrigation systems, cart paths, and overall course operations.

APPROACH

Coordinate early with golf course management to understand operational requirements and scheduling constraints. Strategically phase construction activities and restore affected turf and irrigation systems promptly to minimize impacts to on-course operations and playing conditions.

CALTRANS PERMITTING

CHALLENGE

Long lead times to obtain encroachment permits can result in project delays.

APPROACH

Plan sheets and specifications for the crossing will be prepared upon completion of the Preliminary Design phase. Leveraging our recent Caltrans permitting experience, we will develop and submit a complete permit application package to facilitate Caltrans review, approval, and permit issuance.

EXHIBIT A - PROJECT SITE

SCOPE OF WORK

The following scope of work is based on our extensive pipeline design experience and the requested scope provided in IRWD's RFP. We have provided a detailed scope of work as part of our proposal to assist in an expedited process between selection and notice to proceed.

1 TASK 1 PROJECT MANAGEMENT

Task 1.A – Preparation of Project Status Reports

Ardurra will prepare monthly status reports with invoice submittals including schedule updates, budget status, completed work, upcoming work, and key issues.

Task 1.B – Meetings and Workshops

Ardurra will organize, attend, and conduct the following meetings:

1. **Design Kickoff Meeting (in-person)** – One (1) 1-hour meeting
2. **Rehabilitation Evaluation and Selection Workshop (in-person)** – One (1) 1-hour workshop
3. **Preliminary Design Workshop (in-person)** – One (1) 2-hour workshop
4. **Preliminary Design Review Meeting (virtual)** – One (1) 2-hour meeting
5. **60% Design Review Meeting for Reach A Rehabilitation (in-person)** – One (1) 2-hour meeting
6. **90% Design Review Meeting for Reach A Rehabilitation (in-person)** – One (1) 2-hour meeting
7. **100% Design Review Meeting for Reach A Rehabilitation (virtual)** – One (1) 2-hour meeting
8. **Isolation Valve Replacement Preliminary Design Review Meeting (virtual)** – One (1) 1-hour meeting
9. **60% Isolation Valve Design Review Meeting (virtual)** – One (1) 1-hour meeting
10. **90% Isolation Valve Design Review Meeting (virtual)** – One (1) 1-hour meeting
11. **100% Isolation Valve Design Review Meeting (virtual)** – One (1) 1-hour meeting

TASK 1.B DELIVERABLES

- Meeting Agendas/Meeting Minutes (11 total)

Task 1.C – Agency Coordination

Ardurra will coordinate with the Cities of Lake Forest, Laguna Hills, and Laguna Woods and Caltrans to identify agency requirements and anticipated review durations.

ARDURRA QUICK START DATA REVIEW IS WELL UNDERWAY

Our design team has obtained and reviewed available as-builts and identified key areas of concern. We are ready to hit the ground running and will deliver an expedited schedule.

Task 1.D – Quality Assurance/Quality Control (QA/QC)

Ardurra will provide senior technical review and implement quality assurance and quality control (QA/QC) measures throughout the project. Joseph (JJ) Reichmuth, PE will lead the QA/QC work. He has provided engineering reviews for over 25 years and understands IRWD's standards and project requirements.

2 TASK 2 PRELIMINARY DESIGN

Task 2.A – Background Information

Ardurra will review previous studies, record drawings, flow data, operational constraints, and existing ETM information.

Task 2.B – Rehabilitation Evaluation

Ardurra will evaluate rehabilitation alternatives including CIPP lining and replacement alternatives for segments with bends or constraints. A single or combination of rehabilitation methods will be considered. Alternatives presented will include an analysis of risks; identification of advantages and disadvantages; hydraulic impacts; associated construction and schedule effects; and total project cost estimates. Ardurra will present the evaluation in the Rehabilitation Evaluation and Selection Workshop.

Task 2.C – Pipeline Access Sites (PAS)

Ardurra will identify pipeline access locations, excavation limits, staging requirements, and utility conflicts. Ardurra will present the initial findings and recommendations in the Preliminary Design Workshop.

A preliminary PAS location map is included in Appendix 1.

Task 2.D – New Isolation Valves

Ardurra will evaluate and identify strategic locations for new isolation valves to improve operational flexibility. Initial findings will be presented in the Preliminary Design Workshop.

Task 2.E – New Manways for Pipe Access

Ardurra will evaluate locations for future inspection and maintenance access manways. We will consider required excavations, such as the PAS, for rehabilitation of the pipeline as potential locations to construct the new manways. We will identify the number of manways needed, typical dimensions, and provide the reason for selecting those locations and exhibits of the recommendations. We will present the initial findings and recommendations in the Preliminary Design Workshop.

Task 2.F – Replacement of Existing Appurtenances

Ardurra will verify and evaluate replacement of existing valves, air release valves, and blowoff facilities. Initial findings will be presented in the Preliminary Design Workshop.

Task 2.G – Utility Research

We will research and identify existing underground utilities and conflicts. This will include coordination with utility providers and review of record information.

Task 2.H – Jurisdictional and Utility Permit Requirements

Ardurra will develop a permit checklist, obtain jurisdictional agency requirements, and identify permitting responsibilities by IRWD and the contractor. All information will be consolidated in the Preliminary Design Report (PDR). We will identify any special restrictions, such as street construction moratoriums or coordination with Laguna Woods Golf Course, that may be imposed by local jurisdictions.

Anticipated permits include:

- City of Lake Forest
- City of Laguna Woods
- City of Laguna Hills
- Division of Drinking Water
- Caltrans
- Laguna Woods Village
- Private property owners

Task 2.I – Preliminary Project Schedule

Ardurra has included a preliminary project schedule as part of this proposal that incorporates the major project milestones of the design phase identified in the RFP. Ardurra will continue to develop and refine the project schedule for the advertising-award phase, equipment procurement, construction, and record drawing/closeout phase during design. The construction portion of the schedule will include the sequencing of the lining operations, including the order in which PAS locations will be excavated and the order in which each segment of

the pipeline will be lined. We will identify pertinent project milestones within the schedule and collaborate with IRWD to conceptually define and incorporate shutdown logistics to evaluate the feasibility of completing the work within one shutdown window. If completion within a single shutdown window is determined to be infeasible, Ardurra will develop and evaluate schedules for multiple shutdown windows. Based on our preliminary evaluation and understanding of the project constraints, Ardurra believes the construction can be completed within the overall timeline and shutdown requirements identified in the RFP.

Task 2.J – 30% Design & PDR

Ardurra will prepare 30% design concepts and include findings from previous tasks within the PDR.

TASK 2 DELIVERABLES

- Draft and Final Preliminary Design Report (PDR)
- Preliminary Project Schedule
- 30% Plan

3 TASK 3 FINAL DESIGN

Task 3.A – Project Manual

Ardurra will prepare a Project Manual in standard IRWD format for the Contract Documents. IRWD's front-end documents will be utilized, and supplemental sections will be prepared as needed for the construction of a complete project. The Project Manual will describe the work, schedule, access or constraints, and sequencing associated with the work. The Project Manual also includes General Specifications, modifications thereto, and any Project Technical Specifications. Ardurra will prepare a technical specification section for CIPP and will modify the spec section 01045, Existing Facilities, to include requirements for connecting to existing Techite pipe.

The Project Manual template will be provided in Microsoft Word format. We will provide a searchable PDF file of the bidding documents in 8.5-inch-by-11-inch paper size. We will prepare two separate Project Manual packages for:

- Rehabilitation of Reach A
- Replacement of existing Reach A isolation valve

TASK 3A DELIVERABLES

- 60% Design Submittal – Complete Draft 60% Project Manual.
- 90% Design Submittal – Complete Draft 90% Project Manual.
- 100% Draft Design Submittal – Complete 100% Project Manual.
- Final Submittal – Final Project Manual, QA/QC checked by the Engineer, with the Engineer's electronic stamp and signatures, ready for reproduction.

Task 3.B – Construction Plans

Ardurra will prepare detailed construction drawings in the latest AutoCAD format using NCS V4.0 layering standards and IRWD's border template, referencing NAVD 88 and NAD 83 survey datums. The plans will include all required components—site plan, index map, general notes, plans and profiles for the replaced pipe segments, pipeline connections, abandonment details, construction sequencing, traffic control, and necessary details for the improvements. We will design improvements that minimize conflicts with existing utilities and explore alternative construction hours and days with representatives of any controlling agency, e.g., the Cities of Lake Forest, Laguna Hills, and Laguna Woods, to minimize disruption to the adjacent residents and surrounding neighborhood. We will submit and process the plans for approval by the agencies with purview, e.g., the Cities of Lake Forest, Laguna Hills, and Laguna Woods. We will prepare two separate packages for:

- Rehabilitation of Reach A
- Replacement of existing Reach A isolation valve

Anticipated sheet index and design deliverables are included in Tasks 3.J and 3.K.

Task 3.B.1 – Topographic Field Survey

Ardurra's subconsultant Calvada will conduct aerial surveying of the entire alignment and field surveying of the PAS and open trench areas and produce topographic maps that will be used as a base plan for the proposed improvements. Topographic maps will include all street rights-of-way, property lines, and existing easement boundaries in the project area in the base map. We will recommend the width and length of the field surveying to capture the topographic features needed to complete the design. Our surveyor will obtain appropriate permits as required to perform the field survey.

TASK 3.B.1 DELIVERABLES

- Survey Maps (CAD and PDF)

Task 3.B.2 – Utility Review

We will perform utility research to locate utilities or other physical features, including District utilities and utilities owned by other agencies (e.g., storm drain, electrical, gas, and phone/communication duct banks). We will make multiple attempts to contact utilities failing to respond, and all correspondence will be documented within a utility log.

TASK 3.B.2 DELIVERABLES

- Utility Log (PDF)

Task 3.B.3 – Pothole Investigation

Ardurra's subconsultant Underground Solutions, Inc. will complete potholing as needed to determine utility conflicts, e.g., proximity of crossings with existing water, sewer, storm drain, and dry utilities, with the proposed PAS locations, excavations, and appurtenance improvements. Based on our preliminary utility investigation and PAS map, Ardurra has anticipated a total of 60 pothole excavations. The scope of work includes obtaining permits and all necessary traffic control measures to perform the pothole excavations, and applying hot patch asphalt repair. If additional potholes are needed, they will be invoiced at the proposed unit price.

TASK 3.B.3 DELIVERABLES

- Pothole Report (PDF)

Task 3.C – Traffic Control Plans

Ardurra will prepare detailed traffic control plans for PAS locations, excavations, and appurtenance improvements. The traffic control plans will be prepared in accordance with the current California Manual on Uniform Traffic Control Devices (MUTCD), showing all lane closures, restrictions, tapers, and other disruptions of normal traffic flow, including pedestrian and vehicular detours. Ardurra will develop traffic control concept plans and coordinate with IRWD and the jurisdictional agencies to select the most cost-effective plan.

TASK 3.C DELIVERABLES

- Traffic Control Concept Plan

Task 3.D – Geotechnical Investigation

Ardurra's subconsultant AESCO will perform geotechnical investigations and prepare a geotechnical report at proposed PAS and pipeline alignments to determine the geotechnical conditions in the Project area. The borings will also inform the pavement thickness and pavement type, subsurface conditions, soil characteristics, and groundwater presence in the Project area.

This task will be included in the scope of work and will be authorized if needed. We will provide a unit price for each boring including all permitting, hot patch borehole repair, and traffic control required to perform the work. Depending on site access, the borings will be performed using a hollow-stem auger rig, with utility locating completed prior to drilling. AESCO will also obtain the required encroachment permits from the Cities of Lake Forest, Laguna Hills, and Laguna Woods and prepare site-specific traffic control plans. Boring locations will be restored with hot-mix asphalt. We have anticipated 12 borings of up to 15 feet deep for this project.

TASK 3.D DELIVERABLES

- Geotechnical Report (PDF)

Task 3.E – Permits

Ardurra will identify all required permits and their controlling agencies, e.g., Cities of Lake Forest, Laguna Hills, and Laguna Woods and Caltrans. We will prepare applications and secure approval of encroachment permit(s). Copies of permit conditions will be inserted in the Project Manual's appendix and the plans and specifications should reflect the requirements for pavement restoration by the controlling agencies. We assume IRWD will pay all permit fees directly to the agency. We will contact the property owner if a temporary construction easement or permit is required.

TASK 3.E DELIVERABLES

- Completed permit applications or the permit's conditions will be included in the Project Manual's appendix.

Task 3.F – Project Schedule

Ardurra will prepare and consistently update the Project Schedule throughout the course of the work and shall include detailed schedules for both design and construction activities. The schedule will include all 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's review, manufacturing and delivery times for construction materials, construction activities, and construction closeout. We will collaborate with IRWD to define and incorporate shutdown logistics into the Project Schedule. The schedule will be prepared in MS Project and presented as a PDF.

TASK 3.F DELIVERABLES

- Project Schedule as described above in PDF format

Task 3.G – CEQA Documentation

This proposed project is subject to the California Environmental Quality Act (CEQA) and IRWD will prepare a Notice of Exemption (NOE) for the Project. Ardurra will provide exhibits and location maps for IRWD's Notice of Exemption preparation.

TASK 3.G DELIVERABLES

- Exhibits as described above in PDF format

Task 3.H – Liquidated Damages Calculations

Ardurra will assist in calculating liquidated damages value for the Project should the contract time be exceeded. IRWD's provided standard liquidation damage calculation form will be used for this task.

Task 3.I – Opinion of Probable Construction Cost

Ardurra will prepare a detailed and itemized Opinion of Probable Construction Cost for the proposed facilities. The Opinion of Probable Construction Cost will be provided at the 60%, 90%, 100%, and Final deliverables and will be in the form of the Schedule of Work as included in the Bid Documents section of the Project Manual.

TASK 3.I DELIVERABLES

- 60% Opinion of Probable Construction Cost (PDF)
- 90% Opinion of Probable Construction Cost (PDF)
- 100% Opinion of Probable Construction Cost (PDF)
- Final Opinion of Probable Construction Cost (PDF)

Task 3.J – Design Deliverables for Rehabilitation of Reach A

Ardurra will prepare 30%, 60%, 90%, 100%, and final design deliverables for the rehabilitation of Reach A. Once the submittal is reviewed and signed by IRWD, we will provide AutoCAD files for the entire plan set.

The following is a list of anticipated design drawings for the rehabilitation of Reach A package:

Sheet No.	Drawing No.	Title
1	G-001	Title Sheet
2	G-002	Abbreviations, Agency Index, Location and Vicinity Maps, Legend, and Symbols
3	G-003	Construction, General and Sewer Notes
4	G-004	Key/Overall Map
5-15	C-101 to C-111	Plan and Profiles
16-19	C-501 to C-504	CIPP Access and Isolation Valve Details
20-21	C-505 to C-506	Tie-in Connections
22-23	C-507 to C-508	Civil Details
24-48	TC-1 to TC-25	Traffic Control Plans

30% Deliverable: 30% design concept drawings in PDF format including the design parameters and considerations, constructability, construction work hour alternatives, requirements and constraints for the proposed PASs and pipeline alignments, base sheet layout, sheet list, and other pertinent proposed design concepts for IRWD concurrence prior to progressing toward the 60% design.

60% Deliverable: 60% design drawings including showing conflicting utilities/structures, right-of-way, easements, construction notes, and major details. 60% Draft Project Manual, Project Schedule, and 60% Opinion of Probable Construction Cost in PDF format.

90% Deliverable: 90% design drawings including high-level details, 90% Draft Project Manual, Project Schedule, and 90% Opinion of Probable Construction Cost in PDF format.

100% Deliverable: Searchable 100% design drawings including all design elements and addressing all IRWD previous comments, 100% Draft Project Manual, updated Project Schedule, and 100% Opinion of Probable Construction Cost in PDF format.

Final Design Deliverable: Final design drawings, Final Project Manual, and Final Opinion of Probable Construction Cost in PDF format, with AutoCAD and Microsoft Word source files.

Task 3.K – Design Deliverables for Replacement of Existing Reach A Isolation Valve

Ardurra will prepare 30%, 60%, 90%, 100%, and final design deliverables for replacement of existing isolation valve. Once the submittal is reviewed and signed by IRWD, we will provide AutoCAD files for the entire plan set.

The following is a list of anticipated design drawings:

Sheet No.	Drawing No.	Title
1	G-001	Title Sheet
2	G-002	Drawing Index, Abbreviations, Location and Index Maps, Legend, and Symbols
3	G-003	Construction, General and Sewer Notes
4	C-101	Plan and Profile
5-6	C-501 to C-502	Details
7-9	TC-1 to TC-3	Traffic Control Plans

30% Deliverable: 30% design concept drawings in PDF format including the design parameters and considerations, constructability, construction work hour alternatives, requirements and constraints for the replacement of the isolation valve north of Laguna Woods Golf Course, base sheet layout, sheet list, and other pertinent proposed design concepts for IRWD concurrence prior to progressing toward the 60% design.

60% Deliverable: 60% design drawings including showing conflicting utilities/structures, right-of-way, easements, construction notes, and major details. 60% Draft Project Manual, Project Schedule, and 60% Opinion of Probable Construction Cost in PDF format.

90% Deliverable: 90% design drawings including high-level details, 90% Draft Project Manual, Project Schedule, and 90% Opinion of Probable Construction Cost in PDF format.

100% Deliverable: Searchable 100% design drawings including all design elements and addressing all IRWD previous comments, 100% Draft Project Manual, updated Project Schedule, and 100% Opinion of Probable Construction Cost in PDF format.

Final Design Deliverable: Final design drawings, Final Project Manual, and Final Opinion of Probable Construction Cost in PDF format, with AutoCAD and Microsoft Word source files.

Task 3.L – Submittals in PDF Format

Ardurra will format PDF deliverables in accordance with IRWD Bluebeam standards. PDF plans will be searchable, including page labels, bookmarking, and hyperlinks.

Task 3.M – Bid-Period Assistance

During the bidding period, we will assist with providing information and clarification of bid documents to prospective bidders. This shall include the preparation of one (1) bid addendum for bidding, including revisions to the design plans and specifications and assistance with addressing bidder questions. The level of effort assumed for this task includes:

- **Plan Revisions:** Eight (8) hours for plan revisions to the Construction Drawings.
- **Project Manual Specification Revisions:** Eight (8) hours for revisions or additions to the Project Specifications.
- **Bidder Questions:** Four (4) hours to address and respond to bidder questions.
- **Pre-Bid Meeting:** Attend one (1) pre-bid meeting, which may include one (1) site visit.

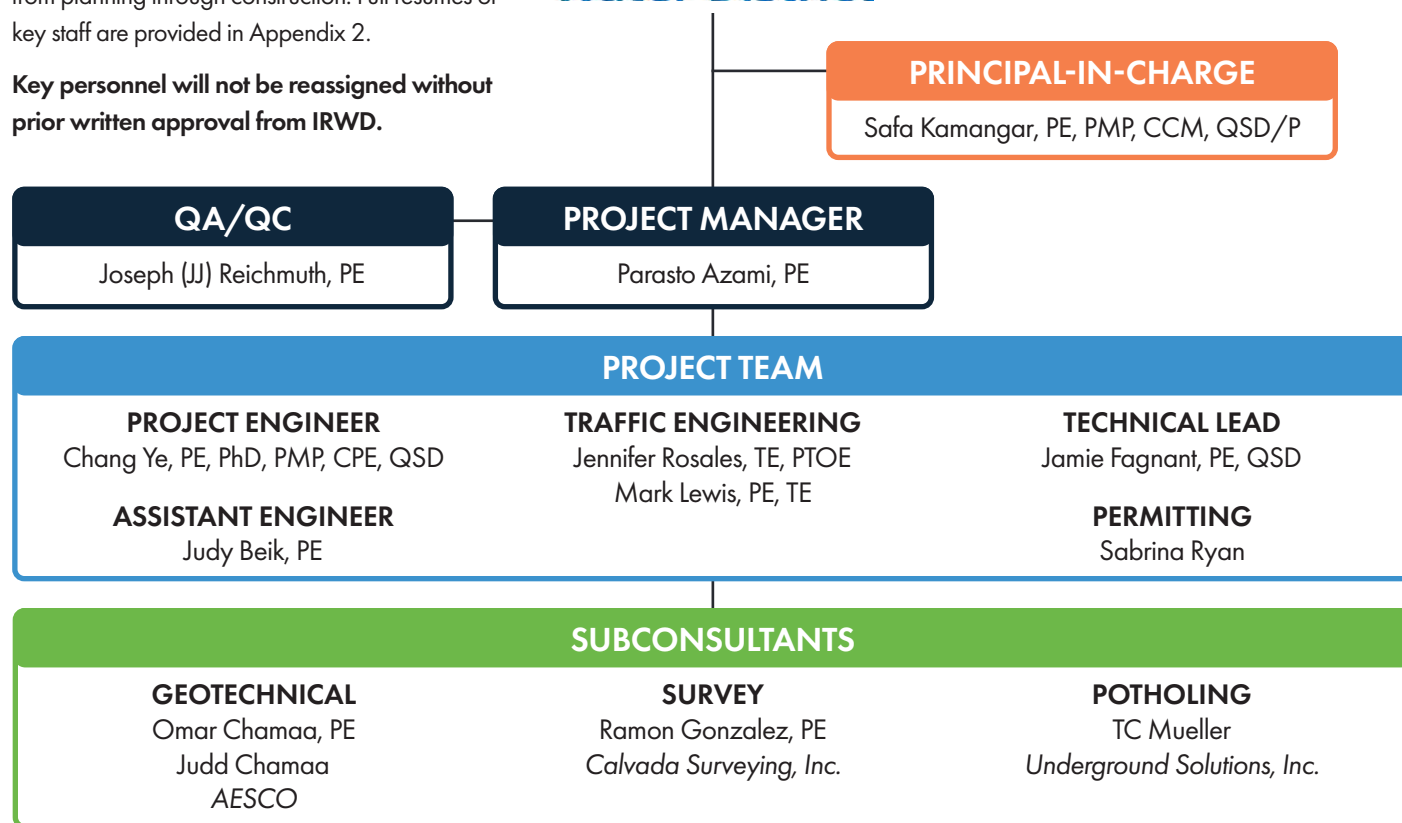
TASK 3.M DELIVERABLES

- One (1) Bid Addendum (PDF)

B TEAM

Ardurra has assembled a highly qualified team of engineers, designers, and construction support professionals with extensive experience delivering water and wastewater infrastructure projects throughout Southern California. Our team combines technical expertise, practical field experience, and strong project management capabilities to provide responsive service and successful project delivery from planning through construction. Full resumes of key staff are provided in Appendix 2.

Key personnel will not be reassigned without prior written approval from IRWD.



STAFF MEMBER	HOME OFFICE LOCATION	AVAILABILITY %
Safa Kamangar, PE, PMP, CCM, QSD/P	Irvine, CA	25%
Parasto Azami, PE	Irvine, CA	40%
Joseph (JJ) Reichmuth, PE	San Luis Obispo, CA	10%
Chang Ye, PhD, PE, PMP, CPE, QSD	Irvine, CA	75%
Judy Beik, PE	Irvine, CA	75%
Jennifer Rosales, PE, PTOE	Las Vegas, NV	10%
Mark Lewis, PE, TE	Newport Beach, CA	30%
Jamie Fagnant, PE, QSD	Oceanside, CA	25%
Sabrina Ryan	Irvine, CA	50%



SAFA KAMANGAR, PE, PMP, CCM, QSD/P - Principal-in-Charge

Safa Kamangar is a highly experienced professional with expertise in water, wastewater, and water reuse since 1997. As a design engineer, Safa has provided hydraulic calculations, mechanical design, detailed design drawings, and development of specifications. He has a strong background in planning, design, and construction management, gained from working in both the private and public sectors. His expertise encompasses design, construction, and commissioning of water/wastewater infrastructure including more than 50 pumping facilities, 15 wells, and more than 150 miles of pipeline ranging from 4-inches to 72-inches in diameter.

Safa has completed several miles of pipeline rehabilitation projects covering a range of methods. These projects include 15,000 ft. of 30-inch SIPP for Glendale Water and Power, approximately 5,000 ft. of CIPP for the City of Fountain Valley, approximately 6,000 ft. of CIPP for the City of Corona, more than 80,000 ft., of CIPP for OC San, a Trenchless Rehab Study (5 methods) for the City of Fullerton, and a potable water CIPP project for Laguna Beach CWD.

YEARS EXPERIENCE

29

EDUCATION

MS, Civil Engineering, University of Tehran, Iran

BS, Civil Engineering, Azad University, Tehran, Iran

LICENSES & REGISTRATIONS

Professional Civil Engineer, CA No. 70118

Project Management Professional (PMP), PMI No. 1863656

Certified Construction Manager, No. 6341

Qualified SWPPP Developer/Practitioner (QSD/QSP), CA No. 23059

OSHA 30-Hour Construction Outreach Training

OSHA 40-Hour HAZWOPER Certification

OSHA Confined Space Training



PARASTO AZAMI, PE - Project Manager

Parasto Azami brings over 14 years of experience in water and wastewater engineering design, with a strong focus on pipeline design. Her expertise includes water conveyance systems, gravity sewers, force mains, pump stations, and the rehabilitation and condition assessment of infrastructure. She has successfully led numerous complex, large-scale pipeline projects, delivering reliable and sustainable solutions. Parasto's deep understanding of engineering challenges and commitment to excellence ensure optimal outcomes for her clients and stakeholders. Parasto has completed several CIPP projects, including the Rehabilitation of Western Regional Sewer for OC San and the 20" CIPP Concrete Pipe Rehabilitation for ENCSD.

YEARS EXPERIENCE

14

EDUCATION

MS, Civil Engineering, University of California, Irvine, CA

BS, Mechanical Engineering, University of Tabriz, Iran

LICENSES & REGISTRATIONS

Professional Civil Engineer, CA No. 91468

Project Management Certification, UCI DCE



JOSEPH (JJ) REICHMUTH, PE - QA/QC

Joseph (JJ) Reichmuth is a Principal Engineer with design and field experience since 1999 with an emphasis in pipeline and pump station design, ranging from condition assessment and rehabilitation to planning and design. Joseph's pipeline design experience includes rehabilitation of sewer force mains and trunk mains. Designs have included traditional dig- and replacement-type construction along with various trenchless construction methods, such as horizontal directional drilling, jack-and-bore, cured-in-place pipe, and pipe bursting. JJ has worked on several CIPP and trenchless rehabilitation projects, including the Gettysburg Sewer Pipeline Rehabilitation for the City of Fresno and the Creek Sewer Rehabilitation and El Camino Real Storm Drain Rehabilitation for the City of Arroyo Grande.

YEARS EXPERIENCE

27

EDUCATION

BS, Civil Engineering, California Polytechnic State University, San Luis Obispo, CA

LICENSES & REGISTRATIONS

Professional Civil Engineer, CA No. 63124

Cured-in-Place Pipe (CIPP) Certified, NASSCO ITC

Manhole Rehabilitation Certified, NASSCO ITC



CHANG YE, PHD, PE, PMP, CPE, QSD - Project Engineer

Chang Ye has been gaining industrial experience in civil engineering since 2005. He has designed and managed over 200 civil infrastructure projects in Southern California, including potable water reservoirs; water wells; pump and lift stations; water, sanitary sewer, and recycled water pipelines; stormwater drainage systems; treatment facilities; on-site treatment systems; airports; railroads; and site gradings and developments.

Chang's expertise includes developing Plans, Specifications, and Estimates and bid documents; providing construction management and support; developing water, sewer, and recycled water system models with various modeling tools and GIS; conducting hydraulic and hydrology analyses; preparing various master plans and emergency response plans; developing Stormwater Pollution Prevention Plans, Low Impact Development, Water Quality Management Plans, and various environmental compliance programs and reports; and assisting in developing standards and specifications for agencies.

YEARS EXPERIENCE

21

EDUCATION

PhD, Civil Engineering, University of Missouri at Rolla, Rolla, MO

MS, Applied Ecology, Chinese Academy of Sciences, Beijing, China

BS, Environmental Engineering, Zhejiang Agricultural University, Zhejiang, China

LICENSES & REGISTRATIONS

Professional Civil Engineer, CA No. 68761

Project Management Professional (PMP), PMI No. 3709402

Certified Professional Estimator (CPE), CA No. 310000-191-0919

Qualified SWPPP Developer (QSD), CA No. 68761



JAMIE FAGNANT, PE, QSD - Technical Lead

Jamie has been working in the water and wastewater field for 24 years and has extensive experience and a specific expertise in sewer design and rehabilitation. Jamie has experience working with cities, water and sewer districts in the San Diego region and has a thorough understanding of industry standard design guidelines for the design and rehabilitation of sewers as well as a working knowledge of standard specifications and drawings for various agencies throughout San Diego County. She is very active in the engineering community and served on the board of the San Diego Chapter WaterReuse Association for seven years in various positions.

YEARS EXPERIENCE

24

EDUCATION

BS, Civil Engineering, San Diego State University, San Diego, CA

LICENSES & REGISTRATIONS

Professional Civil Engineer, CA No. 78967

Qualified SWPPP Developer (QSD), CA No. 78967

Pipeline, Lateral, and Manhole Assessment Certified (PACP/LACP/MACP), NASSCO No. P0046135-022024

Cured-in-Place Pipe (CIPP) Certified, NASSCO ITCP No. C0053101-032025

Manhole Rehabilitation Certified, NASSCO ITCP No. M0053271-032025



JUDY BEIK, PE - Assistant Engineer

Judy Beik is an accomplished project engineer specializing in water and wastewater planning, engineering design, and construction management. She excels in hydraulic modeling, planning document preparation, and technical report writing. Judy has a strong track record in designing sewer lift stations and pipelines, and she has expertise in crafting detailed design documents, including plans, specifications, and cost estimates. She is adept at managing project costs, reviewing construction requests, and leading construction progress meetings. With excellent communication skills, Judy effectively engages with diverse stakeholders to ensure project success.

YEARS EXPERIENCE

7

EDUCATION

BS, Environmental Engineering, University of California, Irvine, CA

LICENSES & REGISTRATIONS

Professional Civil Engineer, CA No. 96365

Pipeline Assessment Certified (PACP), NASSCO, No. P0051766-122024



JENNIFER ROSALES, TE, PTOE - *Traffic Engineering*

Jennifer Rosales has more than 30 years of experience in public works management, transportation planning and engineering, and senior project management. She is recognized internationally as an industry leader in innovative street design and contextually complete streets. Jennifer is active in speaking and publishing internationally with more than 25 publications. While at Parsons Brinckerhoff, Jennifer was named the William Barclay Parsons Fellow in 2004 and developed an award-winning, comprehensive practitioner's guidebook called Road Diet Handbook: Setting Trends for Livable Streets. For her work on the Road Diet Handbook, Jennifer was named to the "2007 Trendsetters List" of Public Works magazine. Jennifer is a Fellow of the Institute of Transportation Engineers (ITE) and served as ITE Western District International Director, ITE Western District President, Oregon Section President, and past Chair of ITE's Standing Committee on Ethics. Jennifer received the 2007 Past Presidents' Award for Merit in Transportation Engineering from the Institute of Transportation Engineers.

YEARS EXPERIENCE

31

EDUCATION

BS, Civil Engineering, Oregon State University, Corvallis, OR

LICENSES & REGISTRATIONS

Professional Traffic Engineer, CA No. 2761

Professional Traffic Operations Engineer, CA No. 3737



MARK LEWIS, PE, TE - *Traffic Engineering*

Mark Lewis, PE, TE, is a proven leader with 40 years of engineering experience. Mark's ambitious career with the City of Fountain Valley spanned 34 years, commencing as a college intern and advancing to the position of director of Public Works/City Engineer for the last 20 years of his tenure. Mark has extensive familiarity, knowledge, and progressive management expertise in strategic planning, operational efficiency, financial planning, and human resources management. He applies an innovative approach in these key areas in addition to communication, funding procurement, asset management, capital improvement program development and implementation, project management, and intergovernmental relations to deliver cost-saving solutions to all his projects. Mark secured more than \$60 million of local, federal, and state grants to fund a capital program that resulted in the City of Fountain Valley being known for its high-quality streets, world-class sports park, and recreational center. Also, the City provides a fiscally sustainable utility enterprise to provide high-quality and reliable water, sewer, and drainage infrastructure.

YEARS EXPERIENCE

40

EDUCATION

BS, Civil Engineering, California State University, Long Beach, CA

LICENSES & REGISTRATIONS

Professional Civil Engineer, CA No. 49335

Professional Traffic Engineer, CA No. 1637

Professional Traffic Operations Engineer, CA No. 661



SABRINA RYAN - *Permitting*

Sabrina Ryan's experience in civil engineering spans planning, design, and construction project management of water resources. She has extensive experience with sewage collection systems, reclamation facilities, and various water infrastructure projects, including pumping stations, storage facilities, and treatment plants. Her expertise covers a wide range of projects, from sewer lift stations and pipelines to recycled water systems and stormwater management.

YEARS EXPERIENCE

19

EDUCATION

BS, Civil Engineering, California State University, Long Beach, CA

C EXPERIENCE

The following represent a sample of Ardurra's direct project experience where the services provided were the same or similar in nature to the services requested in the RFP:



IRWD PIPELINE PROJECTS

OWNER

Irvine Ranch Water District

CONTACT

Belisario Rios, PE

Engineering Manager

15600 Sand Canyon Avenue

Irvine, CA 92618

rios@irwd.com

949.453.5394

Since 2022, as a pre-qualified approved vendor, Ardurra has been selected for multiple design projects for Irvine Ranch Water District. The following projects have been completed:

- **Serrano Creek Pipeline.** Ardurra provided alternatives analysis, hydraulic modeling, and final design for approximately 1,200 feet of new 8-inch recycled water pipeline to replace an existing pipe within a creek.
- **Park Plaza Pipeline.** Ardurra provided an expedited design for a new pipeline to replace approximately 1,100 feet of existing 6- and 8-inch AC pipeline that had reached the end of its useful life and was experiencing leaks.
- **Technology and Ada Recycled Water Pipeline Replacement.** Ardurra provided design services for the replacement of approximately 4,600 linear feet of existing 6-inch ACP recycled water pipe and replacement of 22 services that have reached the end of their useful lives and are experiencing leaks.
- **San Joaquin Hills Road Recycled Water Pipeline.** Ardurra provided design services for the replacement of approximately 4,900 linear feet of existing DIP distribution mains within the Newport Ridge development of the City of Newport Beach.
- **Rattlesnake Dam Outlet Pipeline Repair.** Ardurra provided design services for rehabilitation of approximately 400 LF of 24-inch CML&C steel pipe between the Rattlesnake Dam outlet structure and the meter vault using SIPP (AWWA M28 Class III liner).

PROJECT DATES

2022 - Ongoing

FINANCIAL SIZE

\$1.3M (includes all five noted projects)

EMERGENCY BYPASS SEWER PIPELINE

OWNER

Vallecitos Water District

CLIENT CONTACT

Jason Hubbard

Assistant General Manager

201 Vallecitos De Oro

San Marcos, CA 92069

jhubbard@vwd.org

760.744.0460 x221

The 16-inch Emergency Bypass sewer pipeline (Bypass) is a Techite pipeline that was installed in 1969 and is designed to convey peak wet weather gravity flows up to 3.0 MGD to divert influent from Meadowlark Water Reclamation Facility (MRF) away from the Vallecitos Water District (VWD) Land Outfall. The 12-inch Failsafe Outfall (Failsafe) is a ductile iron pipeline that runs parallel to the Bypass. Installed in 1981, it conveys secondary effluent or reclaimed water from MRF to connect to the Land Outfall. Both pipelines run through easements between Rancho Santa Fe Road and Melrose Drive. Portions of the alignment traverse known environmentally sensitive areas. Because of the age of the pipelines and the risk and high consequence of failure, these facilities had been put into an emergency use-only standby status.

To provide continued service to these aging facilities and protect the adjacent environmentally sensitive area, the 16-inch Emergency Bypass Sewer and 12-inch Failsafe Outfall Rehabilitation installed cured-in-place pipe lining (CIPP) to rehabilitate both pipelines and return them to normal operations. The project also included the construction of access points along the pipeline, installation of air valves and blow-offs, and cathodic test stations.

- A hydraulic analysis was performed to determine the length of pipeline that was subject to internal pressure and what portion of the pipelines were flowing under gravity. Since the pipelines are connected to the Land Outfall, the range of flowrate/pressure in the Land Outfall impacted the length of pipeline subject to pressure flow and the working pressures seen in the pipelines. Upon completion of the hydraulic analysis, the design team incorporated pressure CIPP to the lengths of pipeline under pressure and gravity CIPP to those lengths running via gravity.
- Since no access existed along the pipelines to install CIPP, a combination of excavated access points and manways were designed to facilitate rehabilitation. A particular challenge was access to the existing 16" Techite pipeline. This material becomes brittle with age and can split when not properly connected to. To mitigate this, a connection detail was developed based on prior experience with the material combining use of overexcavation and preparation of subgrade for the ultimate installation of a specialized coupling to connect to the existing Techite material.

PROJECT DATES

2021 - 2022

FINANCIAL SIZE

\$149k (Design)

\$1.7M (Total Cost)

20-INCH CIPP CONCRETE PIPE REHABILITATION

OWNER

East Niles Community
Service District

CLIENT CONTACT

Tim Ruiz, PE
General Manager

1417 Vale Street
Bakersfield, CA 93306

truiz@eastnilescsd.org
661.872.2011

East Niles Community Services District's supply includes seven (7) active groundwater wells. Well 19 is the highest producing well within their system. The well is equipped with piping and appurtenances that allow water to be flushed when needed under the adjacent Highway 58 to a drainage basin. During the course of routine maintenance, the District noted that the 20-inch concrete line was showing signs of age and wear and determined that a liner should be installed to extend the service life. The Well 19 Flush to Waste Pipeline Repair project was developed to address the liner installation. The work involved video inspecting, dewatering, repairing, and installing cured-in-place pipe liner through approximately 280 linear feet of 20-inch existing reinforced concrete pipe.

PROJECT DATES

Mar. 2021 - Aug. 2021

FINANCIAL SIZE

\$92k (Design Only)



POTABLE PIPELINE REHABILITATION PROJECT

OWNER

City of Newport Beach

CLIENT CONTACT

Mike Sinacori, PE
Assistant City Engineer

100 Civic Center Drive
Newport Beach, CA 92660

msinacori@
newportbeachca.gov
949.644.3342

Ardurra completed the Newport Beach Easement Pipelines Rehabilitation Study to evaluate rehabilitation options for 23 pipeline locations situated in access-constrained areas across the City. The study assessed a full range of trenchless technologies including non-structural lining, sliplining, modified sliplining (close-fit lining), cured-in-place pipe (CIPP), and sprayed-in-place pipe (SIPP), with emphasis on methods that could provide long-term structural renewal while minimizing disruption. The analysis resulted in site-specific recommendations with an engineer's opinion of probable construction costs totaling approximately \$5.2 million for the 23 rehabilitation sites.

Ardurra completed design for an initial site which was completed using a modified close-fit liner (Primus).

PROJECT DATES

Mar. 2025 - Ongoing

FINANCIAL SIZE

\$100k (Design Only)

24-INCH OUTFALL REHABILITATION

OWNER

Las Virgenes Municipal
Water District

CLIENT CONTACT

Veronica Hurtado
Water Reclamation Manager

4232 Las Virgenes Road
Calabasas, CA 91302

vhurtado@lvmwd.com
818.251.2332

Ardurra is supporting Las Virgenes Municipal Water District with the rehabilitation of the 2,250-foot, 24-inch Tapia WRF 003 Outfall Pipeline, addressing deterioration in the 1979 system. The project includes design of manhole access points to enable complete CCTV inspection and future maintenance, followed by evaluation of rehabilitation options such as CIPP lining, spray-on liners, and point repairs. Ardurra recently completed design of the first phase of the project, which includes construction of the manhole entry points.

PROJECT DATES

2020 - Ongoing

FINANCIAL SIZE

\$120k (Design Only)

SEWER REHABILITATION PROJECTS

OWNER

City of Fresno

CLIENT CONTACT

Art Alvarez
Wastewater Collection System
Manager

City of Fresno 2101 G Street,
Building A
Fresno, CA 93706

art.alvarez@fresno.gov
559.621.1270

This multi-year sewer system rehabilitation program for the City of Fresno included both 5-year Capital Improvement Plan (CIP) budgeted projects and emergency repairs. Work involved identifying and implementing appropriate rehabilitation methods such as cured-in-place pipe (CIPP), pipe bursting, and full replacement. Projects ranged in size from \$20,000 to \$5,000,000 and required coordination with multiple permitting agencies including Railroads, Irrigation Districts, Fresno County, and Caltrans. Typical scopes included bypassing existing flows and installing CIPP liners in pipes ranging from 8 to 60 inches in diameter, with rehabilitation lengths from point repairs to over one mile.

PROJECT DATES

2004 - 2017

FINANCIAL SIZE

Various Totaling \$25M
(Design and Construction)

VIA CALIFORNIA PIPELINE REHABILITATION

OWNER

South Coast Water District

CLIENT CONTACT

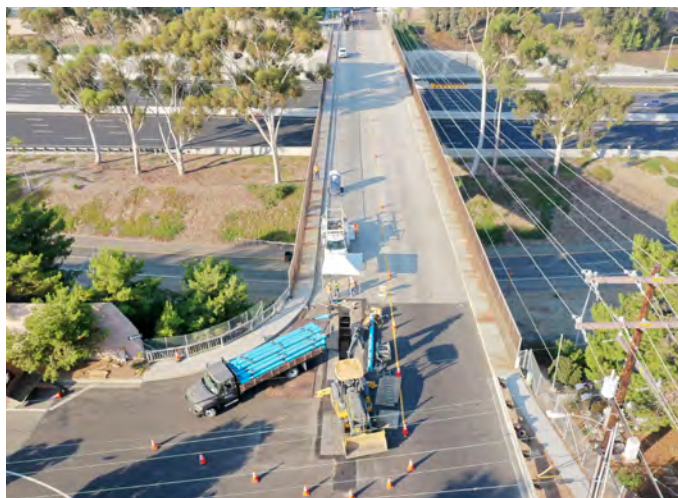
Taryn Kjolsing, PE
Engineering Manager

31592 West Street
Laguna Beach CA 92651

tkjolsing@scwd.org
949.541.1327

South Coast Water District selected Ardurra to design a replacement pipeline for an existing 10-inch AC pipeline within a 16-inch steel casing. The 400-foot section of pipe, located in the Via California crossing over the 5 Freeway, had failed and required immediate replacement. Key elements of the design include the following:

- **Expedited Delivery.** Ardurra received the Notice to Proceed on January 6, 2020, and returned the draft design documents and specifications on January 22, 2020 – less than three weeks from the start date.
- **Project Savings.** To reduce cost and schedule, Ardurra recommended consideration of Certa-Lok restrained joint PVC in lieu of the District standard fusible PVC. Following a technical review with District staff, the recommendation was accepted.
- **Technical Experience.** The project required design of the new Certa-Lok restrained joint PVC and also a cured-in-place liner for the existing steel casing. Permitting was coordinated with Caltrans and the City of Dana Point.



PROJECT DATES

Jan. 2020 - Sep. 2020

FINANCIAL SIZE

\$35k (Design Only)

AVENUE 13 SEWER INTERCEPTOR REHABILITATION

OWNER

City of Madera

CLIENT CONTACT

Ellen Bitter, PE

Deputy City Engineer

428 East Yosemite Avenue

Madera, CA 93638

ebitter@madera.gov

559.661.5472

The City of Madera completed a Sewer Rehabilitation Plan which included the Avenue 13 sewer assessment that concluded the sewer was in need of rehabilitation. The project consists of the rehabilitation of 24,569 LF of mostly 48" sewer pipe with cured-in-place-pipe (CIPP), slip lining, and replacement, and includes portions crossing existing irrigation district facilities, Union Pacific Railroad, and county right-of-way. Ardurra was selected by the City to review the existing CCTV footage, perform limited additional multi sensor inspection, and select the most economical rehabilitation methods for each section of pipe. The project alignment includes work on private property and a 2,000-foot section parallel to and 30' from the railroad. Ardurra will prepare bid packages for 3 distinct phases of construction and assist the City in applying for grant funding. Ardurra was also retained by the City to perform Construction Management services including management of submittals and RFIs and daily observations of the work.



PROJECT DATES

Dec. 2021 - Present

FINANCIAL SIZE

\$588k

CREEK SEWER REHABILITATION

OWNER

City of Arroyo Grande

CLIENT CONTACT

Jill McPeck

Capital Improvement Project
Manager

1375 Ash Street, Arroyo

Grande, CA 93420

jmcpeek@arroyogrande.org

805.473.5444

The City of Arroyo Grande identified several sections of sewer needing lining, including sections located on private properties and backyards.

Ardurra performed a condition assessment and provided recommendations for point repairs and then construction documents for installation of a cured-in-place-pipe. The project included 2500 feet of vitrified clay pipe (VCP) located along the bank of the Arroyo Grande Creek, ranging in size from 8-inch to 16-inch. This line also crossed through several backyards, limiting the available workspace for installation of the new liner. Construction documents provided the contractor with detailed exhibits showing allowed points of entry and detailed specs for bypass pumping due to the close proximity of the creek and the increased risk if a sewage spill occurred.



PROJECT DATES

Completed Jan. 2017

FINANCIAL SIZE

\$20,500 (Design only)

PIPELINE REHABILITATION PROGRAM (PHASE 1 AND 2)

OWNER

Channel Islands Beach
Community Services District

CLIENT CONTACT

Pete Martinez, PE
General Manager
353 Santa Monica Drive
Oxnard, CA 93035
pmartinez@cibcsd.com
805.827.3000

Ardurra reviewed the results of the CCTV inspection of 44,200 feet of gravity sewer pipeline and 84 manholes. Utilizing the results of the inspection, Ardurra prepared an implementation plan identifying critical areas for spot repair, relining, and replacement. The total estimated cost of improvements was noted at \$730,000.

Ardurra initiated design for Phase 1 which includes the following:

- 21 Manhole rehabilitations
- One section of 8-inch pipeline replacement
- 17 pipeline segments for spot repair (11 total) or full liner (3,500 ft total of CIPP) - CIPP utilized steam-cured felt liner

Phase 2 was completed in 2025 (no change orders):

- 6 Manhole rehabilitations
- 9 pipeline segments for spot repair (4 total) or full liner (1,800 ft total of CIPP)
- CIPP utilized UV-cured GRP

PROJECT DATES

2020 - 2025

FINANCIAL SIZE

\$40,000 (Design Only)



WASTEWATER TRUNK LINE UPSIZING ALONG OLSON AVE

OWNER

City of Reedley

CLIENT CONTACT

Marilu Morales, PE
City Engineer
1733 Ninth Street
Reedley, CA 93654
marilu.morales@reedley.ca.gov
559.637.4200 x221

Ardurra designed the replacement of the existing 21" gravity sewer influent line to the City's WWTP, which included an inverted siphon, with over 2,000 feet of 36" gravity sewer that avoided the need for a new siphon. The project included three diversion structures with non-rising stem stainless steel slide gates. The preliminary phase of the project included detailed hydraulic analysis of the system to determine appropriate pipe sizing and possible configurations for a 350-foot bridge crossing. During this analysis, it was determined to slipline the existing bridge crossing with a slightly smaller pipe and to design junction structures on either side of the bridge to allow future installation of an additional pipe when flows increase.

PROJECT DATES

2019 - 2024

FINANCIAL SIZE

\$194k

ADDITIONAL PROJECT EXPERIENCE - PIPELINES

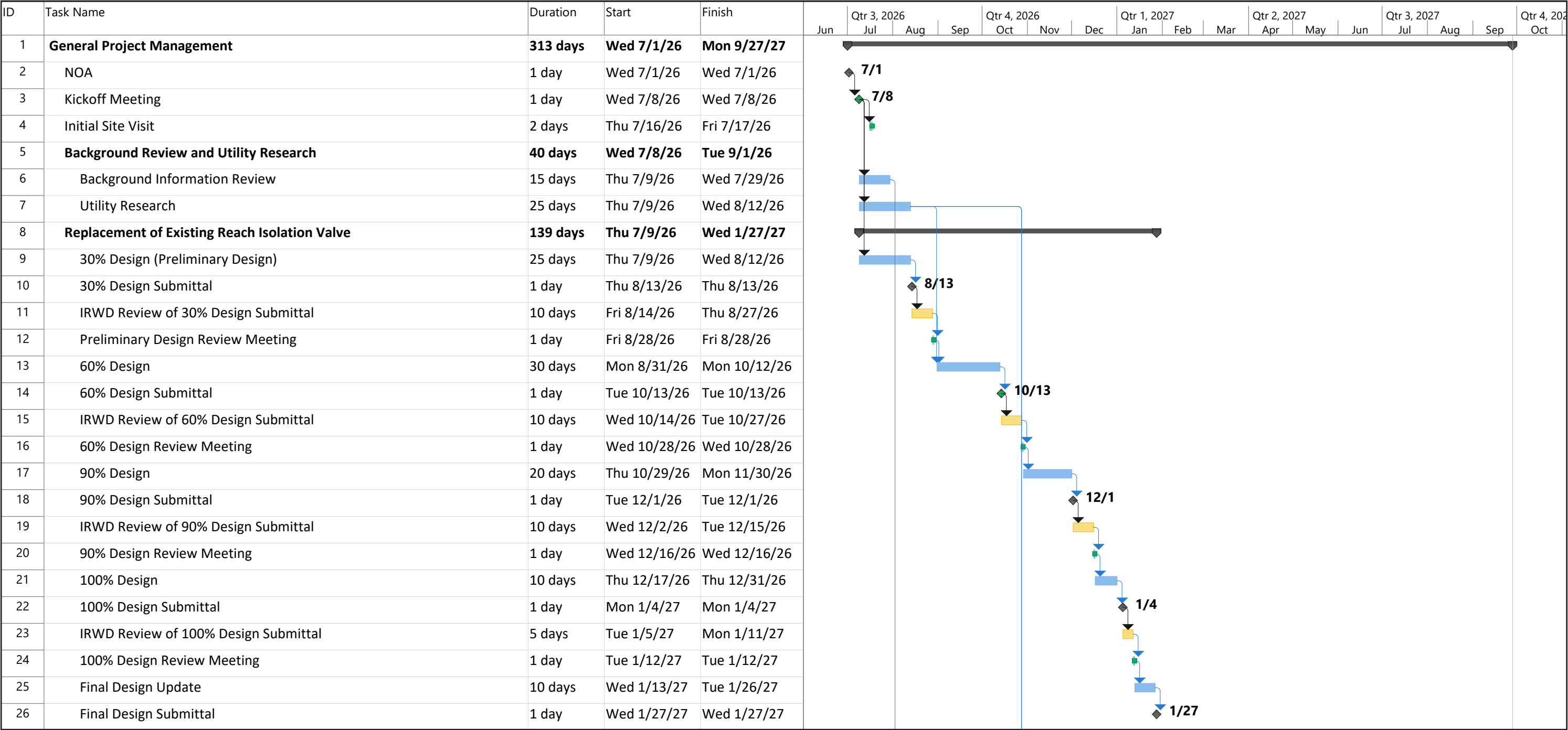
The planning and design of pipelines and associated facilities is one of Ardurra's core disciplines. Our services have spanned hydraulic analyses, alignment studies, preliminary and final design, and construction support. Trenchless pipeline design and construction is also one of our specialties. Our pipeline experience encompasses water and recycled water pipes, gravity sewers and force mains, with sizes up to 96-inch diameter and all pipe types including commonly used welded steel, PVC, and DI, as well as pipe materials selected for special applications such as FRP, HDPE, and fusible PVC for trenchless construction.

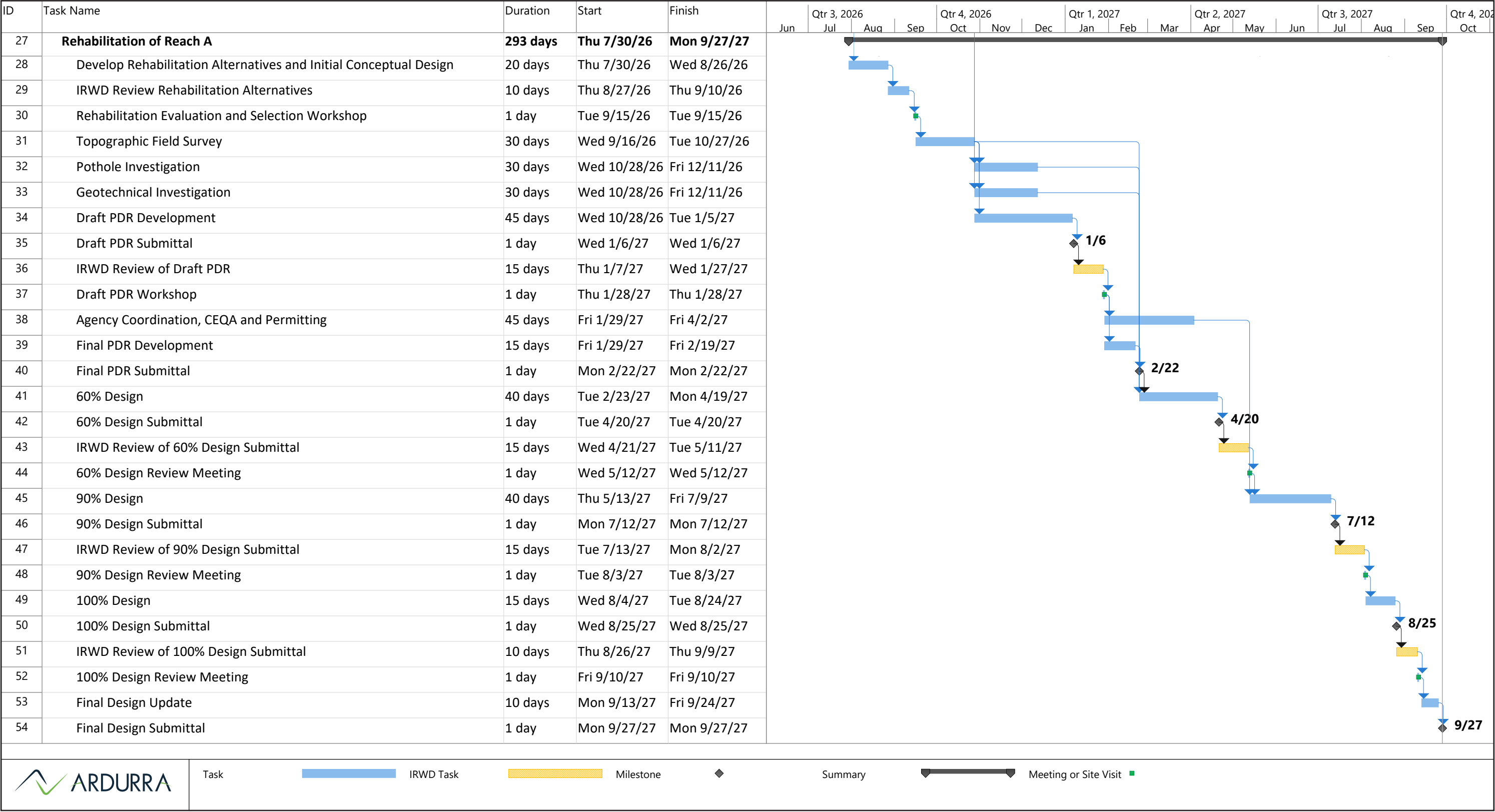
Client	Project	Diameter (in.)	Material	Length (LF)
Arvin CSD	Arvin Recycled Water Disposal Pipeline	18	PVC	18,480
Casitas MWD	West Ojai Pipeline Project	8	PVC	5,600
City of Carlsbad	Recycled Water Pipelines	4, 6, 8	PVC	27,000
City of Oceanside	Loretta Street Waterline Replacement	12	HDPE	1,600
City of Oceanside	South Oceanside Water & Sewer Replacement	8	PVC	13,750
City of Ontario	Ontario Regional Sports Complex	8-24	CML&C WSP, PVC, VCP	44,500
Ontario Municipal Utilities Company	Euclid Avenue Downtown Recycled Water Improvements	8-24	PVC	19,400
Ontario Municipal Utilities Company	Ontario Ranch, Phase 2 Water Main Improvements	18, 42	CML&C WSP	18,500
Ontario Municipal Utilities Company	San Antonio Avenue 30" Transmission Water Main	30	CML&C WSP	2,900
City of San Diego	Upas Street Pipeline Replacement	8-12, 24, 30	PVC, CML&C WSP, HDPE	25,000
East Niles CSD	Redbank Rd Pipeline Project	8, 14	PVC	6,800
East Niles CSD	Well 20 Flushing Pipeline Project	12	PVC	1,500
East Niles CSD	Brentwood Sewer Extension	8	VCP, PVC, HDPE	1,000
East Niles CSD	Pioneer Pipeline Project	12	PVC	1,400
Eastern Municipal Water District	Moreno Valley Cactus II Feeder Planning Study	36-48	CML&C WSP	35,000
Eastern Municipal Water District	Mountain Avenue Gap Pipeline	18	CML&C WSP	1,800
Eastern Municipal Water District	Paseo Vivora Pipeline Replacement	12	PVC	2,200
Eastern Municipal Water District	Post Road Pipeline	8, 18	CML&C WSP	5,800
Elsinore Valley MWD	Stage Ranch Road Pipeline	8	PVC, CML&C WSP	2,400
Elsinore Valley MWD	Zone 1467 Waterline Improvements	8	PVC	4,000
Fallbrook Public Utility District	Santa Margarita Conjunctive Use Project Pipelines	24	CML&C WSP	10,500
Nipomo CSD	Supplemental Water Project	12, 18, 24	DIP, HDPE	27,000
Nipomo CSD	Frontage Rd Trunk Sewer Replacement	24	PVC	4,200
Nipomo CSD	Branch St Water Improvements	8	PVC	2,100
Nipomo CSD	Joshua Road Booster Pump Station	24	PVC	27,000
North of the River MWD	Highland Park Improvement	8, 12	PVC	27,000
Olivenhain MWD	Unit X Pipelines	24	CML&C WSP	10,000
Otay Water District	640-1 and 640-2 Pipelines	42	CML&C WSP	11,000
Rainbow Municipal Water District	Pala Mesa Tank Pipelines	16, 18, 24	Steel	1,000
Rancho California Water District	Anza Road 1550 Pressure Zone Pipeline Extension	12, 24	PVC, CML&C WSP	1,200
Rancho California Water District	Redhawk Parkway Recycled Water Pipeline Replacement	16	PVC	3,600
Rincon del Diablo MWD	ID-A Fire Flow Improvements	8, 12	DIP	6,700
Rincon del Diablo MWD	West Feeder (ID-A) Pipeline Replacement	12, 16	DIP, PVC	2,000
San Bernardino Municipal WD	I-215 Water Main Relocations - Segments 1, 2, & 3	8, 16	DIP	6,800
South Coast Water District	Via California Replacement	10	PVC	500
South Coast Water District	Via Sacramento Water Main Improvements	8	PVC	560
United Water CD	Alternatives Analysis	16	PVC	20,000
Ventura County	Potable Pipeline Project	12	PVC	20,000
Water Replenishment District	208th Street Pipelines	14, 24, 36	HDPE	2,400
Water Replenishment District	GRIP Conveyance Alternatives Analysis	42	Steel	25,000
Water Replenishment District	Brine Pipeline	16	HDPE	2,000
West Basin MWD	Palos Verdes Pipeline	10, 12	PVC	16,000
Western MWD	Jefferson Avenue Pipeline	16	PVC	6,000

D

SCHEDULE

Ardurra assures IRWD of our ability to complete all work, considering our current and planned workload, based on the proposed schedule below.





BUDGET

																						
	Senior Project Director	Senior Project Manager (PA)	Principal Engineer (CV,JF,JJ)	Traffic Engineer PM (ML)	Project Engineer I (JB)	Traffic Project Engineer I	Assistant Engineer I (SR)	Principal Construction Manager (PB)	Senior Designer	Traffic CAD Technician I	Administrative Assistant	Total Hours (Ardurra)	Labor (Ardurra)	ODCs	Surveying (Calvada)	Geotechnical (AESCO)	Potholing (USI)	Non-Labor Costs	Total Fee			
Hourly Rates	345	280	303	302	213	198	193	286	194	146	119											
Task Group 100: Project Management																						
Task 1.A Preparation of Project Status Reports (16 months)	8	64									32	104	\$ 24,488	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,488			
Task 1.B Meeting and Workshops (11 total)	8	40	24		24							96	\$ 26,344	\$ 500	\$ -	\$ -	\$ -	\$ 500	\$ 26,844			
Task 1.C Agency Coordination		12	8		12							32	\$ 8,340	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,340			
Task 1.D Quality Assurance/Quality Control	16		80					12				108	\$ 33,192	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33,192			
Subtotal	32	116	112	0	36	0	0	12	0	0	32	340	\$ 92,364	\$500	\$ -	\$ -	\$ -	\$ 500	\$ 92,864			
Task Group 200: Preliminary Design																						
Task 2.A Background Information		8	8		24		24					64	\$ 14,408	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 14,408			
Task 2.B Rehabilitation Evaluation		12	24		36		8					80	\$ 19,844	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,844			
Task 2.C Pipeline Access Locations		8	12		8							28	\$ 7,580	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,580			
Task 2.D New Isolation Valves		8	4		8							20	\$ 5,156	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,156			
Task 2.E New Manway for Pipe Access		12	16		8							36	\$ 9,912	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,912			
Task 2.F Replacement of Existing Appurtenances		12	8		8							28	\$ 7,488	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,488			
Task 2.G Utility Research		4			8		24		24			60	\$ 12,112	\$ 100	\$ -	\$ -	\$ -	\$ 100	\$ 12,212			
Task 2.H Jurisdictional and Utility Permit Requirements		8	8				16					32	\$ 7,752	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,752			
Task 2.I Preliminary Project Schedule		20	10									30	\$ 8,630	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,630			
Task 2.J 30% Design & PDR	8	24	24		40		40		48			184	\$ 42,304	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 42,304			
Subtotal	8	116	114	0	140	0	112	0	72	0	0	562	\$135,186	\$100	\$ -	\$ -	\$ -	\$ 100	\$135,286			
Task Group 300: Final Design																						
Task 3.A Project Manual		24	16		40		40					120	\$ 27,808	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 27,808			
Task 3.B Construction Plans *												0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Task 3.B.1 Topographic Field Survey		4					8		8			20	\$ 4,216	\$ 100	\$ 75,988	\$ -	\$ -	\$ 76,088	\$ 80,304			
Task 3.B.2 Utility Review		4					12		12			28	\$ 5,764	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,764			
Task 3.B.3 Pothole Investigation (60)		4			8		8					20	\$ 4,368	\$ -	\$ -	\$ -	\$ 98,241	\$ 98,241	\$102,609			
Task 3.C Traffic Control Plans				30		70				152		252	\$ 45,112	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 45,112			
Task 3.D Geotechnical Investigation		4	4		8							16	\$ 4,036	\$ -	\$ -	\$ 90,224	\$ -	\$ 90,224	\$ 94,260			
Task 3.E Permits		12	18		24		60					114	\$ 25,506	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 25,506			
Task 3.F Project Schedule	4	24	12					8				48	\$ 14,024	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 14,024			
Task 3.G CEQA Documentation		4					12					16	\$ 3,436	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,436			
Task 3.H Liquidated Damages Calculations		4	2		8							14	\$ 3,430	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,430			
Task 3.I Opinion of Probable Construction Cost	2	12	4		16		30					64	\$ 14,460	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 14,460			
Task 3.J Design Deliverables for Rehabilitation of Reach A												0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Task 3.J.1 30% Deliverable	4	16	12		12		24		60			128	\$ 28,324	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 28,324			
Task 3.J.2 60% Deliverable	4	20	12		24		40		80			180	\$ 38,968	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,968			
Task 3.J.3 90% Deliverable	2	20	8		24		40		60			154	\$ 33,186	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33,186			
Task 3.J.4 100% Draft	2	8	8		12		32		40			102	\$ 21,846	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,846			
Task 3.J.5 Final Design Deliverable		8	8		8		20		32			76	\$ 16,436	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,436			
Task 3.K Design Deliverables for Replacement of Existing Reach A Isolation Valve												0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Task 3.K.1 30% Deliverable	2	8	4		8		8		24			54	\$ 12,046	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,046			
Task 3.K.2 60% Deliverable	2	8	6		12		12		40			80	\$ 17,380	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,380			
Task 3.K.3 90% Deliverable	2	8	6		12		20		40			88	\$ 18,924	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,924			
Task 3.K.4 100% Draft		8	6		8		12		24			58	\$ 12,734	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,734			
Task 3.K.5 Final Design Deliverable		8	4		8		8		12			40	\$ 9,028	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,028			
Task 3.L Submittals in PDF Format					4		12				16	32	\$ 5,072	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,072			
Task 3.M Bid Period Assistance												0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Task 3.M.1 Plan Revisions		2	1						5			8	\$ 1,833	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,833			
Task 3.M.2 Specification Revisions		4	2		2							8	\$ 2,152	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,152			
Task 3.M.3 Bidder Questions		2	2									4	\$ 1,166	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,166			
Task 3.M.4 Pre-Bid Meeting		4										4	\$ 1,120	\$ 100	\$ -	\$ -	\$ -	\$ 100	\$ 1,220			
Subtotal	24	220	135	30	238	70	398	8	437	152	16	1728	\$372,375	\$200	\$75,988	\$90,224	\$98,241	\$264,653	\$637,028			
TOTAL BUDGET	64	452	361	30	414	70	510	20	509	152	48	2630	\$599,925	\$800	\$75,988	\$90,224	\$98,241	\$265,253	\$865,178			

(*) Fee is included in Tasks 3.J and 3.K

JOINT VENTURE

Ardurra is submitting as the prime consultant along with the following three subconsultants: AESCO, Calvada Surveying, Inc., and Underground Solutions, Inc.



CONFLICT OF INTEREST

Individuals employed by Ardurra, or firms employed by or associated with Ardurra, including our subconsultants/subcontractors, do not have any conflict of interest with the project.

CONTRACT

Ardurra is prepared to accept and sign the professional services agreement as provided by the District.

INSURANCE



ARDURRA-01

KSUTTON

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
12/31/2025

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

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

PRODUCER Ames & Gough 8300 Greensboro Drive Suite 980 McLean, VA 22102		CONTACT NAME: PHONE (A/C, No, Ext): (703) 827-2277 FAX (A/C, No): (703) 827-2279 E-MAIL ADDRESS: admin@amesgough.com	
		INSURER(S) AFFORDING COVERAGE	
		INSURER A: Charter Oak Fire Insurance Company A++ (XV) 25615	
		INSURER B: Phoenix Insurance Company A++, XV 25623	
		INSURER C: Travelers Property Casualty Company of America, A++, XV 25674	
		INSURER D: National Fire & Marine Insurance Company A++ X 20079	
		INSURER E:	
		INSURER F:	

COVERAGES

CERTIFICATE NUMBER:

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	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR ☒ Contractual Liab. GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☒ PROJECT ☐ LOC OTHER:			630-5X487435	1/1/2026	1/1/2027	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 15,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY			810-5X558309	1/1/2026	1/1/2027	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
C	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE DED ☒ RETENTION \$ 10,000			CUP-5X642114	1/1/2026	1/1/2027	EACH OCCURRENCE \$ 15,000,000 AGGREGATE \$ 15,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N ☒ N If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	UB-5X489557	1/1/2026	1/1/2027	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
D	Professional Liab.			42-EPP-306878-08	1/1/2026	1/1/2027	Per Claim/Aggregate 10,000,000

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

CERTIFICATE HOLDER

CANCELLATION

EVIDENCE OF COVERAGE	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

ACORD 25 (2016/03)

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C-30



IRVINE RANCH WATER DISTRICT ETM REACH A REHABILITATION PROJECT

27



PUBLIC WORK REQUIREMENT

1000392146 - Ardurra Group, Inc.

Customer Account Lookup

PWCR

1000392146

Legal Entity Name

Ardurra Group, Inc.

Contractor Status

DIR Approved

Doing Business As (DBA)

Ardurra Group, Inc.

CSLB

Business Structure

Corporation - C corp

Business Phone

3053929979

President

Ernesto Aguilar

Ext

Email

charper@ardurra.com

Registration Start Date

2024-07-01

Registration End Date

2026-06-30

Crafts

Inspector/Field Soils, Material Tester

Customer Account Lookup

PWCR

2000006637

Legal Entity Name

AESCO, Inc.

Contractor Status

DIR Approved

Doing Business As (DBA)

AESCO

CSLB

Business Structure

Corporation - S corp

Business Phone

7143753830

President

Adam Chamaa

Ext

Email

adam.chamaa@aescotech.com

Registration Start Date

2025-07-01

Registration End Date

2026-06-30

Crafts

N/A

Customer Account Lookup

PWCR

1000007149

Legal Entity Name

CALVADA SURVEYING, INC.

Contractor Status

DIR Approved

Doing Business As (DBA)

Calvada

CSLB

Business Structure

-- None --

Business Phone

(951) 280-9960

President

Armando DuPont

Ext

Email

aruelas@calvada.com

Registration Start Date

2025-07-01

Registration End Date

2028-06-30

Crafts

Field Surveyor

1000007851 - UNDERGROUND SOLUTIONS, INC.

Customer Account Lookup

PWCR

1000007851

Legal Entity Name

UNDERGROUND SOLUTIONS, INC.

Contractor Status

DIR Approved

Doing Business As (DBA)

UNDERGROUND SOLUTIONS, INC.

CSLB

826001

Business Structure

-- None --

Business Phone

7602949449

President

Michael Arme

Ext

Email

aperez@usipothole.com

Registration Start Date

2025-07-01

Registration End Date

2026-06-30

Crafts

Laborer (Construction-Fence Erector-Housemover) (Engineering Construction)

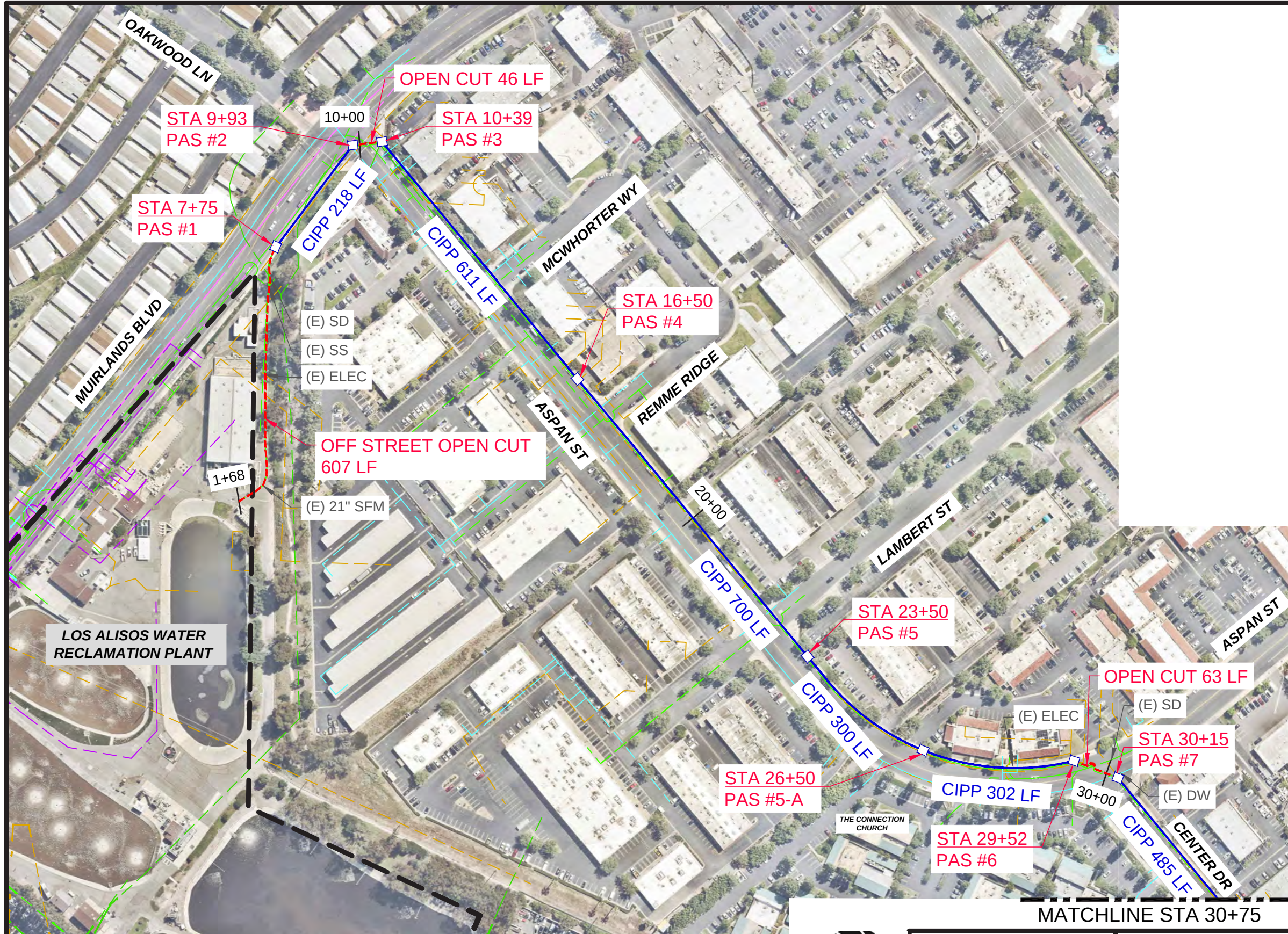
Laborer and Related Classifications

Laborer and Related Classifications (Building Construction)

1 APPENDIX 1 - PAS LOCATION MAP

Preliminary maps of PAS locations along the ETM alignment have been included on the following pages.

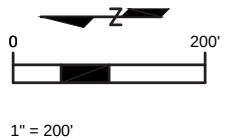
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KEY MAP
NTS

LEGEND:

- PAS
- OPEN CUT
- CURED-IN-PLACE PIPE (CIPP)
- FIBER OPTIC (FO)
- POTABLE WATER (DW)
- POWER (ELEC)
- RECLAIMED WATER (RW)
- STORM WATER (SD)
- SANITARY SEWER (SS)
- PROPERTY BOUNDARY LINE



Irvine Ranch
Water District



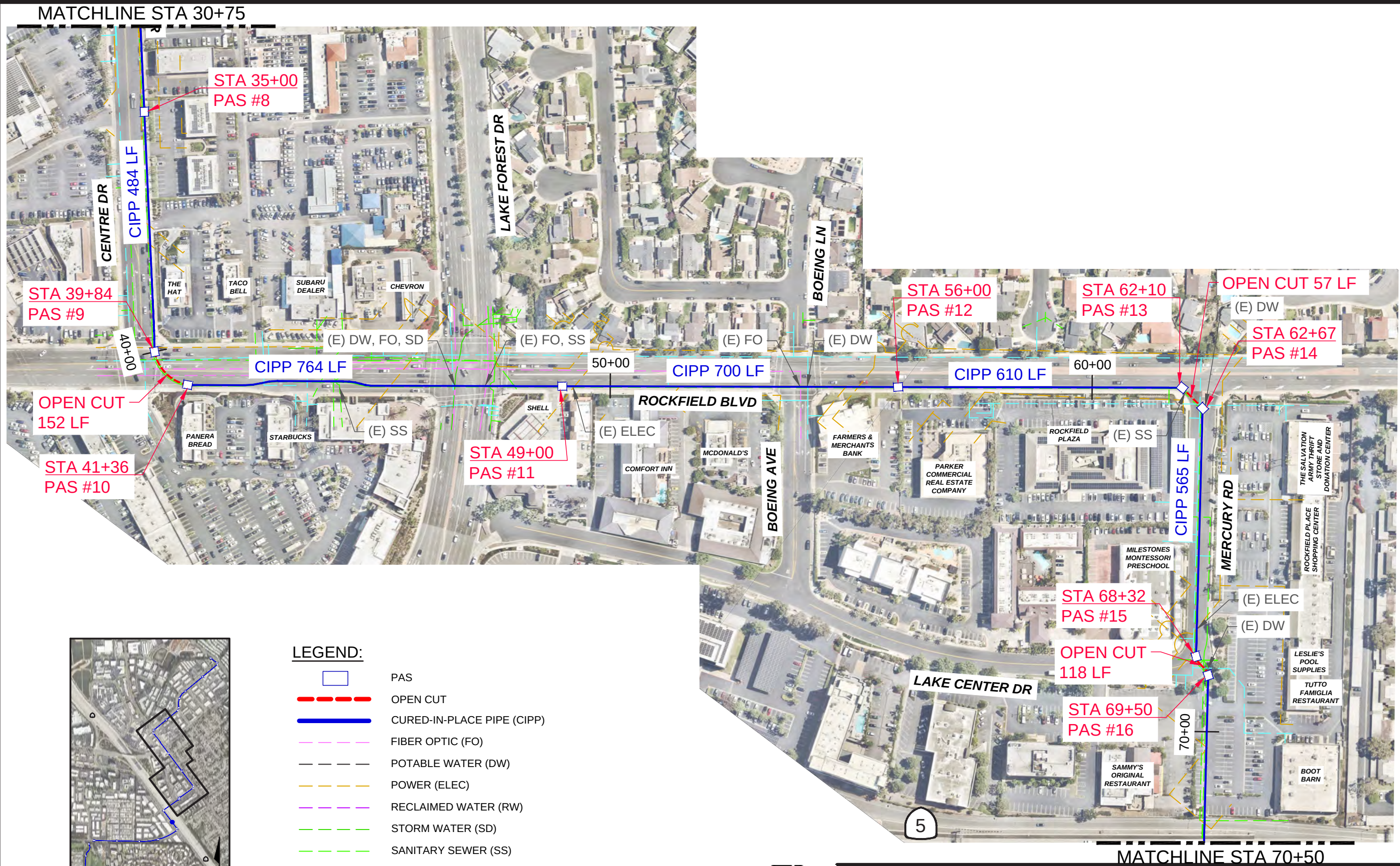
16310 BAKE PARKWAY
IRVINE, CA 92618 (714) 213-9758

IRVINE RANCH WATER DISTRICT

ETM REACH A REHABILITATION EXHIBIT
LOS ALISOS WATER RECLAMATION PLANT

FIGURE
1
OF
4

6/2/2026 DWG: M:\Marketing\Proposals\Current Proposals\IRWD\2026.06.03 ETM Reach A Rehab\03_Graphics\Exhibits\301 CAD\PLANS\ETM-001_PORTAIT_GIS-11X17_CY.dwg Plotted By: SRYAN

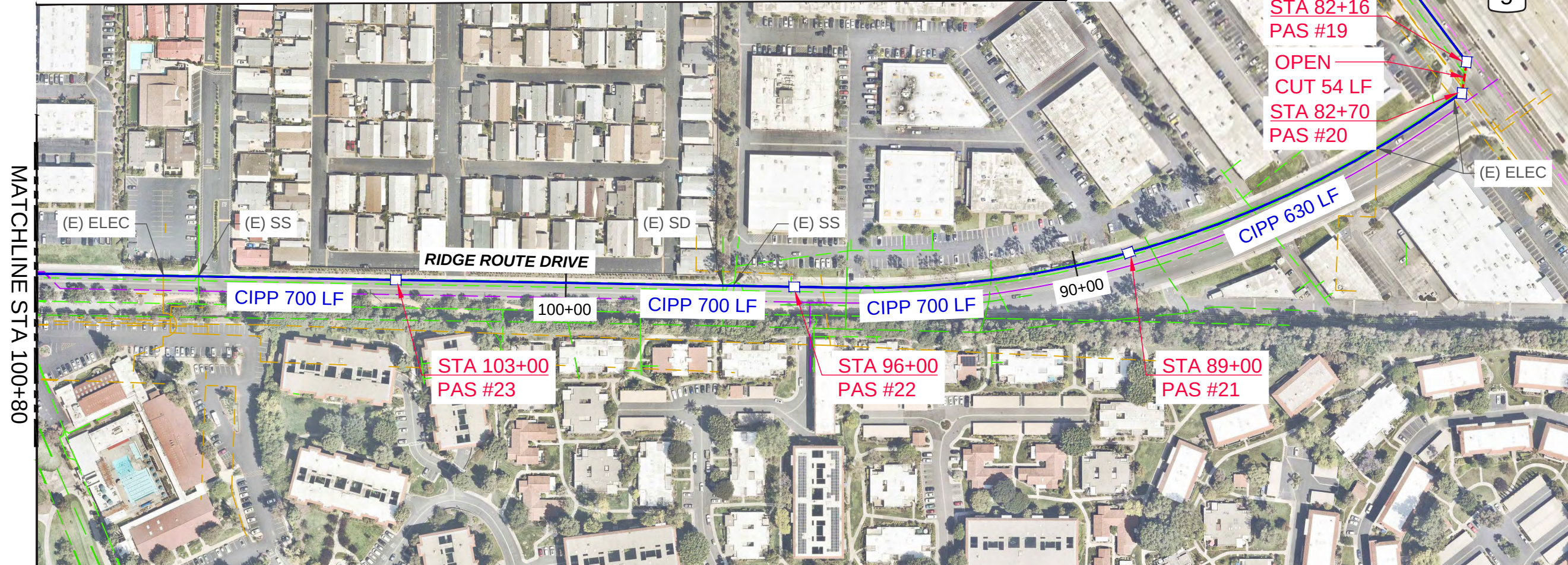


6/2/2026 DWG: M:\Marketing\Proposals\Current Proposals\IRWD\2026.06.03 ETM Reach A Rehab\03_Graphics\Exhibits\301 CAD\PLANS\ETC-001_PORTRAIT_GIS-11X17_CY.dwg Plotted By: SRYAN



LEGEND:

- PAS
- OPEN CUT
- CURED-IN-PLACE PIPE (CIPP)
- FIBER OPTIC (FO)
- POTABLE WATER (DW)
- POWER (ELEC)
- RECLAIMED WATER (RW)
- STORM WATER (SD)
- SANITARY SEWER (SS)



Irvine Ranch
Water District

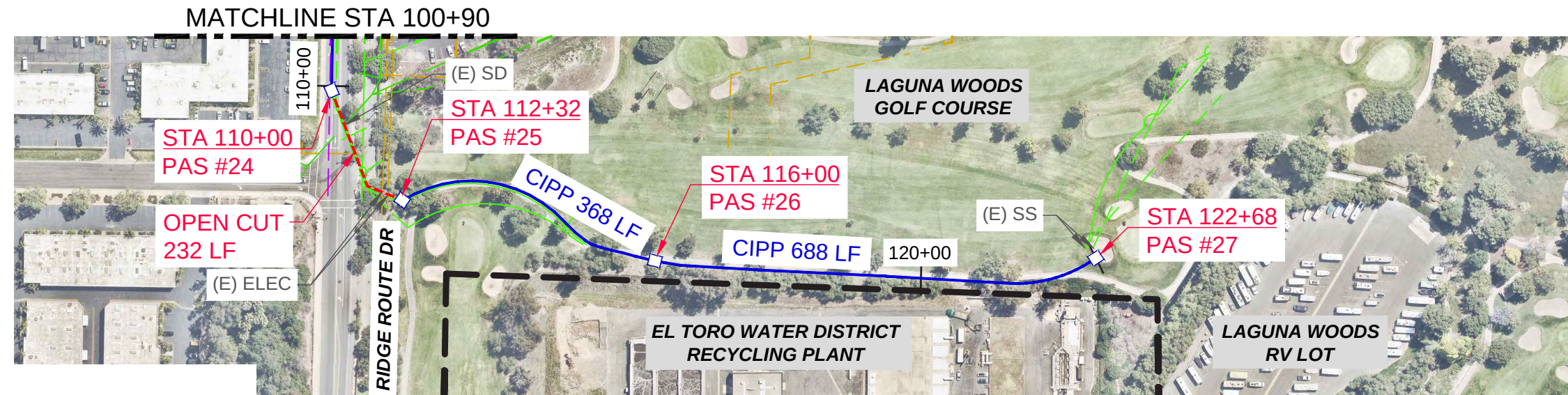


16310 BAKE PARKWAY
IRVINE, CA 92618 (714) 213-9758

IRVINE RANCH WATER DISTRICT
ETM REACH A REHABILITATION EXHIBIT
RIDGE ROUTE ROAD

FIGURE
3
OF
4

6/2/2026 DWG: M:\Marketing\Proposals\Current Proposals\IRWD\2026.06.03 ETM Reach A Rehab\03_Graphics\Exhibits\301 CAD\PLANS\ETIC-001_PORTRAIT_GIS-11X17_C1.dwg Plotted By: SRYAN



KEY MAP
NTS

LEGEND:

- PAS
- OPEN CUT
- CURED-IN-PLACE PIPE (CIPP)
- FIBER OPTIC (FO)
- POTABLE WATER (DW)
- POWER (ELEC)
- RECLAIMED WATER (RW)
- STORM WATER (SD)
- SANITARY SEWER (SS)
- PROPERTY BOUNDARY LINE



1" = 200'



Irvine Ranch
Water District



16310 BAKE PARKWAY
IRVINE, CA 92618

(714) 213-9758

IRVINE RANCH WATER DISTRICT

ETM REACH A REHABILITATION EXHIBIT
EL TORO WATER DISTRICT RECYCLING PLANT

FIGURE
4
OF
4

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August 19, 2026

Prepared by: T. Sanchez / J. Moeder

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

SANTIAGO CREEK DAM IMPROVEMENT PROJECT CONSULTANT SELECTION FOR CONSTRUCTION MANAGEMENT AND INSPECTION SERVICES

SUMMARY:

The design of the Santiago Creek Dam Improvement Project is nearing completion, and staff is preparing for the construction phase of the project. Staff requested proposals from four pre-qualified Construction Management Teams (CMTs) and received two proposals. The IRWD review panel evaluated and ranked the consultants based on their proposals and team interviews. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement in the amount of \$38,371,000 with HDR for construction management and inspection services.

BACKGROUND:

The design of the Santiago Creek Dam Improvement Project is nearing completion, and staff anticipates transitioning the project into the bidding phase before the end of the calendar year. The AECOM and GEI design team is on schedule to submit the 100% design at the beginning of September. Staff, the Division of Safety of Dams (DSOD), and the dam safety risk team will review the 100% design deliverable, and once onboarded, the CMT will also review the 100% design and provide valuable constructability and construction risk input to help complete the final design.

The risk informed decision making (RIDM) process for the designed spillway, outlet structure, and embankment dam improvements is nearly complete with the final workshop to address minor outstanding items scheduled for October. In September, the dam safety risk team will shift focus to the construction sequence and the risks that exist throughout construction. This approach to understanding risks throughout the various phases of construction is similar to the approach the Army Corps of Engineers is using on the Prado Dam Spillway Replacement Project, which is planned to start construction in spring 2027. The CMT will participate in the Construction Sequence Dam Safety Risk workshop in September and support efforts to manage risk and develop mitigation measures. Also in September, staff, the design team, and the CMT will conduct a bidders briefing and dedicated meetings with the individual pre-qualified bidders to solicit input on the complex construction sequence in advance of advertising for construction.

As part of the design and readying the project for construction, staff continues to collaborate on a comprehensive agreement with the County of Orange that encompasses all the temporary and permanent easements to build the project, a license agreement to replace a monitoring well associated with the Santiago Canyon Landfill, a reimbursement agreement associated with relocating Southern California Edison overhead powerlines that impact IRWD, Orange County Waste & Recycling, and Metropolitan Water District infrastructure in the area. Staff will present this agreement to the IRWD Board in the coming months.

In parallel to finalizing the design, staff continues efforts to procure the necessary environmental permits for the project. Staff recently received completeness determinations for the Lake and Streambed Alteration Agreement application and Incidental Take Permit application for Crotch's bumblebee and least Bell's vireo from the California Department of Fish and Wildlife, as well as the Clean Water Act 401 permit application from the Santa Ana Regional Water Quality Control Board. Staff continues to coordinate with U.S. Army Corps of Engineers and U.S. Fish and Wildlife on the Clean Water Act 404 permit and Endangered Species Act Section 7 consultation.

The project remains on schedule to advertise for construction in early 2027. In preparation of the upcoming construction phase and to allow time for the CMT to become immersed in the project and provide valuable constructability and construction risk input on the 100% design, staff recommends bringing the CMT onto the overall project team at this time.

In September 2024, staff issued a Request for Qualifications (RFQ) for Construction Management Services for the two upcoming dam projects: Syphon Reservoir Improvement project and Santiago Creek Dam Improvement project. The RFQ was delivered to a total of 15 consultants that had expressed interest in providing Construction Management Services on the projects. A total of four consultant teams submitted a Statement of Qualifications for the Santiago Creek Dam Improvement Project, including COWI/Gannett Fleming, HDR, MCK, and MWH. The four consultants were prequalified to receive the Request for Proposals. Both MCK and MWH unsuccessfully pursued the Construction Management Services for the Syphon Reservoir Improvement Project and then later revised their approach for the Santiago Creek Dam Improvement Project. MCK teamed with HDR, and MWH declined to submit a proposal.

Construction Phase Services & Consultant Selection:

In July, staff received proposals from the COWI/Gannett Fleming Joint Venture and HDR to provide construction management and inspection services for the Santiago Creek Dam Improvement Project. An IRWD staff evaluation panel was assembled to review and evaluate the proposals. Staff held interviews with both teams, during which the teams introduced their key personnel proposed for the project, explained their strategy for managing the multi-year project with various phases and complexities, and highlighted anticipated challenges. The interviews also provided a forum for the interview panel to obtain clarification on elements of the respective proposals and further understand the team dynamics.

The interview panel carefully and thoughtfully evaluated the proposals and interviews and found that the HDR team more closely aligns with staff's vision for the level of service for the project. The consultant evaluation matrix, provided as Exhibit "A", reflects the results of this process.

HDR and COWI/Gannett Fleming both demonstrated a strong understanding of key project elements within their proposals, but there were notable differences in experience and staff utilization. The key staff on the HDR team collectively have more experience than the key staff on the COWI/Gannett Fleming team. HDR is also offering a higher level of dedication of key staff. For inspection, HDR's proposal includes approximately 58,700 labor hours across a variety of different inspectors while COWI/Gannett Fleming budgeted approximately 41,000 hours for their inspection roles. The Santiago Creek Dam Improvement project has distinct

schedule and sequencing complexities because the dam must remain operational each wet season, which compresses the majority of work into the dry season and introduces strict completion milestones before each wet season. In the dry season, the contractor will work 20-hour days and up to seven days a week. HDR assigned dedicated night shift counterparts for key decision-making roles, such as the Resident Engineer, to ensure appropriate coverage, whereas COWI/Gannett Fleming proposed its Lead Inspector as its senior night-shift employee.

The HDR and COWI/Gannett Fleming fee proposals are within 4% of each other, with HDR's proposal being the higher of the two. HDR's higher fee is primarily attributed to higher utilization of key roles for night shift work. The negotiated and refined scope of work and level of effort total fee proposal for the approximately six year-long contract arrangement is \$38,371,000. HDR's scope of work and fee proposal are included as Exhibit "B".

Detailed Summary of Construction Team:

On past large IRWD projects, IRWD staff and portions of the design team have maintained an integral role on the CMT and maintained a full-time on-site presence throughout construction. On the Santiago Creek Dam Improvement Project, the design team will remain involved throughout construction and will remain separate from the CMT but is not anticipated to maintain a full-time presence on-site. Similarly, IRWD staff will also remain fully engaged with the project and, instead of being integral to the team and the day-to-day operations, will provide oversight. IRWD staff are not expected to maintain a full-time presence on-site. These changes to the construction management compared to past large IRWD projects (e.g., MWRP Phase 2, Biosolids, Baker Water Treatment Plant) coupled with the ongoing Syphon Reservoir Improvement Project, highlight the need to have a full-service CMT that is well-supported. This organizational structure of the CMT, design team, and IRWD staff is the same approach taken on the Syphon Reservoir Improvement Project.

The CMT will consist of a team of consultants that report to IRWD staff through the Construction Manager and Project Manager. The organizational structure of the CMT will vary depending on the phase of the project. By necessity, the team also includes backup staff to meet the demand of two to three full-time teams during the dry season. The CMT structure during the Final Design and Construction phases are shown in Exhibit "C". The team consists of eight subconsultants and generally includes up to nine full-time staff during the day shift and various part-time staff throughout the course of the project. A summary of some of the key roles during construction is as follows.

Construction Manager: Brian Hollis with HDR will serve as the Construction Manager that is responsible for field execution leadership. He will lead advance planning, coordinate teams, and resource scheduling. Brian's focus will be to maintain schedule, resolve constructability challenges, and will have decision authority related to the CMT's activities.

Project Manager: Randy Lovan with HDR will serve as the Project Manager that will manage the Construction Management Services contract with IRWD and the various subconsultants. In collaboration with IRWD, Randy will ensure the CMT is appropriately staffed and utilized throughout the project and will be responsible for the team's performance. Randy will be involved with contract administration, invoicing, change orders, claims support, and risk tracking.

Resident Engineer: Jim Lorenzen with HDR will serve as the Resident Engineer that will provide the day-to-day field oversight and management of field staff. His additional responsibilities will include coordination with the contractor, DSOD, the AECOM/GEI design team, environmental consultant, and other external entities as well as claim mitigation and strategy.

Quality Assurance Manager: Jerome Ruddins will serve as Quality Assurance Manager, tracking contractor quality control, developing and overseeing the Quality Assurance program, coordinating with DSOD on quality, inspections, and audits, and overseeing the onsite labs.

Inspection: The majority of the inspection services will be performed by Kleinfelder, as a subconsultant to HDR. They will perform inspection, quality assurance testing, and on-site materials testing. Their inspection services will include civil, foundation / compaction, soil nails, hazardous materials, geology / anchoring, geotechnical, RCC, concrete, structural, and welding. Kleinfelder will be responsible for equipping, operating, and managing the on-site geotechnical laboratory and concrete laboratory, which will ensure efficient use of on-site geotechnical inspection staff, expedite the processing of soil and concrete samples, and further support overall quality control measures.

Engineer of Record: AECOM and GEI will remain the Engineer of Record throughout construction. Staff currently intends to recommend a construction phase services contract with AECOM, with GEI as a subconsultant, at the time of the construction award. The construction phase services contract will generally include providing support to the CMT and IRWD in reviewing submittals, Requests for Information, plan revisions, permit compliance and procurement support, and other design and construction-related services.

Other CMT Members: Several other roles are part of the CMT, including but not limited to a Scheduler, Safety Manager, Risk Manager, Cost Estimator, Document Controller, and Change Management Lead, that will be utilized on a part-time or full-time basis depending on the phase of the project. The Scheduler will be responsible for critically reviewing and analyzing the Contractor's schedule to ensure work is planned and progressing, and to assess impacts associated with changes in the contract. IRWD staff have learned from past projects that a Scheduler working on behalf of the owner (i.e., IRWD) can help keep the project on track. The Safety Manager will have a part-time to full-time role during construction that includes overseeing the safety plan, monitoring for compliance, and conducting audits. This integral role, which is consistent with IRWD's overall Health and Safety Program, will continue IRWD's commitment to prioritizing safety for the community, staff, and those who work on District projects and will also establish clear separation from the Contractor's responsibility. The Safety Manager role will help to minimize risk to the District on the heavy civil construction project

that is naturally exposed to more complex construction compared to traditional IRWD capital projects. For document control, the CMT will utilize Procore, a well-known and often used online construction management platform. Providing the cloud-based platform for the duration of the project and hosting it for all parties involved with construction, including the Contractor, is included in the fee proposal. In addition to these roles, counterparts dedicated for night shift work are included for the resident engineer and inspectors.

IRWD Staff: Staff will oversee the CMT and remain engaged through the course of the project by regularly attending construction-related meetings, reviewing reports related to the Contractor's and CMT's work, and providing Owner-related decisions to maintain progress while protecting the interest of IRWD. Staff will also manage the environmental permit compliance and mitigation management plan contract. Community relations services will be provided with in-house staff and build upon all the past outreach efforts from the Communications Department. While the CMT and DSOD will directly communicate and coordinate on logistics and technical issues, IRWD will remain in regular communication with DSOD to ensure positive outcomes and relationships with the state regulator.

Design & Construction Schedule:

Staff anticipates the following upcoming project milestones:

September 2026	Construction Sequence Dam Safety Risk Workshop (with CMT)
September 2026	Bidders Briefing (with CMT)
October 2026	CMT provide comments on the 100% design
December 2026	IRWD procure environmental permits
January 2027	Finalize construction documents and advertise for construction
April 2027	Construction Award
April 2032	Construction Completion

Conclusion:

Utilizing the draft PowerPoint presentation provided as Exhibit "D", staff will review this information with the Board. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement, in the amount of \$38,371,000 with HDR since their approach and staffing are consistent with the goals and objectives. While staff is recommending the full contract amount at this time, the contract will be administered on a "task-basis," with staff only issuing the Notice to Proceed on the Pre-Construction Activities support task and then issuing the Notice to Proceed on the Construction Phase Services once the Board approves the construction award.

FISCAL IMPACTS:

The Santiago Creek Dam Improvements, Project 01813, is included in the FY 2026-27 Capital Budget. Sufficient budget is available to fund the recommendations presented herein.

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA). The Santiago Creek Dam Improvement Project Final Environmental Impact Report (EIR) was adopted by the IRWD Board of Directors on November 10, 2025. A Notice of Determination was filed with the Orange County Clerk-Recorder and California State Clearinghouse on November 12, 2025. Other permitting requirements are described above.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with HDR in the amount of \$38,371,000 for construction management and inspection services for the Santiago Creek Dam Improvement, Project 01813.

LIST OF EXHIBITS:

- Exhibit “A” – Consultant Selection Matrix
- Exhibit “B” – Scope of Work and Fee Proposal
- Exhibit “C” – Organizational Structure of the Construction Management Team
- Exhibit “D” – Powerpoint Presentation Draft

Exhibit "A"

CONSULTANT SELECTION MATRIX

Santiago Creek Dam Improvement Project Construction Management Team Evaluation Matrix						
Item	Description	Weight	COWI/GFT		HDR	
A	Evaluation ¹					
1	Project Understanding & Approach	25%	2		1	
2	Construction Management Team	40%	2		1	
3	Subconsultants	20%	2		1	
4	Overall Value	15%	2		1	
	Weighted Score		2		1	
	Ranking of Consultants		2		1	
B	Scope of Work ²					
TASK			FEE	HOURS	FEE	HOURS
1	Original Proposal		\$36,847,190	143,987	\$39,430,756	145,556
2	Negotiated Proposal		-	-	\$38,370,451	142,997
	TOTAL ENGINEERING SERVICES FEE ³		\$36,848,000		\$38,371,000	
C	Roles on Construction Management Team - Construction Phase					
	Principal-In-Charge	Ed Durazo - GFT		Alex Yescas		
	Project Manager	Arun Parsons - COWI		Randy Lovan		
	Construction Manager	Rodolfo Ruiz Gaekel - COWI		Brian Hollis		
	Resident Engineer	Tylor Olson - GFT		Jim Lorenzen Matthew Burris (night)		
	Quality Assurance Manager	Corey Kesler - GFT		Jerome Ruddins		
	Safety Manager	Robert Nunez - CER		Tim Luu		
	Risk Manager	Bill Foos - GFT		Nate Snortland		
	Inspector	Tochi Uzegbu - H&A		Bob Frazer - Kleinfelder Derick London (night)		
	Scheduler	Kevin Holmes - CAPO		Matt White - MCK		
	Document Controller	Mariette Diep-Durand - COWI		Chelsea Feller		
	Cost Estimator	Trevor Kroesch - CAPO		Mark Biddle - MCK		
	Construction Contract Manager	Issa Batarse - CAPO		-		
	Claims Support	Craig Beeson - COWI		Ron Perkins		
	Senior Advisors (Dam Construction, Scheduling)	Tom Huntington - CAPO Mike Pauletto - Pauletto Mike Rogers - Rogers Tino Rodrigues - Ninyo & Moore		Ron Perkins - Con Mgmt Les Harder - DSOD Denis Dilek - Concrete/RCC Ken Kelgard - Operations/Phasing		
D	2026 Bill Rate Comparison of Core Team					
	Project Manager	Arun Parsons	\$300	Randy Lovan	\$280	
	Construction Manager	Rodolfo Ruiz	\$280	Brian Hollis	\$225	
	Resident Engineer	Tylor Olson	\$230	Jim Lorenzen	\$280	
	Quality Assurance Manager	Corey Kesler	\$272	Jerome Ruddins	\$290	
	Inspector	Tochi Uzegbu	\$207	Bob Frazer	\$204	
	Document Controller	Mariette Diep-	\$174	Chelsea Feller	\$144	
	Number of Full-Time Positions ⁵	9		9		
	Exceptions taken to IRWD Std. Contract	None		None		
	Insurance (Professional & General Liability)	Yes		Yes		

¹ Evaluation considers key differentiators including Team Continuity and Depth, Team Structure, Resident Engineer, Schedule Management, Complete Level of Service, Utilization of Risk Management, and Approach to Safety.

² Each of the original fee proposals varied in the division of work and assumptions for overtime work, annual bill rate escalations, and project duration. All proposals assumed project completion in 2032.

³ Rounded up to the nearest \$1,000.

⁴ Comparison does not include all core team members, which may fluctuate throughout the project.

⁵ The quantity of full-time and part-time positions represent sustained positions and may not fully represent the brief periods of time throughout construction that a full-time or part-time position is utilized.

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Proposal for Construction Management Services

SANTIAGO CREEK DAM IMPROVEMENT PROJECT

PR 01813

IRVINE RANCH WATER DISTRICT

JULY 15, 2026



July 15, 2026
Irvine Ranch Water District
Jacob Moeder, PE
Engineering Manager - Dams and Storage
15600 Sand Canyon Ave., Irvine, CA 92618



RE: Request for Proposal for Construction Management Services for the Santiago Creek Dam Improvement Project - PR01813

Dear Selection Committee Members,

HDR has collaborated with Irvine Ranch Water District (IRWD) on your dam program since 2017 and shares IRWD’s commitment to safety, risk-informed decision-making, and successful project delivery. Our familiarity with Santiago Creek Dam, IRWD, the Division of Safety of Dams (DSOD), and project stakeholders allows us to provide immediate value while effectively managing phased construction, public safety, and dam operations throughout construction.

We have assembled a dedicated Construction Management Team (CMT) specifically for Santiago Creek Dam. Our team combines expertise in construction management, resident engineering, quality assurance, safety leadership, contract administration, and dam safety risk management. Just as importantly, we intentionally staffed the team to provide IRWD with committed leadership, field presence, and continuity throughout construction.

Brian Hollis will lead the team as Construction Manager, with Randy Lovan serving as Project Manager, while Jerome Ruddins supports as Quality Assurance Manager, Jim Lorenzen as lead Resident Engineer, Ron Perkins as Key Technical Advisor, and Tim Luu as our Safety Manager. This leadership structure gives IRWD the right combination of dam construction leadership, contract administration, inspection oversight, technical review, and field decision-making experience.

IRWD can expect a team committed to safety, disciplined project delivery, and the flexibility to meet changing project demands. Specifically, we will:

- 1. Deliver a safe project where health, safety, and accident prevention guide each decision.
- 2. Proactively manage construction risks and drive contractor milestones to protect dam safety and confirm annual wet-season readiness.
- 3. Provide scalable staffing capacity and specialized expertise to support the phases of construction, resulting in a higher-quality project.

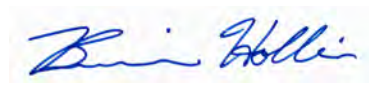
HDR’s capabilities extend beyond the proposed staff. Through our national dam safety and construction management practice and our collaboration with **Kleinfelder** and **MCK**, IRWD will have access to more than 1,600 additional resident engineers, inspectors, geotechnical specialists, materials testing personnel, roller-compacted concrete (RCC) experts, safety professionals, and technical advisors whenever project conditions require increased staffing. This breadth allows us to supplement project needs without disrupting the dedicated core team assigned to Santiago Creek Dam.

Our team has successfully managed the construction improvements on major California dam projects, including Lake Isabella, San Vicente, Oroville, Crystal Springs, Success Lake, Lake Hodges, and Pyramid Dams. These projects required the same disciplined approach to safety, quality management, stakeholder coordination, contractor oversight, and risk mitigation that will be critical to the successful delivery of Santiago Creek Dam.

Most importantly, we will serve as an extension of IRWD protecting your interests, we will provide proactive leadership, consistent field presence, technical expertise, contract discipline, and risk-informed decision-making throughout construction. By providing a local, dedicated, and fully committed team backed by the resources of HDR, Kleinfelder, and MCK, we will deliver the continuity, responsiveness, and accountability necessary to successfully execute this important dam safety improvement project while supporting IRWD’s long-term dam safety objectives.

We appreciate the opportunity to continue supporting IRWD and look forward to helping successfully deliver the Santiago Creek Dam Improvement Project.

Sincerely,
HDR Engineering, Inc.

Brian Hollis, PE
Construction Manager

Anna Lantin, PE
Area Manager



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1 | Approach



Project Understanding & Approach

The Santiago Creek Dam Improvement Project is a critical public infrastructure initiative advanced by IRWD to address dam safety, seismic, hydraulic, and operational deficiencies at Santiago Creek Dam, located in unincorporated Orange County, California. Constructed in the early 1930s, Santiago Creek Dam forms Irvine Lake, the largest open reservoir in Orange County, and plays a vital role in regional flood protection, municipal water supply storage, and groundwater recharge operations for downstream communities along the Santiago Creek watershed.

Comprehensive dam safety evaluations performed under the oversight of the DSOD have confirmed that, while the facility remains functional under severe loading conditions, several critical components no longer meet current engineering standards or regulatory expectations. The outlet works, spillway, and embankment dam no longer meet current seismic, hydraulic, and other dam safety standards. These findings, combined with increased consequences from downstream development and evolving regulatory expectations, led IRWD to advance the Santiago Creek Dam Improvement Project. The project represents a proactive investment to reduce public risk, modernize aging infrastructure, and improve long-term water supply reliability.

Existing Conditions and Identified Deficiencies

Santiago Creek Dam is a roller-compacted earthen embankment approximately 136 feet high and more than 1,425 feet long, impounding a 63-square-mile watershed. The reservoir storage capacity reaches approximately 25,000 ac-ft at Elevation 794, though a limited pool elevation of 762 feet has reduced usable capacity to approximately 10,000 ac-ft. While the dam has historically performed its intended functions, ongoing dam safety reviews identified several key deficiencies affecting structural reliability, hydraulic performance, and seismic resilience.

The existing outlet works system is seismically vulnerable and lacks the redundancy required to confirm reliable operation under extreme seismic and flood loading conditions. The existing uncontrolled spillway does not meet current flood performance criteria associated with a probable maximum flood and extreme storm events. These limitations reduce operational flexibility and increase reliance on conservative reservoir management strategies.

Embankment dam features, including internal seepage control elements and stability factors, reflect outdated design assumptions relative to current engineering practice under extreme seismic loading. Site constraints, including limited access, steep terrain, and proximity to environmentally sensitive areas, further complicate anticipated construction activities. Collectively, these conditions support the need for a coordinated, risk-informed upgrade strategy that addresses multiple deficiencies simultaneously.

Proposed Improvements

The project includes construction of a new inclined inlet and outlet works system designed to withstand modern seismic demands. The new outlet works will provide enhanced flow control, redundancy, and reliability, creating the ability to regulate reservoir releases under both emergency and non-emergency conditions. Replacement of the existing spillway with a new ogee crest, chute, and stilling basin is a key element of the project. The new spillway is designed to convey extreme flood events while reducing the potential for erosion and structural damage. Improved hydraulic capacity and operational control significantly reduce reliance on emergency procedures during high inflow events.

Embankment dam improvements include the installation of internal filter drains, reconstruction of a portion of the downstream shell material, crest widening, and modest crest elevation increases. These measures improve overall dam stability, control seepage, and enable increased operational water surface elevations, resulting in additional storage capacity up to 28,000 ac-ft. Ancillary improvements, including access roads, control facilities, and a spillway bridge, support the long-term monitoring, maintenance, and operation of the facility.

Approach to Santiago Creek Dam CM

HDR's phase-based approach gives IRWD a CMT sized and structured to match the work, rather than a static staffing plan that remains unchanged as project demands shift. Santiago Creek Dam will move through distinct phases of intensity, from final design review and bid support to extended dry-season construction, wet-season readiness, startup, final permitting, and project closeout. HDR's experienced local CM bench maintains core leadership continuity while scaling technical advisors, resident engineers, inspectors, quality assurance (QA) staff, safety resources, schedulers, document control support, and project controls staff as project needs evolve.

This flexibility is critical for a project with multiple dam safety-critical work elements, including the diversion berm, embankment filter and drain placement, spillway replacement, outlet works construction, rock anchor wall construction, access improvements, and startup of new operational systems.

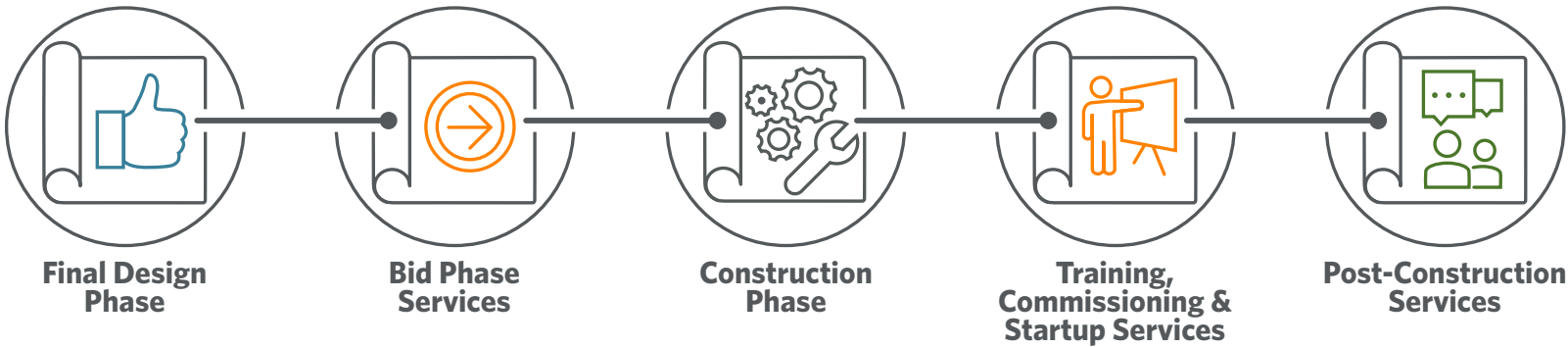
During the five dry-season construction periods, HDR will increase field coverage to support extended day and night shifts, weekend work, simultaneous work fronts, inspection and testing coordination, safety monitoring, DSOD readiness, and real-time issue resolution.

During wet-season periods, HDR will adjust staffing to focus on winterization, dam and spillway functionality, temporary works, placement of Best Management Practices (BMPs), construction activities that do not affect dam safety, and preparation for the next dry-season work window.

HDR will manage the Construction Risk Register as a live decision tool throughout the project. Risks will be identified early, assigned to responsible parties, tracked through mitigation measures, and escalated before they affect environmental compliance, construction progress, cost, schedule, or quality. This gives IRWD continuous visibility into emerging challenges and trends, allowing decisions to be made before problems become delays, claims, rework, or DSOD acceptance challenges.

The result for IRWD is a scalable, field-focused CM organization with the bench depth to provide the right coverage at the right time. HDR's approach maintains continuity, adds resources when construction intensity increases, and supports both production and risk management, delivering a quality project that meets DSOD requirements throughout construction.

The following section summarizes HDR's approach to the major phases: Final Design, Bid Phase, Pre-Construction, Construction, Startup, Commissioning and Training, Final Permitting, and Post-Construction Closeout. Each phase reflects the project's distinct dry-season construction and wet-season winterization demands, which will drive staffing, field coverage, DSOD coordination, and risk management throughout delivery.



For each project phase, HDR has developed an abbreviated phase-specific implementation plan (shown on the right) that outlines key objectives, major deliverables, and critical construction management activities.

Final Design Phase Objectives



Provide comprehensive final design phase reviews and construction management planning to strengthen constructability, biddability, and risk management for the Santiago Creek Dam project. Support IRWD and the design team by identifying potential construction, cost, schedule, and dam safety risks early, while establishing the processes, documentation, and coordination framework needed for successful project delivery.

The top five key approaches that differentiate HDR's proposed delivery are:

1. Comprehensive Constructability & Biddability Reviews

HDR will evaluate the design from both an owner's and contractor's perspective, focusing on constructability, biddability, sequencing, access, scheduling, and potential changed conditions. This approach is intended to improve document clarity, reduce ambiguities, and limit construction risks before bidding.

2. Construction-Focused Risk Management

The team will identify, rank, and manage construction risks through development of a Construction Risk Register, risk workshops, and risk analyses focused on dam safety, cost, schedule, and construction execution. The team places special emphasis on maintaining dam integrity throughout construction.

3. Proactive Construction Management Planning

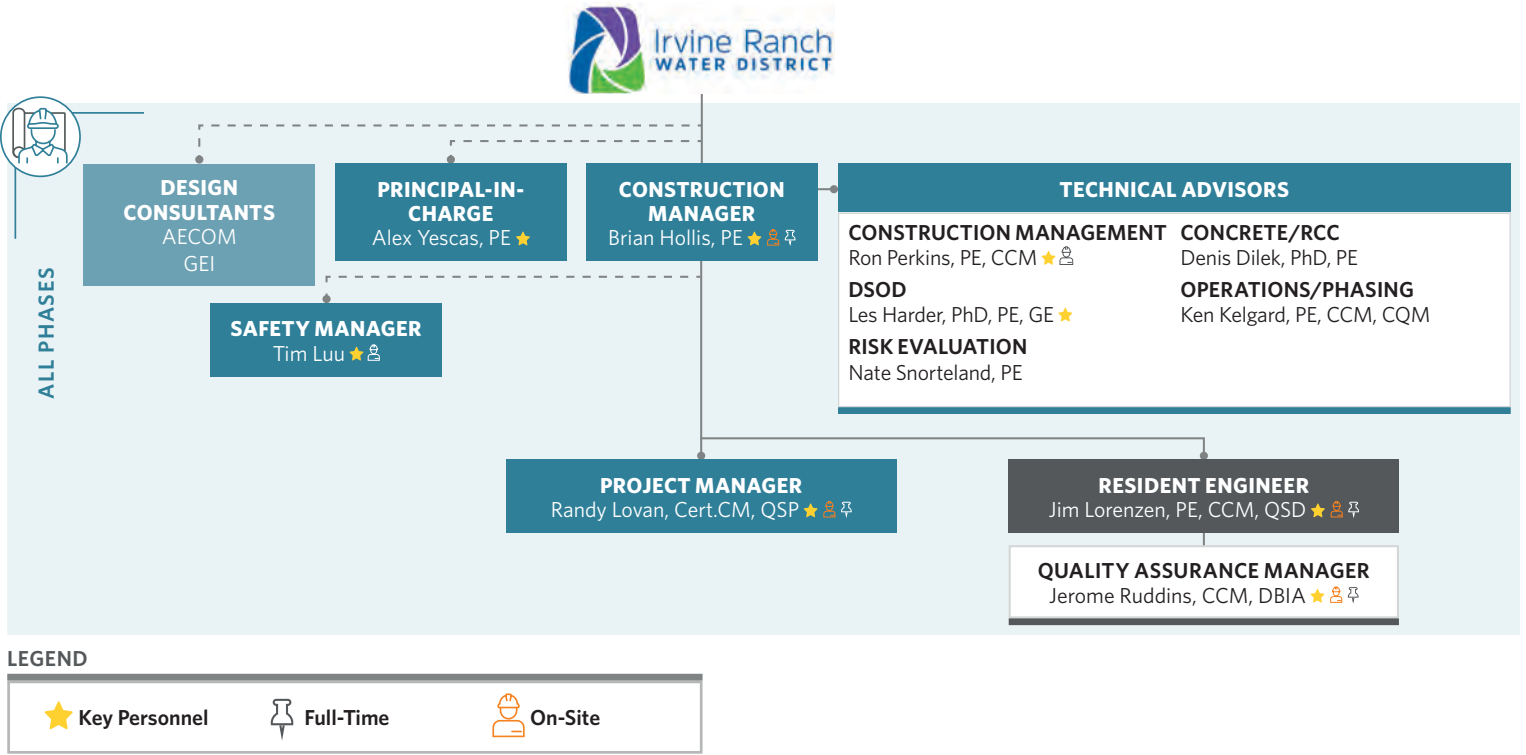
HDR will establish the framework for project delivery by developing the Construction Management Plan and supporting plans for quality, safety, risk management, and team coordination. These plans create clear decision-making processes, communication protocols, and documentation requirements before construction begins.

4. Collaborative Stakeholder Coordination

Our approach emphasizes early and continuous collaboration among IRWD, DSOD, AECOM/GEI, the design team, and the CMT. Formalized processes for milestone inspections, design changes, issue resolution, and risk-based decision-making will help maintain schedule, cost, and stakeholder alignment.

5. Technology-Enabled Construction Oversight

HDR will use technologies such as Bluebeam Studio, Microsoft Teams, time-lapse cameras, drone surveys, satellite internet, and web-based photo documentation to improve communication, enhance project visibility, strengthen documentation, and support remote stakeholder engagement throughout construction.



HDR's leadership team will coordinate directly with IRWD throughout the full project lifecycle, supported by a technical advisory bench spanning construction management, DSOD, risk evaluation, concrete and RCC, and operations and phasing.

Final Design Phase
HDR's Final Design Phase team, led by Jim Lorenzen, will work closely with the Design Team to provide recommendations that produce clear, quality, biddable documents. The team draws on dam construction management professionals to conduct thorough, focused reviews of proposed construction documents. Jim's contractor background allows him to anticipate means-and-methods challenges, evaluate issues from the contractor's perspective, and identify practical solutions before they impact safety, schedule, or cost, helping resolve problems faster and reduce construction risk.

HDR subject-matter specialists will conduct a General Project Review and a Final Design Review during this phase to provide IRWD with a high degree of cost confidence for construction bids. The team will approach each review through a constructability and biddability lens, examining sequencing, Contractor access, schedule, and program support to confirm clear intent, eliminate conflicting requirements, address incomplete information, and reduce high-cost and high-risk operations. This review will encompass all project documents provided to bidders, including plans, the project

manual, geotechnical information, permits and agreements, and front-end documents, to confirm that document control procedures align.

The review will also include developing initial outlines for the HDR Construction Management Plan (CMP) to reduce construction risk, along with appendices for the Project Team Coordination Plan, CMT Quality Plan, Risk Management Plan, and Safety Plan.

Each specialist will focus on their area of specialty, confirming that the approach outlined reduces risk, is constructable at a reasonable cost, has clear intent, and contains no inappropriate gaps or overlaps. The team will focus on major project elements that contribute to risk and will develop a Construction Risk Register. Construction professionals will review the overall design approach with a focus on biddability and constructability, cost and schedule reviews, and risk analysis. The risk analysis will focus reviewers on critical items relative to the construction contract, specifically maintaining dam integrity during construction.

The plan, specification, and permit review allows the team to identify sequencing issues that have dam risk or cost and schedule implications, verify bid quantities, and confirm that the measurement and payment clauses adequately reflect the work to be done without gaps or overlaps. The review takes a thorough look at project documents to eliminate inconsistencies and conflicts and refines the project for construction. Together, these reviews reduce dam integrity risk, reduce initial bid costs, reduce change orders and claims during construction, and allow the owner to develop contingency plans and budget items identified in the review.

The Team will review temporary office facility needs during the Final Design phase to confirm that the field office layout, utilities, communications, workspace, meeting space and inspection support functions are appropriately sized for the anticipated level of construction activity. This review will consider the staffing demands of wet and dry season construction monitoring, DSOD coordination, contractor interface, QA and testing coordination, and IRWD participation so that field facilities support efficient daily operations and timely decision-making.

A critical aspect of the Final Design Phase is formalizing a process among IRWD, DSOD, AECOM/GEI and the CMT around management of milestone inspection activities and design-related changes during construction. A roadmap will be established to obtain design team, IRWD, and DSOD input to implement alternatives that balance schedule, cost, and risk for situations encountered in the field. This roadmap will include parameters for information flow, key staff, decision points, and documentation processes, critical for gaining consensus on issues to maintain the pace of construction.

During this phase, the project will be reviewed for use of technology at the jobsite. Time-lapse cameras and satellite internet at the dam site will support team efficiency and strengthen program management. Internet-based photo records with integrated metadata aid in managing jobsite

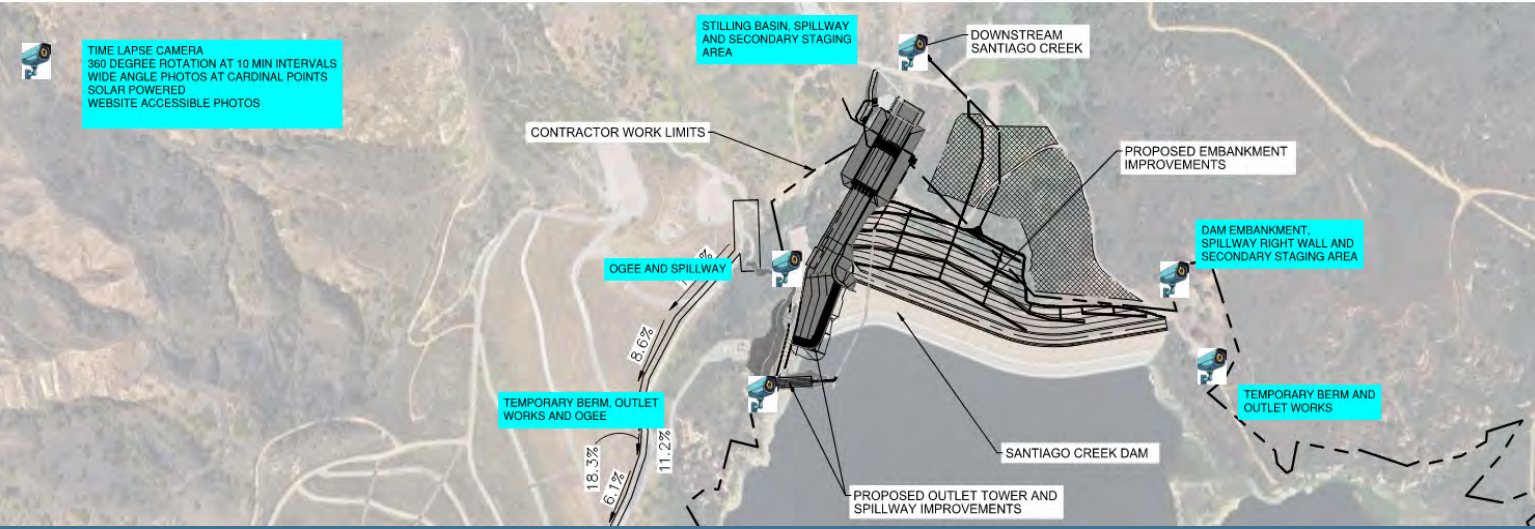
documentation, and scheduled drone flights can provide insight into project issues. These technologies give IRWD, DSOD, and AECOM/GEI staff remote views of construction progress that support stakeholder engagement and outreach while providing project documentation across quality, safety, and program performance.

Document Review Process
HDR will develop a review schedule to align review team deliverables and effort levels with IRWD, DSOD, and AECOM/GEI. This will allow HDR to right-size the teams and focus the work to provide value to IRWD. The timeline provided in the RFP anticipates that the process will begin in early September 2026 and wrap up in October. To achieve project goals for this seven-week phase, the review schedule must be closely followed. The team will work collaboratively in a Bluebeam Studio environment and in Microsoft Teams.

Final Design Review Team and General Project Overview
The project development team will distribute documents, including the Design Documentation Report (DDR), plans, and specifications, for an initial high-level project review.

The team will meet to develop a high-level understanding of the design approach, supporting efficient, quality interactions with IRWD and design team during follow-on efforts. Review team specialists will then meet with the lead designer for each feature to understand the background, justification for non-standard decisions, and challenges addressed during design. The team expects these short, informal meetings to further the reviewers' project understanding. Where appropriate, the specialist will discuss requirements with DSOD staff to understand their critical issues.

Each specialist will then review project documents within their area of focus. To gain a thorough understanding of the project, these will include the plans, specifications, Opinion of Probable Construction Cost (OPCC), schedule, permits, risk



To enhance field oversight and transparency, HDR will deploy strategically located time-lapse cameras at key construction work fronts, providing IRWD with continuous access to real-time project imagery. This system supports proactive construction management, schedule monitoring, stakeholder communication, and comprehensive documentation of work progress throughout the duration of construction.

matrix, and operational requirements appropriate to the focus area. Bluebeam tracks each comment, and a Santiago Creek Dam-specific approach will be used to confirm comments are clear and concise, that similar comments are combined, and that each reviewer’s comments are captured in a tracking spreadsheet to allow AECOM/GEI to address them efficiently.

On a separate parallel track, specialists will flag risks identified in the work, with focus on construction-related risks such as dam safety, cost, and schedule, and incorporate them into a risk register. The risks will be ranked within a matrix to inform the review process. The team will conduct a construction-focused risk workshop before a separate workshop on overall dam risk. The team will consider opportunities to reduce expected construction bid costs, reduce change orders and claims, reduce schedule risk, and suggest performance specifications to expedite certain aspects of the project. A fresh perspective on the documents can improve clarity through modified sequencing, improved construction access, and similar recommendations.

A primary goal of the General Project Review will be to review the documents efficiently for constructability and biddability. HDR’s team will review the documents as if they were estimators bidding on the work, looking for clarity and conflict within the bid documents. This approach puts the team in the contractor’s position, which often brings to light risks for the owner that warrant further evaluation. This review will consider schedule, with particular focus on the volume of work included in each phase. This effort has three main benefits: it provides a roadmap for efficient scheduling of construction management staff, including long hours, multi-shift coverage, and day/night transition coverage; it provides valuable input to the larger risk analysis; and it begins the construction documentation process.

The reviews will examine measurement and payment clauses, scheduling specifications, permits, and other non-technical information to identify potential risks and issues. Evaluating the project from a bidder’s perspective can highlight constructability and access concerns, particularly around staging and phasing concepts.

Specification review will focus on front-end documents, confirming that key management tools are addressed. Robust program support, quality control, scheduling, and construction management information systems are critical for acceptance of the completed facility. A component of the Final Design Phase will be to work with IRWD operations staff to understand their requirements for operations and maintenance (O&M) and Irvine Lake Pipeline (ILP) flows, both during and after construction. Understanding how the completed project will be operated informs the design as well as how the project is managed during construction. Operations staff often carry the most detailed knowledge of site conditions and can provide valuable insight into local conditions and project neighbors.

Project Team Coordination Development Process

Based on experience on similar dam projects, it is critical to develop a coordination management strategy during the final design stage. This plan brings together IRWD, DSOD, the Design Team, and CMT to:

- Establish project-specific relationships and expectations
- Determine administration process (e.g., flow of documentation, meeting participation, submittal and Request for Information (RFI) review processes)
- Determine hold points for field reviews, and parameters around those
- Determine change management process
- Build in flexibility to start earlier in the spring and extend later in the fall based on tools such as Forecast-Informed Reservoir Operations (FIRO)

For a project such as Santiago Creek Dam, addressing these subjects early and revisiting them often is critical to project success.

Jim will be supported by focused efforts from professionals in each aspect of the work: Geotechnical, RCC, Hydraulic Structures, Pump Stations and Pipelines, Access and Staging, Electrical, Instrumentation and Controls, Front End Specifications, Management Technical Specifications (e.g., CPM, Safety, Quality), Environmental, Scheduling, and Buildings.

Brian Hollis, supported by HDR’s risk, dam safety, and construction specialists, will lead the risk management process by establishing the assessment framework, maintaining the Construction Risk Registry, and facilitating risk workshops with IRWD, the Design Team, and key stakeholders.



Bid Phase Services

Ron Perkins will lead Bid Phase Services and work closely with the CMT and the Design team to deliver effective pre-bid conferences, respond to bidders’ questions, and develop addenda. The CMT will also increase preparation efforts to verify the team is prepared for the start of the project.

Site Visits and Investigations

HDR acknowledges that the potential prime contractors have been pre-qualified and recommends holding a virtual project-specific briefing after advertisement, followed by one or two guided site visits to both the dam site and the borrow and staging area to effectively communicate the project approach to contractors. **Brian Hollis, Randy Lovan, and Jim Lorenzen** will assist the site visits as appropriate. HDR recommends that the contractors be allowed to stay at the dam site for at least two hours after the guided portion of the visit is completed. This will allow the contractors to understand site characteristics to develop correct bid costs.

Bidder Questions and Addenda

HDR will support the Design team in responding to bidder questions and addenda. Actionable communication will be in writing through the defined processes to maintain a level playing field. HDR’s Final Design Phase team will be key in developing the CMT response along with the Design team to questions delegated to them and will support Brian Hollis in delivering this key effort. Confirming that bid responses and addenda take a thorough look at the documents helps verify that the issues are addressed with clarity and consistency and meet IRWD, design team, and DSOD requirements. One example would be whether the Project Manual closely follows the OPCC requirements and references.

Final Design Phase Outcomes

- ✓ Enhanced bidder understanding of project requirements, site conditions, staging areas, and construction constraints through targeted briefings and guided site visits.
- ✓ Consistent, transparent, and well-documented responses to bidder questions and addenda that maintain a fair bidding environment and improve document clarity.
- ✓ Completion of a comprehensive Construction Management Plan defining project controls, communication protocols, safety, quality, permitting, inspection, change management, and stakeholder coordination processes.
- ✓ Improved confidence in bid evaluations through detailed analysis of bidder submissions, cost comparisons, bid abstracts, and identification of anomalies or unbalanced bids. Establishment of a proactive, site-specific safety program that prepares project personnel for construction activities through planning, training, hazard assessments, and continuous safety oversight.



Bid Phase Services Objectives

Provide comprehensive bid-phase support that promotes a clear, competitive, and well-informed bidding process while preparing the Construction Management Team (CMT) and stakeholders for successful project execution. Establish the management, communication, safety, and operational frameworks necessary to transition seamlessly from procurement through construction, commissioning, and project closeout.

The top five key approaches that differentiate HDR’s proposed delivery are:

1. Strategic Bidder Engagement and Site Familiarization

HDR will conduct project-specific bidder briefings and guided site visits to the dam, borrow areas, and staging locations, confirming contractors fully understand site conditions, constraints, and project requirements before submitting bids. This approach promotes more accurate pricing and reduces contractor assumptions.

2. Transparent Bid Administration & Addenda Management

The team will support the design team and IRWD in managing bidder questions and developing addenda through formal written processes that maintain a level playing field. Reviews focus on providing clear, consistent responses that align with project requirements and regulatory expectations.

3. Comprehensive Construction Management Planning

HDR will develop and finalize a detailed Construction Management Plan (CMP) that serves as the roadmap from contract award through commissioning and closeout. The CMP integrates safety, quality, communications, stakeholder coordination, inspections, change management, permitting, and payment processes.

4. Data-Driven Bid Evaluation and Risk Identification

The team will analyze bid submissions, prepare bid abstracts, compare costs against the Engineer’s Estimate, and identify anomalies or unbalanced bids. This approach provides valuable insight into market conditions and helps inform construction management strategies before work begins.

5. Proactive Safety Leadership

HDR will establish a site-specific safety program built on field assessments, job walks, drone observations, ongoing hazard analyses, and regular safety meetings. Safety planning is integrated into project delivery from the outset to support both workforce protection and efficient project execution.

Construction Management Plan
During this phase, HDR will complete the CMP for the project. This plan is the roadmap for how HDR will manage the project from contract award through construction, commissioning, and closeout phases. The phrase “Start with the End in Mind” will be the framework for the CMP.

Construction Manager Brian Hollis will lead development of the CMP, which will serve as the CMT’s blueprint for executing the work and quickly onboarding additional staff as project demands increase. The CMP will define HDR’s site-specific safety requirements, roles and responsibilities, communications protocols, team coordination, quality management, contractor payment processes, change management, inspection and observation procedures, permit compliance, and stakeholder coordination. By clearly documenting the processes HDR will follow from award through preconstruction, construction, and closeout, the CMP will provide consistency, improve efficiency, and allow IRWD to be engaged at the right times and decision points. The team will maintain the CMP as a living document and update it throughout the contract as project conditions evolve.

Bid Phase Services Outcomes



- ✓ Enhanced bidder understanding of project requirements, site conditions, staging areas, and construction constraints through targeted briefings and guided site visits.
- ✓ Consistent, transparent, and well-documented responses to bidder questions and addenda that maintain a fair bidding environment and improve document clarity.
- ✓ Completion of a comprehensive Construction Management Plan defining project controls, communication protocols, safety, quality, permitting, inspection, change management, and stakeholder coordination processes.
- ✓ Improved confidence in bid evaluations through detailed analysis of bidder submissions, cost comparisons, bid abstracts, and identification of anomalies or unbalanced bids.
- ✓ Establishment of a proactive, site-specific safety program that prepares project personnel for construction activities through planning, training, hazard assessments, and continuous safety oversight.

HDR will support IRWD with the bidders’ documents to confirm requirements are met, create a bid summary including each bidder’s submittal as well as the project development team’s Opinion of Probable Construction Cost. The team will review the combined cost information to look for anomalies, unbalanced bids, and information that may inform the construction management approach.

Tim Luu will develop the Site-Specific Safety Plan for the CMT and update it based on a thorough site review, job walks, drone flights, lowered lake levels and documented changes to the contract documents during the bid phase. This plan will address the approach to the safety program for the team based on site conditions and expected contractor activities. HDR staff will use the **HomeSafe mobile application** to complete daily Job Hazard Analyses (JHAs), will hold biweekly CMT-focused safety meetings, and will continually plan for team safety training and equipment based on upcoming project work.



Construction Phase

During the Construction Phase, HDR will provide IRWD with a field-led, fully integrated CMT led by **Brian Hollis, PE, as Construction Manager**, supported by Resident Engineers, Technical Advisors, Inspectors, QA staff, Safety resources, document control, schedulers, and **Randy Lovan, Cert. CM, as Project Manager**. This structure gives IRWD both strong daily field leadership and the technical depth needed to manage Santiago Creek Dam’s critical work elements, including diversion, embankment filter and drain placement, spillway replacement, outlet works construction, access improvements, rock anchor wall construction, startup, and DSOD acceptance.

Our Team is built for dam safety construction. **Brian, Randy, Jerome, and Jim** bring senior CM leadership experience, supported by HDR specialists and subconsultants, including **Kleinfelder** for QA materials testing, REs, and special monitoring, and **MCK** for scheduling, cost estimating, change management, administration, and project controls. For IRWD, the benefit is a scalable CM team that can ramp up during heavy dry-season construction, maintain focused oversight during wet-season readiness, provide adequate field coverage during extended shifts and multiple work fronts, and reduce the risk of missed monitoring activities, delayed decisions, rework, claims, DSOD acceptance challenges, and schedule impacts. Our team will serve as IRWD’s:

- Dependable, long-term team member
- Open, responsive, and transparent communicator
- Connector of key resources, tools, and methods
- Extension of staff that offers contractual oversight
- Change agent specializing in capability, capacity, and accountability
- Provider of efficiency through integration
- Reinforcer of project expectations
- Provider of true value, proficiency, and experience

Seasonal Constraints

Dry season work, from April 15 to November 15, includes construction within the dam below the existing spillway and work on the spillway and inlet and outlet structures. The existing dam and reservoir will remain operational at each phase to support operations and emergency response during both wet and dry seasons. Because construction will extend over multiple years, a written winterization plan will be developed in accordance with DSOD Monitoring and Reevaluation Protocols, Section 5, Sub-paragraph E.

The plan will include evaluation of potential flood events during construction and will be implemented during the wet season (November 16 through April 14). During the wet season, the contractor will monitor site conditions, maintain the project site, install BMPs across the project site and areas susceptible to erosion, and confirm proper operation and maintenance of the temporary stream diversion system. Preparations will include winterizing the project for wet weather conditions and

potential 100-year storm events. Access to the site from the Irvine Regional Park access road will not be permitted.

HDR organizes the construction phase approach by task to describe how they will perform the work in the field. Each task summary explains the management approach, leadership responsibility, supporting resources, coordination process, and benefit to IRWD. This allows IRWD to see how HDR’s field-led CM team, led by Brian Hollis as CM and supported by Resident Engineers, Technical Advisors, Inspectors, QA staff, safety resources, schedulers, document control, and Randy Lovan, Cert. CM, as Project Manager, will translate into daily actions that protect quality, cost, schedule, DSOD coordination, documentation, and claims avoidance.

Project and Construction Management

HDR’s CM, Brian Hollis, will manage CM field activities as an extension of IRWD staff. Drawing on his long-term experience working on dams, Brian will ultimately be responsible for all construction management activities for the Santiago



Construction Phase Objectives

Provide comprehensive, field-led construction management services so the Santiago Creek Dam Improvement Project is delivered safely, efficiently, and in compliance with contract requirements, regulatory obligations, and dam safety standards. Support IRWD through proactive oversight, risk management, quality assurance, stakeholder coordination, and technology-enabled project controls that protect schedule, budget, quality, and public safety throughout construction.

Based on the Construction Phase approach, the top eight key approaches that define HDR’s delivery strategy are:

1. Field-Led Integrated Construction Management

HDR will provide a field-focused Construction Management Team led by experienced dam and construction professionals, supported by resident engineers, inspectors, QA staff, schedulers, safety specialists, and technical advisors, structured to scale with project demands while maintaining continuity and consistent day-to-day leadership.

2. Proactive Safety Leadership and Oversight

Safety is embedded throughout project delivery through a dedicated Safety Management Team, site-specific safety planning, active field presence, safety dashboards, HomeSafe technology, hazard analysis, training, and a Drive to Zero culture.

3. Comprehensive Quality Assurance Program

HDR will implement a rigorous QA program integrating inspections, materials testing, laboratory services, monitoring, corrective action tracking, non-conformance management, and DSOD compliance requirements to confirm construction quality throughout each phase.

4. Risk-Based Construction Management and Oversight

The team will actively manage construction, dam safety, operational, and site safety risks through risk workshops, risk registers, contingency planning, seasonal readiness measures, and continuous risk monitoring throughout construction.

5. Schedule-Driven Project Controls

HDR emphasizes proactive schedule management through baseline schedule reviews, look-ahead planning, earned-value analysis, milestone tracking, staffing forecasts, wet-season planning, and collaborative schedule workshops with the contractor.

6. DSOD and Regulatory Integration

The approach includes early identification of approval milestones, frequent DSOD coordination, permit compliance management, agency engagement, environmental coordination, and structured regulatory communication to avoid delays and maintain compliance.

7. Technology-Enabled Construction Management and Oversight

HDR uses drone monitoring, Procore, digital field data management systems, automated QA workflows, real-time dashboards, GIS-based documentation, and the HomeSafe application to improve project visibility, reporting, and decision-making.

8. Proactive Change Management and Claims Avoidance

The team will employ disciplined contract administration, RFI and submittal management, progress payment reviews, change order evaluation, dispute resolution procedures, and thorough documentation practices to reduce claims and maintain cost confidence.



Creek Dam Improvement project. Brian will be engaged and informed of all activities going on and will be the decision maker for all construction matters. He will work closely with PM Randy Lovan and RE Jim Lorenzen to proactively evaluate project staffing needs. Brian will review the Contractor's CPM schedule and forecast CM needs, confirming that the right staff are available when needed and have a plan for when their skills no longer fit project requirements. HDR will provide staff with focused proficiency and staff with multiple skillsets to efficiently use personnel on-site. The CMT will add and reduce staff as project demands change over the course of the project, while maintaining core staff to provide continuity.

Brian begins each project exploring the relationship between stakeholders and their interests in the project. Understanding each stakeholder's priorities is essential to addressing concerns throughout construction. Brian will lead efforts to assist in coordinating the construction schedule to help reduce potential delays.

This is accomplished by extensive collaboration with the owner, designers, construction contract staff, and onsite field staff. Once the CM contract is awarded, Brian will participate in constructability reviews of the final design and lead completion of the risk register for the project to help identify potential schedule delays and how to mitigate them. Brian will assist with the award of the construction contract as requested by the owner.

Once the construction contract is awarded, Brian will collaborate with the contractor on their baseline schedule to confirm it meets contract requirements and use this for staffing determinations. There will be times throughout construction when HDR will require multiple field staff on-site to adequately document the contractor's progress. Brian will work closely with Jim Lorenzen, CMT RE, to determine efficient staffing for the tasks being constructed.

After award, Brian will schedule the pre-construction meeting with the contractor and prepare the agenda to include introductions, roles and responsibilities, the contractor's organization and their roles and responsibilities, contractor

work schedule, correspondence, highlights of construction contract conditions, contract clauses, specifications, key submittals, and required submittals prior to mobilization. Brian will then schedule a meeting with the contractor, Jim, and Randy to establish a schedule of values and pay application process.

Brian, in collaboration with Jim, will identify major milestones in the schedule to monitor as the contractor makes progress and confirm those milestones are met. The Santiago Creek Dam Improvement project is extremely complex with a very tight schedule, and the schedule is an important aspect of this project. Contingencies should be in place for unforeseen scenarios that may come up. Brian will collaborate with the project team regularly to reduce schedule delays during construction and confirm the dam and components are protected during the wet season.

Brian will be on-site daily during the construction seasons for this project and will begin each day with a toolbox meeting to coordinate with the field staff, outlining the contractor's tasks and how he would like the tasks observed and documented. **He will highlight critical aspects of the project that may need special attention during that shift.**

Throughout the day, Brian will coordinate with Randy Lovan on the status of contract administration tasks. He will discuss status of submittals under review and the CMT's response, as well as upcoming critical submittals to confirm the project remains on schedule. Brian will discuss these critical submittals with the contractor and confirm they remain on the contractor's radar. **Monitoring contract documents closely on this project is essential to avoid schedule delays.**

Brian will prioritize RFIs and potential change orders on a daily basis. He will communicate with the contractor daily to limit the number of RFIs and address questions in the field where possible; however, if questions need to be officially documented, he will require the contractor to submit formally for review and a response. **Brian will share discussions regarding questions, RFIs, and potential change orders with the owner immediately as they are raised by the contractor.**

Brian will review the contractor's three-week look-ahead schedule with Jim on a weekly basis. They will arrange staffing requirements and coordinate with Randy to confirm documentation is submitted and approved for upcoming work so that documentation does not delay construction progress. **Brian will use the contractor's three-week look-ahead schedule to discuss and schedule site visits from designers to observe specific tasks as well as to determine needs from the specialists.**

Brian, along with field staff available at the time, will attend the contractor's on-site weekly meetings to discuss program topics, current ongoing construction activities, submittals, RFIs, change orders, three-week look-ahead schedule, upcoming meetings, action items, and other specific details for that week. At the end of the work week, Brian will confirm that Jim, along with the chief inspector, reviews the progress that week and marks up a full-size set of prints on the project site to capture the as-builts accurately and confirm they remain current as the project proceeds. **This is essential on a multi-year contract with construction seasons to accurately capture deviations from the final drawings.**

As the project begins, Brian will schedule recurring internal meetings with leadership and senior advisors to discuss project status. These meetings will start more frequently at the beginning of the project and may transition into monthly depending on project conditions. He will schedule recurring meetings with the owner to provide construction updates and discuss questions or concerns. **This project's success is highly dependent on the transparency of everything related to the project and building trusting relationships with the owner, contractor, and related parties.**

Brian will review monthly pay applications to confirm the quantities are justified and discuss with the owner prior to recommending approval. In coordination with the contractor, he will schedule the monthly updated schedule meetings to review and compare to the baseline. **This will allow the team to track contractor progress and identify potential schedule issues early, allowing more time to address potential issues by analyzing trends.** He will coordinate closely with

the contractor on remedies for potential schedule delays to get back on schedule. Brian will notify the contractor that pay applications will not be approved until their submitted updated schedule is approved. We have applied this strategy on other large, complex projects with similar front-end requirements, and we will recommend that proven approach on this project. This encourages on-time schedule submittal, which is an essential tool for tracking contractor progress and accountability on a project where the schedule is critical.

Brian will lead a structured monthly Project Management meeting with the IRWD Contract Manager to review project status, staffing levels, budget performance, key risks, and upcoming project milestones. **These meetings will provide a forum to obtain IRWD feedback, document concerns, and implement responsive adjustments to staffing or management.**

Safety Oversight Services

Like IRWD, safety is a core value of HDR's. It begins with the commitment of our Chairman of the Board and CEO, John Henderson, PE, applying his vast experience serving as Army Colonel responsible for engineering, operations, and construction throughout the world. He supports and reinforces the core values of our Safety, Health and Environmental (SH&E) culture and believes in our "Drive to Zero" approach, which is built on a foundation of shared commitment, engagement, and action. **Stacey Meacham, CIH, PE, Corporate Director of SH&E at HDR,** shares this core value with her 23 Corporate and Regional Safety professionals focusing on the "Drive to Zero" philosophy of safety planning, training, and implementation throughout 200 offices and 14,500 HDR professionals.

Tim Luu, HDR's Irvine office Safety Professional, will lead the CMT safety effort for the Santiago Creek Dam Project. He and his safety team will establish and promote a proactive safety culture during the planning, training, and implementation of the Safety Management Plan (SMP), implementing both IRWD's and HDR's commitment to the safety program on-site daily, collaborating with members of the construction delivery team and project stakeholders. Tim and his safety team can draw upon the resources at HDR to sustain IRWD's and HDR's safety commitment throughout the five-year project duration. Tim will collaborate directly with Construction Manager Brian Hollis, IRWD's Director of Safety and Security Steve Choi, and the IRWD Project Manager.

Project Safety Initiation

Safety planning for the Santiago Creek Dam Project begins with sharing HDR's commitment to the safety program and culture with IRWD. HDR initiated this process earlier this year, with core members of the team collaborating with the IRWD Engineering Management Team at IRWD offices to discuss the goals, challenges, and expectations of the CMT on this important project. Consistent with HDR's experience with IRWD, the commitment to the safety program is paramount to the success of construction programs.

To further demonstrate HDR’s risk management commitment and approach to IRWD and the project, the CMT Leadership Team met with Steve Choi, Director of Risk Management and Security at IRWD, to develop a rapport with Steve, gain a thorough understanding of IRWD’s risk management culture, and understand what risks keep him up at night and how the team can lessen those risks.

Tim shared the importance of a well-vetted SMP, having an active field presence on-site, and collaboration with IRWD, the Contractor, and the community. Steve shared his concerns on both dam safety and construction program performance. For dam safety, the approach will include monitoring the construction schedule so that when the wet season arrives, Santiago Creek Dam meets IRWD and DSOD requirements, and during the wet season it is monitored to reduce risks to downstream communities. For construction program concerns, the team discussed high winds, brush fires, coordination with Orange County Fire Authority (OCFA), heavy equipment traffic, working during double shifts and night work, emergency communication, first aid, and evacuations.

The team discussed how the HomeSafe Safety Application will keep HDR members up to date with reviews of JHAs and access to the HDR Site-Specific Safety Plan. The team discussed safety communication and creating a safety dashboard available 24/7 to Steve to review key safety metrics, audits, and incidents. The team will promote a proactive and positive approach to construction safety.

Tim shared his background attaining the OSHA Voluntary Protection Program (VPP) certification. He was an integral team member that attained VPP Certification for Orange County Sanitation District.

HDR looks forward to supporting IRWD and project stakeholders in pursuing VPP certification by promoting a culture of safety excellence and continuous improvement. The team will collaborate in the development and refinement of safety management systems, encouraging team member involvement in hazard identification and safety initiatives, facilitating regular audits and self-assessments, and supporting

The SMP will guide CMT personnel on project-specific safety protocols for consultants, authorized visitors, agency representatives, and other authorized site guests. The CMT Safety Team will apply the safety procedures to provide independent safety oversight, risk evaluation, performance tracking, and reporting services to support successful execution. The SMP will include HDR’s Site-Specific Safety Plan, training guidelines, safety awareness and check-ins for authorized visitors, safety reporting, safety lines of communication, JHAs, evacuation measures, and key contacts established during collaboration with OCFA and Orange County Parks and Public Works. The team will instill the “Drive to Zero” approach.

documentation aligned with VPP requirements. HDR will assist IRWD in identifying gaps relative to VPP expectations, provide recommendations for improvement, and promote customary practices that strengthen safety leadership, accountability, and workforce engagement. Through these efforts, the project will be positioned to meet and sustain the standards required for VPP recognition.

This initial safety collaboration meeting, one of many in the future, provided an opportunity to share the team’s ideas for a Safety Management approach on a project of this magnitude and complexity, using open and transparent communication with a focus on trust.

Project Safety Planning & Implementation

Tim and his safety team will continue collaborating with Steve during the Project Safety Planning and Implementation Phase. **He will establish a comprehensive SMP for review and collaboration with IRWD, a living document that will be updated throughout the life of this complex project.** Tim and his team will maintain an active field presence, serving as the primary liaison for project safety matters, and will provide IRWD with continuous visibility into contractor safety performance, emerging risks, incident trends, and overall project safety conditions.

Through routine field observations, the Safety Management Team (SMT) will participate in project safety meetings, review safety-related documentation, and engage directly with project contractors and staff. The Safety Team will support IRWD’s objective of maintaining a compliant construction environment while preserving the Contractor’s responsibility for worker safety, regulatory compliance, and implementation of site-specific safety programs.

The CMT Safety Team will support project mobilization efforts by coordinating safety orientations, reviewing site access requirements, establishing communication protocols, and implementing processes for tracking and reporting safety-related activities throughout the project.

Throughout construction, the SMT will maintain an active field presence and routinely observe project activities to evaluate overall project safety performance. Attention will be given to high-risk operations anticipated during the project, including excavation and trenching activities, confined space entry, heavy equipment operations, critical lifts, crane and rigging activities, and interfaces between multiple contractors and project stakeholders. Field observations will focus on identifying conditions and activities that may present an elevated risk to personnel, property, and the public.

The SMT will observe the implementation of the Contractor’s Safety Programs and Site-Specific Safety Plans through routine observations, documentation reviews, participation in safety meetings, and engagement with contractor leadership. Oversight activities may include review of job and activity hazard analyses, safety observation reports, incident investigation reports, corrective action documents, emergency

response procedures, training records, and other project safety-related information.

Reviews will focus on effectiveness, hazard recognition, corrective action completion, workforce engagement into safety protocols, and overall compliance with project requirements. Significant observations or concerns will be documented and communicated through established channels for evaluation and resolution by the contractors responsible.

A key component of the SMT’s role will be the identification, tracking, and communication of safety risks. Safety observations and concerns will be documented through established project management systems and monitored through closure. The SMT will maintain visibility into recurring issues, repeating trends, and corrective action status while providing recommendations regarding areas that may require additional management attention in accordance with the Standard of Care. Conditions presenting immediate risk to personnel, property, or operations will be promptly communicated to designated project representatives and Steve Choi to facilitate timely evaluation and response.

The SMT will support safety incident management activities by reviewing incident reports, participating in fact-finding discussions when requested, monitoring corrective actions, and identifying lessons learned that may benefit ongoing project activities. This support is intended to provide IRWD with visibility into safety events and performance trends while maintaining the Contractor’s responsibility for incident investigation, regulatory reporting, and implementation of corrective measures.

Project safety performance will be evaluated using both leading and lagging indicators to provide meaningful insight into overall project safety conditions. Metrics may include safety observations, corrective action completion rates, training participation, monitoring results, incident frequency, severity trends, and other project-specific measures established in coordination with IRWD. The SMT will continuously analyze available information to identify emerging risks and opportunities for improvement throughout the project lifecycle.

The SMT will coordinate closely with project inspectors, resident engineers, quality assurance personnel, environmental consultants, contractors and subcontractors, and IRWD staff to maintain awareness of project activities and facilitate communication regarding safety-related matters. The SMT will participate in project meetings, site walks, monitoring activities, risk reviews, and stakeholder coordination meetings as necessary to support project safety objectives and maintain alignment.

The SMT will support coordination of safety-related matters involving external stakeholders and regulatory agencies as needed, including activities associated with DSOD, emergency response organizations, utility providers, environmental consultants, and other agencies having jurisdiction over project activities.



Looking east at the location where the Temporary Diversion Berm and Access Road tie into embankment.



HDR’s rope access team will provide specialized inspection capabilities along the Inclined Intake Structure and spillway walls, allowing direct verification of rock anchoring and slope stabilization work where conventional access methods are limited.

Through proactive engagement, routine field oversight, risk evaluation, and thorough reporting, the SMT will serve as IRWD’s dedicated safety resource and trusted advisor, providing continuous visibility while supporting the successful delivery of the Santiago Creek Dam Improvement Project.

HDR will implement the **HomeSafe application**, which makes creating, submitting, and reviewing JHAs easier, faster, and more effective. This enhancement strengthens how the team plans and communicates, improving efficiency, visibility, and accountability across onsite teams. The HomeSafe application:

- Allows preparation of a project-specific dashboard and project manager and owner summary dashboard that integrates with Procore
- Has a JHA builder tool integrated into the application
- Enables streamlined workflows for faster JHA creation and daily review submissions
- Improves visibility and tracking of safety documentation
- Offers consistent interfaces from the web application to the mobile application
- Can quickly adjust JHAs for changing conditions in the field

Quality Assurance

Jerome Ruddins will serve as QA Manager and lead the CMT’s QA Program, with oversight support from Resident Engineer Jim Lorenzen and Construction Manager Brian Hollis. Jerome will interface directly with the Contractor’s Quality Control (QC) Manager as well as with DSOD staff on matters related to quality. The overall quality program confirms compliance with the Contract Documents and with DSOD Monitoring and Reevaluation Protocols, Section 10 (Construction Monitoring).

Lead Inspector **Bob Frazer of Kleinfelder** will head up the monitoring team, providing QA monitoring of the work, and working directly with the Contractor’s QC team to provide field verification, reporting, issue identification, escalation, and tracking.

Jerome will develop a project-specific Quality Assurance Plan that defines roles, authority, monitoring and testing requirements, documentation standards, and corrective action procedures. The QA Plan will include task-specific checklists, monitoring matrices, special monitoring protocols, materials testing coordination, testing reporting, and daily monitoring reporting.

The plan will establish the framework for the necessary quality processes to successfully complete the project to the requirements of the Contract Documents and DSOD. The plan will be a living document and will be updated when situations arise or conditions require.

Kleinfelder will perform QA testing, which will be tracked by location, type of test, and status (pass/fail). The team will track testing frequencies against the Contractor’s QC effort to verify that those requirements are satisfied. QA tests will be compared to QC tests for unexplained differences.

QC and QA on-site labs will complete reciprocal visits to confirm each facility is using the same test methods and procedures. Test results, frequencies, and planning will be discussed in weekly quality meetings.

The QA team will review contractor quality plans, submittals, and test results to confirm compliance. Non-conforming work, test failures, and corrective actions will be tracked and analyzed to address recurring issues.

This structured approach confirms construction complies with Contract Documents while providing IRWD and DSOD with timely and transparent quality documentation. **If there are proposed major changes to the plans or specifications, the RE will prepare a formal submittal with the Design Engineer AECOM/GEI that will be addressed to the DSOD’s Chief for approval.** The project-specific QA Plan will define quality roles, lines of authority, monitoring and testing requirements, documentation standards, and corrective action procedures. The QA Plan will include monitoring checklists, a testing and monitoring responsibility matrix, special monitoring protocols, materials testing coordination procedures, and reporting requirements.

Field Support for the On-Site Lab Services

The on-site lab will be led by Kleinfelder, bringing local and nationwide experience setting up and operating on-site materials testing laboratories from executing projects similar to the Santiago Creek Dam Improvement Project. **At recent dam construction projects, including Lake Isabella Dam, Success Lake Dam, Lake Hodges Dam, and San Vicente Dam, Kleinfelder worked with HDR** to provide quality assurance sampling and testing services during construction, including on-site laboratory testing, field support, and supplementary testing services at off-site laboratories. The focus will be developing testing standards following the Project Manual encompassing testing of soil, aggregate, concrete, grout, rock, and asphalt. HDR proposes providing an on-site laboratory staffed by a full-time Lead Laboratory Technician working on a single swing-shift to provide testing for the duration of the project. This approach will provide the following benefits to IRWD:

- **Accelerated Testing:** With a dedicated on-site laboratory, testing is prioritized to improve turnaround times, help reduce the potential for delays and this reduces rework by the contractor if materials are not meeting contract document requirements.
- **Cost Savings:** Samples will be transported to the on-site laboratory by on-site inspectors, eliminating sample pick-up and delivery fees.
- **Efficiency:** Cross-trained staff in the field and on-site laboratory can reduce labor hours and staffing needed to complete a successful project.
- **Expedited Dispatch:** Laboratory and field staff can report directly to the jobsite, avoiding the need to pick up field vehicles and equipment from the office.



HDR’s California-based drone pilots and data acquisition specialists give IRWD enhanced visibility into hard-to-access work areas, improving progress verification, quality control, and construction documentation throughout the project.

- **Continuity:** Established consistency by using the same laboratory technician and equipment for on-site laboratory testing.
- **Team Collaboration:** Constant and immediate communication with the on-site project team, project stakeholders, and contractor team.

The on-site laboratory for Santiago Creek Dam will include the following responsibilities:

- Validating and reporting test results and reports
- Maintaining laboratory operations and maintaining annual lab certification as required under ASTM
- Verifying laboratory testing is performed in accordance with the project requirements
- Maintaining a master material log documenting the status of testing needed on the project
- Maintaining a master sample log depicting the inventory of samples and pending tests within the laboratory or under the control of laboratory staff
- Maintaining an equipment calibration status log documenting laboratory equipment, including calibration frequency, due dates, and status
- Attending regular meetings as directed by the CMT
- Completing daily reports and uploading laboratory test results daily, as directed by the CMT
- Preparing a workflow strategy by working closely with the CMT and the contractor’s team to accurately schedule testing and report test results in a timely manner to meet project needs

Technology and Innovation for Field Support
Drone Support During Construction

HDR integrates unmanned aerial systems (drone) technology as a standard component of construction management to strengthen field visibility, documentation accuracy, and reporting efficiency. Drone-captured imagery provides consistent, high-resolution visual records that support construction monitoring, validate quantities and installed work, and strengthen reporting to stakeholders and regulatory agencies such as DSOD.

By leveraging more than 140 drone monitoring activities performed on dam-related projects, the approach reduces the need for time-intensive or higher-risk access methods while allowing faster identification and resolution of field issues. The result is a more efficient and transparent construction process that improves field decision-making, strengthens documentation for claims avoidance, and helps keep construction on schedule and aligned with project requirements.

Field Data Management System

HDR’s Construction Data Management System experience demonstrates the ability to deliver a fully integrated, construction-focused digital data environment that transforms how projects are managed in the field and in the office. HDR implemented a database-driven system to replace fragmented, PDF-based workflows and manual compliance reviews, enabling contractor submittals, materials testing data, and field monitoring activities to be captured, validated, and managed in a structured platform. The system incorporated automated QA against contract specifications for compactions, digital field data collection tools, and integration with Procore, while supporting collection of advanced data types such as LiDAR, UAV imagery, and 2D/3D CAD models.

The benefit to IRWD is a proven, field-tested approach to construction data management that improves quality, transparency, and decision-making throughout project delivery. By automating compliance checks and digitizing field and laboratory data workflows, HDR reduces manual effort, limits errors, and accelerates review and approval processes, directly supporting schedule reliability and cost control.

The system’s ability to integrate geospatial data, monitoring results, and construction progress into interactive dashboards enables IRWD to proactively address risk, track contractor performance, and respond to issues in real time. This tool will support DSOD audits by providing traceable and defensible information to reduce risk, improve compliance, and streamline the path to closeout at the end of the project.

FIRO Decision-Making

HDR is an industry leader in FIRO. HDR can provide a direct benefit to construction management at Santiago Creek Dam by enabling proactive, risk-informed decision-making under variable site and hydrologic conditions and seasonal hydrologic analysis to reduce construction risk. HDR applies hydrologic and meteorological forecast data developed by organizations such as the National Weather Service River Forecast Centers and incorporates it into decision-support frameworks.

HDR can evaluate reservoir operations leveraging available forecast data and weather observations, simulate alternative scenarios, and quantify impacts to bypass, dewatering, and downstream constraints. HDR has implemented systems that integrate real-time data, forecasts, and modeling outputs to support operator decisions and dynamically adjust operations based on evolving conditions, as demonstrated at Folsom and Oroville Dams.

Applied to Santiago Creek Dam, this capability allows the CMT to continuously evaluate construction progress, environmental conditions, and dam safety risks, enabling timely, defensible decisions that protect schedule and costs while confirming the dam remains operational and compliant as construction proceeds efficiently. The result is a construction management program that not only tracks contractor performance but also actively manages risk and uncertainty.

Leveraging forecast products and water management decision-support tools improves contractor risk management by shifting construction decisions from reactive to forecast-driven and proactive. By integrating hydrologic forecasts, reservoir modeling, and operational constraints, the contractor can anticipate changes in inflows, reservoir levels, and downstream capacity before they affect the work.

This enables earlier adjustments to sequencing, protection of temporary works, and planning around high-risk periods, reducing delays, rework, and exposure to adverse conditions. FIRO provides a structured, data-driven framework for defining risk thresholds and action triggers, giving the contractor clear indicators for when to implement protective measures such as initiating the project emergency action plan or shifting operations. This strengthens coordination with the owner and regulators, supports more controlled responses to evolving conditions, and improves readiness for extreme events. The result is a construction approach that actively manages uncertainty, protects schedule and cost, and maintains dam safety throughout construction.

Submittals and RFIs

Submittal and RFI processing procedures will be included in the CMP. An important early step is to develop a submittal review matrix to identify routing of expected submittals. The matrix will include expected individual submittal level of review for each party (approval or information only), reviewer contact information, and contractual review period. Resident Engineer Jim Lorenzen, supported by Jerome Ruddins, will manage RFIs, submittals, and construction communications for the CMT. This process is critical to maintaining schedule, controlling costs, and confirming effective coordination among IRWD, the Design Team (AECOM/GEI), DSOD, and the Contractor. A streamlined, Procore-based process will be implemented in accordance with IRWD’s Construction Manual and the Contract Documents, confirming documentation remains current and ahead of construction activities. The CMT’s approach includes:

- Assisting the Contractor in preparing thorough, well-defined RFIs and submittals to reduce review cycles
- Reviewing submittals for completeness and compliance and coordinating Design Team review when required
- Maintaining current RFI and submittal logs in Procore and reviewing status at weekly progress meetings
- Coordinating regularly with the Design Team to resolve outstanding items and avoid schedule impacts

- Reviewing Design Team responses to identify impacts and coordinating resolution with IRWD as needed
 - Coordinating with DSOD to confirm regulatory buy-in
 - Incorporating IRWD input, when desired
 - Confirming comments are addressed prior to final disposition
- This disciplined approach confirms RFIs and submittals are effectively controlled, promptly resolved, and aligned with project objectives.

Correspondence

Construction-related correspondence will be led, prepared, and controlled by Project Manager, Randy Lovan, who will serve as the CMT’s single point of responsibility for construction communications. Randy may employ other members of the CMT and coordinate with the Design Team and IRWD staff as appropriate to support technical accuracy; however, he will remain the final reviewer to confirm consistency, contractual compliance, and alignment with IRWD’s objectives.

For technical correspondence, the Design Team will provide supporting input as needed, and IRWD staff may contribute to development and review. The CMT will integrate comments, resolve conflicts, and confirm correspondence is clearly documented, properly logged, and issued in a timely and consistent manner. For correspondence issued in the name of IRWD, including contractual communications to the Contractor, Randy will prepare draft correspondence for IRWD review and approval prior to transmittal.

Coordination of Field Activities

The CMT will lead and coordinate field activities outside of the Contractor’s direct scope centrally to confirm efficient execution of the project and reduce disruption to construction operations. This responsibility includes coordination of IRWD and Design Team site visits, DSOD and other regulatory monitoring activities, environmental monitoring, third-party surveys and investigations, vendor site visits, and public or media tours.

CM Brian Hollis will have ultimate responsibility for field coordination and will maintain tracking of delegated tasks. The project team will assign responsibilities as follows:

- Kleinfelder will perform specialty monitoring and materials testing coordinated by the QA Manager
- Guida Survey will conduct field surveying activities to QA project alignments, grades, elevations, and quantities
- The Resident Engineer will coordinate Design Team and DSOD site visits and monitoring activities

Field activities will be planned and scheduled in advance, coordinated with the Contractor, and documented to confirm access control and schedule alignment. In conformance with OCFA requirements, grading will be curtailed during high winds, as this will increase wildland fire risk in the area.



Coordination with External Entities

The CMT acknowledges IRWD’s expectation that it will lead coordination with external agencies and will serve as the primary point of contact for agency interactions. External entities may include SCAQMD, OCFA, Orange County Waste & Recycling (OCWR), OC Parks (Haul Roads, Fremont Canyon Nature Preserve, Staging Area), OCPW, OCFCD, DSOD, Southern California Edison (SCE), Regional Water Quality Control Board (RWQCB), Bureau of Reclamation, SARWQCB, and the City of Irvine.

Soon after Notice to Proceed, the CMT will meet with IRWD to define communication protocols, roles, documentation requirements, and approval pathways for external coordination.

These procedures will be reviewed with IRWD’s Design, Environmental, and Risk Management consultants to confirm alignment and concurrence, and will be documented in the CMP. The CMT will facilitate meetings, prepare agendas and correspondence, document action items, track commitments, and confirm that agency comments and requirements are communicated, implemented, and closed out in coordination with IRWD.

Coordination with Other IRWD Consultants

The CMT will closely coordinate with IRWD’s Environmental Consultant to align field activities, monitoring activities, and agency coordination with Environmental Impact Report (EIR) compliance requirements. The CMT will manage project changes that may affect dam safety by identifying potential impacts, coordinating with the Design Team, and summarizing relevant information for the Risk Management Team to support ongoing Risk-Informed Decision-Making.

Through structured coordination, clear lines of communication, and disciplined documentation control, the CMT will support IRWD in maintaining regulatory compliance, managing risk, and advancing the project. Prior surveys identified sensitive species including Crotch’s bumble bee and Least Bell’s vireo in the area.

Permit Compliance

The CMT will take full responsibility for understanding, managing, and confirming compliance with project permits, including permits already obtained and those to be obtained during the project. During pre-construction, the CMT will perform a thorough permit review and develop a permit compliance matrix identifying permit conditions, responsible parties, required documentation, monitoring frequency, and reporting requirements. These requirements will be incorporated into the project-specific Quality Assurance Plan and CMP.

Throughout construction, the CMT will actively monitor and verify compliance with permit conditions through daily field oversight, and coordination with the Contractor, Environmental Consultant, Design Team, IRWD, and applicable regulatory agencies. Compliance activities will include monitoring



construction hours, noise, dust, traffic control, environmental mitigation measures, and reporting requirements.

Where permit compliance requires involvement from external agencies or supporting consultants, the CMT will lead coordination efforts, obtain and organize required information, and facilitate timely submittals and responses. The CM will maintain thorough permit documentation and provide regular status updates to IRWD.

If permit non-compliance is identified by the Environmental Consultant, regulatory agency, or other parties, the CMT will take immediate responsibility for documenting the issue, directing corrective actions, verifying compliance, and coordinating resolution with IRWD and the appropriate stakeholders. Through this proactive and disciplined permit compliance approach, the CMT will reduce regulatory risk and confirm full adherence to permit requirements.

Environmental

The CMT will work closely with IRWD’s Environmental Consultant to provide proactive oversight of environmental mitigation measures identified in the project EIR. Environmental compliance monitoring will be fully integrated into the CMT’s construction management activities, with coordinated implementation of multidisciplinary environmental requirements throughout construction.

The CMT will review the EIR mitigation measures and translate them into a project-specific environmental compliance and mitigation tracking matrix. The matrix will identify applicable measures, required monitoring or specialty services (e.g., environmental and cultural resource specialists), responsible parties, and documentation requirements, and will be used to actively track compliance during construction.

Our CMT will coordinate with Environmental Consultants

by providing look-ahead schedules, identifying upcoming activities, and flagging work that may trigger mitigation or monitoring requirements. Day-to-day coordination may be delegated to QA Manager Jerome Ruddins to align environmental requirements with staffing and construction sequencing. Environmental Consultants will be included in construction progress meetings, pre-activity meetings, and site safety meetings to review upcoming work, mitigation requirements, monitoring needs, and EIR-related constraints, supporting early identification of environmental issues. As part of construction contract administration, the CMT will enforce corrective actions for environmental non-compliance identified by Environmental Consultants or specialty providers, document resolutions, and coordinate with IRWD to confirm continuous EIR compliance throughout construction.

Permits by Contractor

The following is an anticipated list of permits and plans that the Contractor is required to attain or implement that we will track and monitor for both schedule and project requirements:

- OSHA Excavation Permit
- Stormwater Pollution Prevention Plan (SWPPP)
- Implement, monitor, and maintain the Fire Master Plan as required by OCFA
- Implement improvements in compliance with the Fuel Modification Plan as required by OCFA
- County of Orange noise variance permit for night work and extended hours
- IRWD applied for a County of Orange Encroachment Permit, Santiago Canyon Road and Blue Diamond Haul Road intersection and the Santiago Canyon Landfill Facility, Construction and traffic control; Contractor to apply for a Permit rider

- Local building or grading permits for dam control building, electrical or structural work not pre-permitted by IRWD
- Disposal permits or facility approvals for export of soils, hazardous materials, or construction debris
- County of Orange Transportation Permit
- OCHCA Well Permits to construct, reconstruct, or destroy piezometers, inclinometers, test or exploratory holes, grounding wells, cathodic protection wells
- OCHCA Hazardous Materials Disclosure forms
- SCAQMD, Form 403N including a site-specific Dust Plan, 403NC each year, 403C Notice of Completion, Rule 403 records, signage, and supervisor training

Inspections and Materials Testing

The CMT has assembled a qualified team with the talent, certifications, and technical capabilities necessary to perform required construction monitoring, special monitoring, materials testing, and surveying for the project. Monitoring disciplines will include geotechnical, civil, structural, and electrical and will be provided continuously throughout each phase of construction to verify compliance with the Project Manual.

To confirm uninterrupted field coverage, qualified CMT members have been selected from the team that provide redundancy across monitoring and testing disciplines. This approach reduces staffing risk and confirms that monitoring and testing activities remain aligned with the Contractor’s schedule and sequencing requirements.

QA Manager Jerome Ruddins will be responsible for planning, coordinating, and leading monitoring and materials testing activities performed by the CMT. Jerome will maintain direct oversight of quality activities and will have authority to require corrective actions, additional testing, or rejection of non-conforming work as necessary. His responsibilities include:

- Monitoring the construction schedule several months in advance to develop monitoring shifts, staffing plans, and testing resources aligned with upcoming work
- Maintaining and distributing a three-week look-ahead Monitoring Staffing Matrix, updated weekly and shared with the CMT and IRWD
- Maintaining a six-month look-ahead Monitoring Staffing Matrix, updated monthly and shared with the Construction Manager and Project Manager to support proactive staffing adjustments
- Developing and managing a project-specific monitoring and testing responsibility matrix that identifies required monitoring activities and tests, responsible parties, and documentation requirements
- Leading the preparation and submission of Special Monitoring verification reports by certified specialty monitors



- Receiving, reviewing, and verifying materials testing and survey reports for accuracy and conformance with Contract Documents prior to distribution to the Designer and IRWD
- Confirming monitoring, testing, and surveying documentation is uploaded, tracked, and controlled in Procore
- Leading Daily Monitoring Reports and photographic documentation to confirm reports are timely and compliant with the QA Plan
- Maintaining Daily Update Tracking Sheets to provide concise daily summaries of construction progress, supporting pay quantities, change management, and claims avoidance
- Maintaining Construction Productivity Field Reports aligned with bid items and the Contractor's Schedule of Values to support accurate and efficient monthly progress payments

DSOD Inspection

Planned improvements at Santiago Creek Dam will involve challenging construction of a complex spillway structure. Careful construction sequencing of the new spillway and inlet and outlet, along with required embankment modifications, are necessary to match seasonal construction windows and maintain the four-year construction schedule.

To reduce the risk of construction delay, the CMT will need to coordinate closely with the California DSOD throughout construction. DSOD buy-in and approvals of key project elements as construction advances will be important to avoid delays and accommodate required changes in a timely manner.

HDR's CMT will implement solutions to coordinate with DSOD to effectively facilitate their approvals and keep the construction on schedule.

IDENTIFY DSOD MILESTONES AND SCHEDULE

HDR's CMT will identify the key elements that DSOD will need to monitor on-site and approve before construction can advance without significant risk. Key DSOD monitoring and approval milestones include the following:

- Spillway foundation excavation acceptance before RCC placement
- Spillway chute and wall rock anchor installation methods and load testing
- Right spillway RCC wall finish surface (before embankment core and filter placement)

- Dam downstream shell excavation foundation acceptance before embankment material placement
- Embankment filter material placement methods and field testing

HDR's CMT will identify other DSOD approvals of key Contractor submittals and quality control test results that will be required during construction.

EFFICIENT COMMUNICATIONS

HDR's CMT will work with IRWD to establish DSOD points of contact and communication protocols. The team will facilitate clear communications with the design team and the Contractor. The CMT will schedule regular DSOD briefings to provide updates on construction schedule, anticipated site monitoring, and submittal reviews. The team will work closely with the Contractor to identify the schedule for key monitoring activities and communicate that timeframe to DSOD to avoid delays.

CONTINGENCY PLANNING

HDR's CMT will discuss with the Contractor and the designers the need for contingency plans to reduce delays should DSOD's monitoring activities or reviews identify issues that need to be addressed in a timely manner. Those contingency plans could include items like being prepared for additional foundation excavation before RCC placement or having equipment, personnel, and materials available to replace or supplement rock anchors if needed. The intent is to establish contingency plans to adapt quickly in the unlikely event DSOD requires additional efforts before receiving their ultimate approvals of key project milestones.

Meetings

The CMT will be responsible for planning, organizing, and managing project meetings throughout construction. This includes preparing and distributing meeting agendas in advance, documenting outcomes through meeting minutes, and tracking and following up on action items to confirm timely progress. Meeting agendas and minutes will be distributed to meeting participants within five (5) business days of each meeting.

To keep project meetings focused, productive, and forward-moving, mid-level staff including Cost Engineers and Assistant Resident Engineers will take the lead on meeting logistics by preparing agendas, coordinating meetings, and documenting outcomes.

This structure allows senior leadership to concentrate on guiding discussions, resolving critical issues, and driving decisions that move the project ahead. Meeting attendance will be thoughtfully tailored to include those directly involved, confirming efficient use of time and project resources.

The CMT will actively manage an action-item log to capture responsibilities and commitments from each meeting, with regular follow-up to confirm timely completion. This disciplined approach keeps decisions from stalling and maintains momentum throughout construction.

The CMT will support IRWD in preparing for and participating in up to three public meetings to communicate construction progress, upcoming work, potential community impacts, program considerations, and project benefits. The CMT will provide clear technical input, help prepare meeting materials,

support responses to construction-related questions, and document follow-up items so IRWD has consistent, accurate, and defensible information for the public including supporting IRWD on updates needed for the project website. This support helps maintain public confidence, reduce misinformation, and demonstrate that the project is being managed with attention to access, environmental compliance, schedule, and long-term community benefits.



Chris Acosta collaborates with the Kleinfelder inspection team during nighttime concrete placements at the Lake Isabella Dam Safety Modification Project, demonstrating the integrated HDR–Kleinfelder partnership and shared field leadership needed for complex dam construction projects

Anticipated Meetings			
Meeting/Event	Timing/Frequency	Participants	Purpose/Key Topics
Dam Risk Workshop	September 14-17, 2026 (one multi-day workshop)	IRWD, Dam Safety Risk Review Team, Design Team (AECOM/GEI), CMT, and DSOD as appropriate	Review dam safety risks associated with construction sequencing, interim dam configurations, winterization, potential failure modes, and mitigation measures, while refining the dam safety component of the Construction Risk Registry
Preconstruction Meeting	One-time (post-award)	CM, Contractor, IRWD, Safety Lead, Project Team	Define roles and responsibilities, review contractor organization, confirm schedule, contract requirements, and pre-mobilization submittals
Schedule of Values & Pay Application Meeting	One-time (early post-award)	CM, RE (Jim Lorenzen), PM (Randy Lovan), Contractor	Review schedule of values and payment application procedures
Tailgate Meeting / Coordination Meetings	Daily (during construction)	CM, QA Manager, RE, Field Inspectors	Coordinate daily work activities, outline inspection priorities, highlight critical tasks
CM-PM Coordination	Daily	CM, PM (Randy Lovan)	Review status of submittals, RFIs, and contract administration items
Contractor On-Site Meetings	Weekly	CM, RE, Field Inspectors, Contractor, Safety Lead	Discuss safety, current work, submittals, RFIs, change orders, 3-week look-ahead schedule, and action items
Designer / Subject Matter Specialist (SME) Coordination Meetings	As needed	CM, Designers, SMEs	Coordinate specialty input and field observations aligned with upcoming work activities
Internal Project Management Meetings	Frequent initially, then monthly	CM, Project Team, Technical Advisors	Review project status, risks, and performance trends
Preplacement Concrete	As needed	CM, Contractor, IRWD, Safety Lead, REs, Inspectors	Review the contractor's placement plan, review contingency plans
Owner Coordination / Progress Meetings	Bi-Weekly	CM, PM, IRWD	Provide project updates, address concerns, and maintain alignment and transparency
DSOD Coordination	Monthly/As needed	CM, PM, IRWD, RE, DSOD Tech Advisor	Provide project updates, address concerns, and discuss critical dam safety operations
Schedule Update Meetings	Monthly	CM, PM, Contractor	Compare updated schedule to baseline, identify delays, and implement mitigation strategies
Safety Briefing	Monthly	CM, IRWD, Safety Lead	Provide monthly summary of safety challenges and mitigation by contractor, review look-ahead for safety risk elements
Public Meetings	Up to three meetings during the project	IRWD Project Manager, IRWD Public Affairs, HDR's Public Outreach Specialist, Construction Manager, Resident Engineer, Design Team representatives, subject matter experts as needed	Support IRWD-led public outreach efforts by providing project updates, construction progress, upcoming activities, schedule impacts, and technical information for stakeholder communication

Project Reporting

The CMT will develop, prepare, and distribute project reports in a consistent, timely, and highly organized manner throughout construction. Reporting is a critical component of effective project oversight, and the approach is designed to provide IRWD with clear, accurate, and decision-ready information from daily field activities to executive-level summaries for IRWD leadership. Report templates will be based on IRWD’s existing reporting formats, where available, and tailored to the Santiago Creek Dam Project. Templates will be customized and finalized with IRWD’s approval. As part of the CMP, the CMT will implement a formal internal quality control process requiring at least two independent reviews of each report prior to transmittal, confirming accuracy, consistency, and clarity. Unless otherwise requested by IRWD, reports will be transmitted and archived in Procore to maintain thorough documentation control and ready project access.

- a) Daily Inspection Reports: The CMT will prepare and submit Daily Monitoring Reports to IRWD and other required recipients within one (1) business day of each monitoring activity. These reports will include detailed and clearly written descriptions of the work performed; documentation of compliance or non-compliance with the Contract Documents; photographic records; safety observations; and other relevant construction or environmental notes. Daily Monitoring Reports will be formally reviewed by the Resident Engineer to confirm accuracy and compliance with Contract Documents and QA/QC requirements prior to acceptance as final documents and upload to Procore.
- b) Monthly Reports: The CMT will prepare Monthly Reports that summarize overall project status and key metrics. At a minimum, Monthly Reports will include a progress summary, spend rate, outstanding issues, change orders, schedule status, and a dashboard tracking the duration of submittal and RFI reviews to monitor timely completion. Additional information that may affect project performance or IRWD decision-making will be included as appropriate.
- c) Quarterly Reports: Quarterly Reports will provide a higher-level summary of the Monthly Reports and will serve as the foundation for IRWD staff’s quarterly updates to the Engineering and Operations Committee and/or Board of Directors. The CMT will assist IRWD by gathering representative construction photographs, developing exhibits and charts, and supporting the preparation of presentation materials, including PowerPoint slides, as needed.
- d) Drone Documentation: The CMT will provide drone aerial photographs and/or videos as part of the Quarterly Reports to visually document construction progress, site conditions, and potential issues. The CMT may propose an alternative drone documentation frequency for IRWD’s consideration and will explain the benefits of the proposed approach in supporting progress tracking, communication, and risk awareness. The drone will be used to manage stockpile material and support contractor pay items as supporting evidence for future claims avoidance.



e) **Non-Conformance Reports:** As part of its QA and construction oversight responsibilities, the CMT will identify, document, and issue Non-Conformance Reports for work that deviates from the Contract Documents or recognized industry standards. These reports will serve as formal notice of non-conforming work. The CMT will actively track non-conformance issues, coordinate with the Contractor on corrective actions, and verify resolution and closeout.

f) **Structural Observation Reports:** Structural Observation Reports will be prepared and submitted as required by the nature and timing of the work. Issues identified will be promptly reviewed with the Contractor, and the CMT will coordinate corrective actions as necessary to confirm compliance and structural integrity.

g) **Grant Reporting Support:** Although IRWD has not received federal or state grant funding on the project to date, HDR will manage applicable labor, documentation, audit, and compliance requirements, including Davis-Bacon and prevailing wage obligations, with the same rigor used on a grant-funded project.

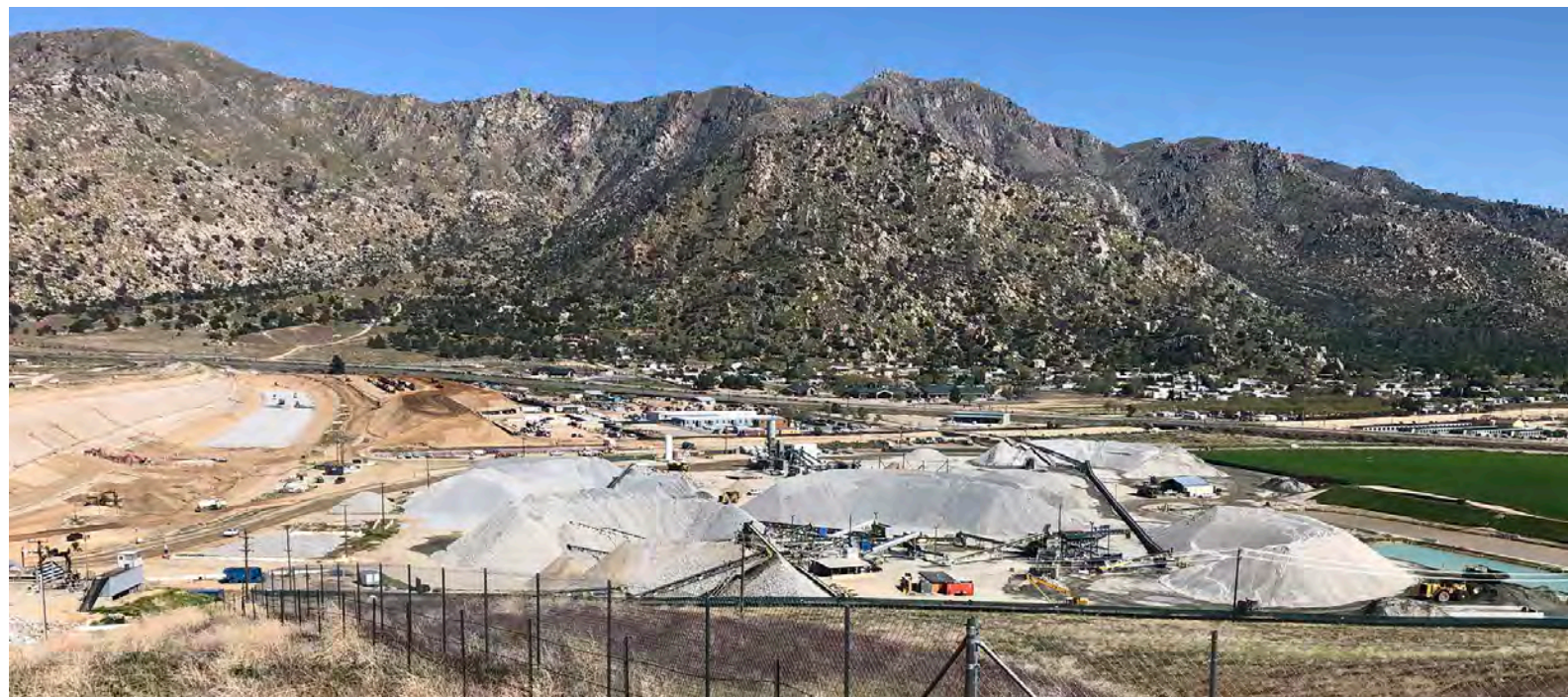
h) **Additional Required Reports:** The CMT will prepare or support preparation of other investigation, monitoring, and testing reports necessary to document the project and demonstrate compliance with the Contract Documents. This includes the Final Geotechnical Report and other specialty reports required by the project.

Progress Payments

Randy Lovan and the CMT will be responsible for reviewing the Contractor's monthly progress payment requests and formally recommending payment to IRWD based on verified work completed and compliance with Contract requirements. Progress payment reviews will be structured, documented, and aligned with Contract Documents, the approved Schedule of Values, and construction progress.

Completeness Review: Upon receipt of each progress payment request, the CMT will first **perform a completeness review to confirm that required documentation has been submitted**. This review will verify inclusion of, at a minimum, certified payrolls, backup invoices, updated construction schedules, lien releases, and other documentation required by the Contract. Incomplete or non-compliant payment applications will be returned to the Contractor for correction prior to further review.

Progress Review: The CMT will **review progress pay items with the Contractor to confirm that the requested payment accurately reflects actual construction progress**. This review will include verification of installed quantities, confirmation that quantities billed align with field monitoring activities and approved pay items, and evaluation of stored materials for eligibility, protection, and adequacy when payment is requested prior to installation. The CMT will review the adequacy of supporting documentation and verify compliance



with Contract requirements related to progress payments. To monitor cost and schedule performance, the CMT will evaluate the progress payment against the approved Schedule of Values, construction schedule, and earned value of the work. Comparison of billed quantities to baseline schedule progress will be used to identify whether the Contractor is ahead of or behind schedule and to support accurate cost control.

Labor Compliance Review: Jamie Pennington will review certified payroll documentation to **confirm that reported labor aligns with the work performed** during the applicable period. Recognizing that certified payrolls typically lag progress payments, the CMT will actively track payroll submittals and identify missing, delinquent, or inconsistent documentation. The CMT will monitor payroll status and promptly flag potential labor compliance concerns.

Payment Recommendation and Documentation: Based on the completeness, progress, and labor compliance reviews, the CMT will **prepare a documented recommendation for payment to IRWD**. Progress payment reviews, backup documentation, and recommendations will be logged and maintained in Procore to confirm transparency, traceability, and consistent project records.

Contract Change Orders

The change management process, under the direction of the CMT, will be led by **Nate Gavzy of MCK**, who will be responsible for receiving, reviewing, negotiating, responding to, and recommending Contract Change Orders on behalf of IRWD. The approach to change management is structured, proactive, and designed to limit changes wherever possible to maintain a high degree of cost confidence, protect the schedule, and preserve productive working relationships.

Potential changes will be identified early and managed ahead of the work through close coordination with the Contractor,

Design Team, and IRWD. For each proposed Change Order, the CMT will independently perform an analysis of entitlement, cost, and schedule impacts and will lead negotiations with the Contractor to confirm fair and reasonable pricing consistent with the Contract Documents.

Each recommended Contract Change Order will be accompanied by a formal justification memorandum prepared by the CMT. The memorandum will clearly describe the circumstance prompting the change, identify the original condition stipulated in the Contract Documents, explain the reason for the change, and reference the applicable Contract Documents supporting the recommendation. Thorough documentation and analysis will be provided to support informed decision-making by IRWD. By managing the administrative workload, documentation, and negotiations associated with Contract Change Orders, the CMT will reduce IRWD's administrative burden while confirming changes are resolved efficiently, transparently, and in a manner that reduces impacts to cost and schedule.

Claims Avoidance and Dispute Resolution

The primary objective is to prevent claims whenever possible and to resolve issues efficiently through a proactive and disciplined CMT. The team for dispute resolution will be supported by **Nate Snorteland** under the direction of the CMT. He brings proven experience on similar dam projects and actively manages risk to avoid disputes before they develop. If claims arise during the project, the CMT will review, document, and track each claim in close coordination with IRWD and the contractor, with emphasis on early issue identification, accurate documentation, and clear communication to facilitate timely resolution.

Prior to construction, the CMT will develop a formal pre-claims dispute resolution procedure in collaboration with IRWD and communicate it to the contractor. This process will define clear

Construction Phase Outcomes



- ✓ Safe and efficient construction execution through dedicated field leadership, proactive safety oversight, seasonal readiness planning, and continuous coordination among IRWD, the contractor, the designer team, and regulatory agencies.
- ✓ Enhanced project quality and regulatory compliance through comprehensive QA programs, materials testing, inspection services, permit compliance management, and coordinated DSOD oversight.
- ✓ Improved cost and schedule performance through active schedule management, risk-based decision-making, change management, progress payment verification, and claims avoidance strategies.
- ✓ Increased transparency and accountability through disciplined document control, reporting, stakeholder communications, meeting management, and integrated project information systems.
- ✓ Reduced project risk and improved decision-making through advanced technologies including drone monitoring, digital construction data management, forecast-informed reservoir operations, and real-time safety and performance tracking tools.
- ✓ Successful coordination with DSOD through proactive milestone planning, regulatory engagement, and contingency management, reducing the potential for approval-related construction delays.
- ✓ Improved field productivity and construction efficiency through scalable staffing, integrated inspections and testing, proactive look-ahead planning, and coordinated field operations.
- ✓ Stronger environmental stewardship and permit compliance through integrated environmental oversight, mitigation tracking, agency coordination, and timely corrective action management.
- ✓ Effective stakeholder and public engagement supported by structured communications, agency coordination, public meeting support, and transparent reporting of project progress and impacts.
- ✓ Greater construction readiness and resilience through forecast-informed decision-making, contingency planning, winterization strategies, and proactive management of seasonal and operational constraints.

steps for issue documentation, escalation, and resolution to confirm disputes are addressed at the lowest possible level and earliest opportunity. Claims avoidance will be further supported through a thorough pre-construction review of contract documents, with particular focus on scheduling requirements such as CPM schedules, resource loading, and Time Impact Analysis. These measures promote realistic scheduling, improve project control, and significantly reduce the potential for claims.

Risk Management

HDR is experienced in assisting with risk management. The first risk workshop is scheduled for September 2026, where relevant parties will identify risks and mitigation measures for this project. A key to the success of the project is that conversations about risk are not new and that plans and approaches to reduce those risks are already in place. The CMT will work with the Contractor, once on board, using a risk matrix to identify and define the risks and how to address them. Risks that will be discussed include change management, unforeseen conditions, weather, schedule constraints, utility relocations, multi-shift work schedules and transitions, schedule contingencies, and the use of Synchro.

The goal is to address risk at the lowest level possible. **CM Brian Hollis will lead this effort** with the support of the CMT. The team anticipates a Construction Risk Register that integrates Dam Safety Challenges and Site Safety. Brian will be supported on Dam Risk Management by Nate Snorteland. **Nate came to HDR after spending 30 years developing the Risk Management Center for the United States Army Corps of Engineers (USACE) in Denver, which follows robust Dam Risk Reduction Strategies like those of DSOD and the BOR.** The construction phases are critical, particularly given the seasonal nature of the work and the requirement to maintain the dam in service during the wet season. Special attention will be given to construction activity durations and sequencing to confirm dam safety and operational integrity are not compromised during wet-weather conditions.

Schedule Management

Multi-phase and multi-year construction schedules require a considerable amount of time to develop. **One proven approach is to have the contractor develop and provide a 180-day schedule prior to the construction phase, which will allow the contractor to begin the work while developing a well-thought-out Baseline Schedule that delivers the project on time and meets the wet-weather and dry-weather constraints.** The CMT will implement schedule development workshops to collaborate with the contractor rather than receiving schedules and returning them with multiple comments. HDR will work closely with the contractor and IRWD to maintain appropriate schedule control measures and management techniques to accurately plan, monitor, and report performance throughout the construction period. The team will measure progress and productivity of activities on the project on a weekly, biweekly, and monthly basis.

Progress Schedule Monitoring

Once the baseline schedule is accepted, the CMT will perform regular project reviews, updates, and monitoring, comparing subsequent schedule updates against the accepted baseline schedules. Jerome will work with the scheduler to review and analyze the schedule updates to identify changes, trends, and production rates. He will compare actual progress and actual costs each period against the planned progress and cost. Based on the preceding month’s work, the contractor will be asked for the project earned value and the project cost at completion. The value of a good and timely schedule update is critical to reducing project delays. HDR has effectively used a revised scheduling specification which withholds 10% of contractor-completed work if an update is not provided. This withhold is permanent if the contractor does not provide an update in a timely manner. We will recommend its adoption in the Final Design Phase. Weekly project meetings will include requests for three-week look-ahead schedules. These look-ahead schedules will show how the work is progressing on a real-time basis and will identify changes or delays to the planned performance of the work.

Document Control

The CMT will be fully responsible for managing project documents prepared by or processed through the CMT throughout construction using Procore. This includes submittals, RFIs, correspondence, field directives, notices of non-conformance, monitoring reports, permits, test and monitoring results, record drawings, logs, photos, and other construction-related documentation. Photos will include file naming conventions (e.g., date, location, activity, inspector ID), GIS tagging methodology, and how photos will be linked to daily monitoring reports and stored in Procore. Documents will be maintained in an electronically searchable, legible, and well-organized format.

The CMT acknowledges that IRWD is subject to Public Records Requests and will confirm documentation is prepared professionally and with the understanding that it may be reviewed by the public.

Document Controller **Chelsea Feller** will be responsible for setting up and administering Procore for the project. This includes configuring project workflows, establishing role-based permissions, and developing document filing and naming conventions in coordination with IRWD. Chelsea will be based on-site full-time and will manage the day-to-day flow, quality control, and organization of project documentation, confirming consistency and timely availability of records. The CMT will establish standardized protocols for document submission, review, approval, and finalization, including version control and regular audits of the document system. **Ashish Narayan** will coordinate Procore training for CMT staff, IRWD staff, and other users as needed to confirm consistent system use and effective document retrieval throughout the project.

Quality Assurance Plan

The CMT, led by Jerome Ruddins, will be responsible for establishing, implementing, and enforcing a thorough QA program to confirm construction is performed in conformance with the Contract Documents, approved plans and specifications, and applicable regulatory requirements. A project-specific QA Plan will be developed to define quality roles, lines of authority, monitoring and testing requirements, documentation standards, and corrective action procedures.

The QA program will be integrated with daily monitoring, materials testing, special monitoring, surveying, and construction oversight to proactively identify and reduce the potential for defects or non-conforming work. Quality trends and recurring issues will be tracked and addressed early to reduce rework and schedule impacts and maintain consistent construction quality.

The CMT will not authorize deviations from Contract Document requirements except for minor variations explicitly allowed by the Contract. Non-conforming work will be formally rejected through a written Notice of Non-Conforming Work. Non-conformance issues will be tracked through corrective action and closure to the satisfaction of IRWD or the applicable authority having jurisdiction, with records maintained as part of the official QA documentation.

While construction staking is the Contractor’s responsibility, the CMT will provide independent verification through third-party topographic surveys and checks of critical alignments, grades, elevations, and quantities, while maintaining the Contractor’s responsibility for layout and control. QA activities will be documented through standardized monitoring reports, test results, survey reports, and non-conformance logs maintained in the project document control system. Through this proactive QA approach, the CMT will verify construction quality meets the plans and specifications, regulatory requirements, and IRWD standards, delivering a durable and reliable project.



Training, Commissioning, and Startup Services

Coordination Requirements

Startup and commissioning activities shall be closely coordinated with the DSOD Design Engineering, IRWD Engineering, and IRWD Operations staff to confirm compliance with dam safety requirements, alignment with design intent, operational readiness, and a smooth transition to long-term operation. Coordination shall include participation in workshops, review of startup and commissioning documentation, attendance at critical testing activities, and concurrence on readiness for system startup and facility acceptance.

Training, Commissioning, and Startup Objectives



Provide a structured and collaborative startup, commissioning, and training program that delivers all systems installed, tested, documented, and transitioned into operation while maintaining compliance with dam safety, regulatory, and operational requirements. Support IRWD, DSOD, and the Design Engineer through comprehensive readiness planning, testing oversight, operator training, and permit closeout activities to achieve a successful facility turnover and long-term operational reliability.

The top five key approaches for Training, Startup, and Commissioning Phase are:

- 1. Milestone-Based Startup and Commissioning Planning**
HDR will facilitate structured startup and commissioning workshops at key project milestones (0%, 30%, 50%, and 70–85% completion) to align stakeholders, define responsibilities, identify risks, validate readiness, and maintain focus on operational success throughout project delivery.
- 2. Integrated Stakeholder Coordination**
Our approach emphasizes continuous coordination among IRWD Engineering, IRWD Operations, DSOD, the Design Engineer, the Contractor, and the CMT to confirm regulatory compliance, operational readiness, alignment with design intent, and successful facility acceptance.
- 3. Comprehensive Testing and Commissioning Program**
HDR will oversee a rigorous testing process that includes Factory Acceptance Testing (FAT), Functional Testing, Control System Testing, System Acceptance Testing (SAT), and Reliability Acceptance Testing (RAT) to verify equipment and system performance before turnover.
- 4. Operations-Focused Training and Transition**
An experienced operations specialist will guide startup, commissioning, and operator training activities to confirm IRWD staff are fully prepared to safely operate, maintain, troubleshoot, and manage facility systems prior to substantial completion and turnover.
- 5. Proactive Regulatory and Permit Closeout Management**
HDR will begin permit closeout planning early, integrating regulatory requirements, testing documentation, operational demonstrations, and DSOD coordination into the project schedule to support timely issuance of the Certificate to Operate and final project acceptance.



Startup and Commissioning Workshops

To promote efficiency, reduce risk, and avoid costly delays, the CMT will facilitate collaborative Startup and Commissioning Workshops at key project milestones. These workshops will confirm early alignment among IRWD, DSOD, Design Engineer, the CMT, and the Contractor; clarify responsibilities; confirm regulatory and operational requirements; and validate readiness as the project progresses. Workshop activities will be conducted as follows:

PROJECT INITIATION (0% COMPLETION) WORKSHOP

Conduct an initial startup and commissioning workshop to:

- Establish the project vision, startup and commissioning goals, and regulatory requirements
- Define coordination protocols with the Contractor, DSOD, Design Engineer, and IRWD
- Confirm baseline schedules, documentation requirements, communication pathways, and decision-making authority
- Identify dam safety, operational, and startup risks and develop mitigation strategies

30% COMPLETION WORKSHOP

Define project systems and develop the Division of Responsibility (DOR) Matrix to clearly identify roles and accountability for startup, testing, commissioning, documentation, training, and regulatory coordination.

DSOD Design Engineering and IRWD Engineering and Operations staff shall participate in this workshop to confirm dam safety criteria, operational needs, and design intent are fully incorporated.

50% COMPLETION WORKSHOP

Finalize the DOR Matrix if not completed earlier and evaluate construction progress, equipment procurement, installation status, and documentation readiness relative to upcoming commissioning and startup activities.

This milestone serves as a formal construction and operational readiness checkpoint, with DSOD, Design Engineering, and IRWD confirming readiness to proceed toward system startup and sustained operations.

70%–85% COMPLETION WORKSHOP

Initiate system completion and pre-commissioning activities, emphasizing:

- Logical sequencing of systems coming online
- Coordination of testing and startup activities
- Alignment with DSOD dam safety requirements
- Readiness for integrated commissioning, owner-witnessed testing, and turnover to operations

Workshop outcomes, action items, and decisions shall be documented, distributed, and tracked to closure to maintain alignment through startup and transition to operations.

Startup and Testing

Startup and commissioning of the Inlet/Outlet system, aeration system, automated valves, and dam instrumentation data acquisition will include mechanical, electrical, and control systems coordination. The CMT includes an operations specialist with decades of operations and construction commissioning experience. This specialist will guide the CMT through startup planning, installation, and commissioning.

The contractor is responsible for procurement of equipment and confirming proper unloading and storage once it is received at the project site. The contractor installs the equipment and verifies proper alignment and connection of piping and electrical systems before beginning initial startup procedures.

Each piece of equipment or each system will receive a Certificate of Operational Proper Installation (COPI) once it has passed rigorous testing and monitoring, which involves verification of proper:

- Calibration curves
- Operation in manual and auto, both locally and remotely
- Functioning of alarms and shutdowns
- Interfaces with the SCADA system and control room screens
- Installation and function of protection devices
- Labeling of equipment
- Megger testing of wires to verify wire insulation
- Loop testing control loops

Prior to commissioning, the operations specialist will meet with the design team and IRWD operations to confirm that the integrated site process systems function properly and are ready for commissioning. Final steps include verification that the Operations and Maintenance manuals are submitted and approved and spare parts delivered prior to training. **Scott Joslyn** will coordinate with IRWD operations to have IRWD staff properly trained prior to substantial completion and transition to IRWD operations.

Startup, Testing, and Commissioning Activities

A. Factory Acceptance Testing (FAT)

Factory Acceptance Testing shall be conducted at the manufacturer’s or supplier’s facility to verify equipment fabrication and performance prior to shipment. DSOD Design Engineering and IRWD Engineering may be notified of FAT activities for equipment associated with dam safety or critical facility functions.

Post Construction Objectives



Provide a disciplined and proactive project closeout process that delivers complete, accurate, and fully transferred construction records, quality documentation, as-built information, permits, warranties, and operational materials to IRWD. Support a seamless transition from construction to long-term operation through progress ive closeout management, rigorous quality control, and comprehensive turnover documentation.

Our key approaches for Post Construction Services are:

1. Start With the End in Mind

HDR’s closeout strategy begins during construction, not at project completion. The team will proactively identify closeout requirements, maintain tracking matrices, and conduct regular reviews so that all deliverables are completed efficiently and without last-minute deficiencies.

2. Progressive Closeout Management

The team will implement a rolling closeout process, continuously compiling, reviewing, auditing, and resolving project documentation throughout construction and at the conclusion of each construction season. This approach reduces risk, improves document quality, and streamlines final acceptance.

3. Comprehensive Quality and Document Control

HDR will maintain rigorous management of QA testing records, project documentation, RFIs, submittals, change orders, and non-conformance reports through Procure and internal quality control reviews to confirm accuracy, completeness, and regulatory compliance.

4. Accurate As-Built and Record Drawing Verification

The team will perform ongoing reviews of contractor redlines, Bluebeam/CADD markups, and final record drawings to verify that all approved project changes and field conditions are accurately reflected in the permanent project record.

5. Seamless Operations Transition and Turnover

HDR will coordinate final turnover activities, including O&M manual reviews, warranty and spare parts verification, permit closeout support, punch list completion, and formal handoff meetings so that IRWD Operations receives a complete and organized facility transition package.

Training, Commissioning, and Startup Outcomes



- ✓ Successful startup and commissioning of all mechanical, electrical, controls, SCADA, instrumentation, and process systems through a structured testing and verification program.
- ✓ Improved stakeholder alignment and operational readiness through milestone-based startup and commissioning workshops involving IRWD, DSOD, the Design Engineer, the Contractor, and the CMT.
- ✓ Verification that all equipment and systems meet performance requirements through factory acceptance testing, functional testing, control system testing, system acceptance testing, and reliability acceptance testing.
- ✓ Comprehensive training of IRWD operations personnel, confirming staff are prepared to safely operate, monitor, maintain, and respond to facility conditions prior to project turnover.
- ✓ Timely completion of permit closeout requirements, including coordination and documentation necessary to support DSOD approval and issuance of the Certificate to Operate.

B. Factory/Field Demonstration Testing (F/FDT)

Factory/Field Demonstration Testing consists of independent testing of equipment performance and fabrication witnessed by IRWD. DSOD Design Engineering and IRWD Engineering and Operations staff shall be invited to attend demonstrations involving operationally significant equipment.

C. General Startup and Testing

General startup and testing activities include monitoring, alignments, adjustments, and testing to confirm equipment is properly installed and ready for operation. The Contractor shall submit Certificates of Proper Installation (COPI) and applicable International Electrical Testing Association (NETA) test forms for IRWD, DSOD, and Design Engineer review, as applicable.

D. Individual Equipment Functional Testing

Functional testing shall verify factory and source performance test results and confirm equipment meets Contract requirements, including flow, pressure, amperage, vibration, and motor control performance. Testing results for dam safety-related and critical operational systems shall be reviewed and approved in coordination with DSOD, Design Engineer, and IRWD.

E. IRWD Training

Training shall consist of two identical sessions: one conducted in the morning of Day 1 and one conducted in the afternoon of Day 2. Training will include:

- Mechanical equipment training provided by IRWD-approved qualified individuals
- Operational system and facility training covering process controls, operations, emergency response considerations, and facility-specific features

DSOD, Design Engineer, and IRWD shall participate as appropriate to confirm operational readiness and alignment with dam safety and operational protocols.

F. Control System Testing

Control system testing shall verify wiring and control functionality and be performed in three sequential steps, with coordination and witnessing by IRWD and participation by DSOD, Design Engineer, and IRWD for applicable systems:

- Loop Check Testing (LCT): LCT1 (Contractor-performed independent testing) and LCT2 (repeat of LCT1 witnessed by IRWD)
- Operational Train Testing (OTT): OTT1 (Contractor-performed independent testing of MCCs, LCPs, or VCPs) and OTT2 (repeat of OTT1 witnessed by IRWD)
- System Acceptance Testing (SAT): A single IRWD-witnessed test demonstrating full system wiring integrity and control system performance, with DSOD and IRWD participation as required

Regulatory Closeout

The CMT will provide proactive leadership and hands-on support to assist IRWD in the successful closeout of project permits, including obtaining the Certificate to Operate from the DSOD and the other permits identified in the Contract Documents.

The CMT will begin permit closeout planning early in the project by identifying permitting requirements, responsible parties, required documentation, and approval milestones. Permitting activities will be integrated into the overall project schedule and tracked through completion to confirm no permitting element becomes a critical path constraint.

Throughout construction, startup, and commissioning, the CMT will coordinate closely with DSOD, Design Engineer, and IRWD to confirm compliance with the design, regulatory requirements, and operational expectations. This coordination will include participation in Startup and Commissioning Workshops, system readiness reviews, and regulatory monitoring activities as required.

During startup and commissioning, the CMT will verify that testing, documentation, and operational demonstrations required for permit closeout are completed, reviewed, and accepted. This includes supporting monitoring activities, responding to regulatory comments, and confirming that DSOD conditions of approval have been satisfied prior to final acceptance.

As part of final closeout, the CMT will organize and confirm completion of the permit deliverables, certifications, test reports, and record documentation necessary to support IRWD’s submittal for the DSOD Certificate to Operate, confirming a timely and compliant transition to full operational status.



Post-Construction Phase

Project Closeout

This project phase is where starting with the end in mind bears fruit. When the CMT knows the closeout requirements in advance (e.g., funding sources, oversight agencies), the closeout documents can be developed incrementally throughout the project. This is especially critical on a multi-season project like Santiago Creek Dam. The CMT will develop a tracking matrix for expected closeout requirements, with regular check-ins.

- **QA Materials Testing:** Weekly and end of work phase. Requirements are met.
- **As-Built:** Monthly and end of each work phase. Updates are being made.
- **Project Documentation:** Weekly. Quarterly Quality Checks.

Materials Testing

The CMT will keep a database of QA material testing, checked at weekly quality meetings, which includes tests by material type and location, retests, and testing frequency requirements. The database will receive a final review and be provided to DSOD and IRWD.

Redline Markups

Redline markups will be kept by the contractor and the CMT. CMT markups will be in Bluebeam and/or CADD as requested by IRWD and informally on hard copy. Official CMT markups will be compared to contractor’s markups monthly, prior to processing pay estimates. The Bluebeam or CADD markups will be available online to the design team to complete formal as-builts as the project progresses, should they desire.

Document Control

The project will use Procore for online contract documentation. HDR’s internal QC processes will regularly confirm that documents are being uploaded and processed per project requirements. Jerome Ruddins, the QA manager, will lead this process, with quarterly reviews by Brian, Randy, or Jim.

The CMT will lead a structured, disciplined Project Closeout process to verify project records are accurate and transferred to IRWD in a fully searchable PDF format.

Post Construction Outcomes

- ✓ Complete and accurate project closeout documentation, including construction records, quality documentation, RFIs, submittals, change management records, and regulatory compliance documentation.
- ✓ Comprehensive QA materials testing records that verify testing requirements were met and provide DSOD and IRWD with a complete database of construction quality information.
- ✓ Accurate as-built documentation and record drawings through ongoing redline reviews, contractor coordination, and verification of final field conditions.
- ✓ Improved document control and long-term accessibility through organized, searchable digital project records maintained in Procore and delivered in accordance with IRWD standards.
- ✓ Successful operational turnover supported by reviewed O&M manuals, completed punch list items, documented warranties, delivered spare parts, permit closeout support, and formal transition meetings with IRWD Operations staff.



Recognizing that effective closeout begins well before final completion, the CMT will proactively manage closeout activities throughout construction to streamline final turnover.

Beginning during construction, the CMT will implement a rolling closeout process whereby documentation is compiled, reviewed, and audited as discrete elements of the work are completed. The QA Manager and Resident Engineer will routinely verify that submittals, RFIs, change documentation, quality documentation, and non-conformance reports are fully resolved and accurately reflected in the project records. This progressive approach reduces risk, lessens last-minute deficiencies, and confirms readiness for final acceptance.

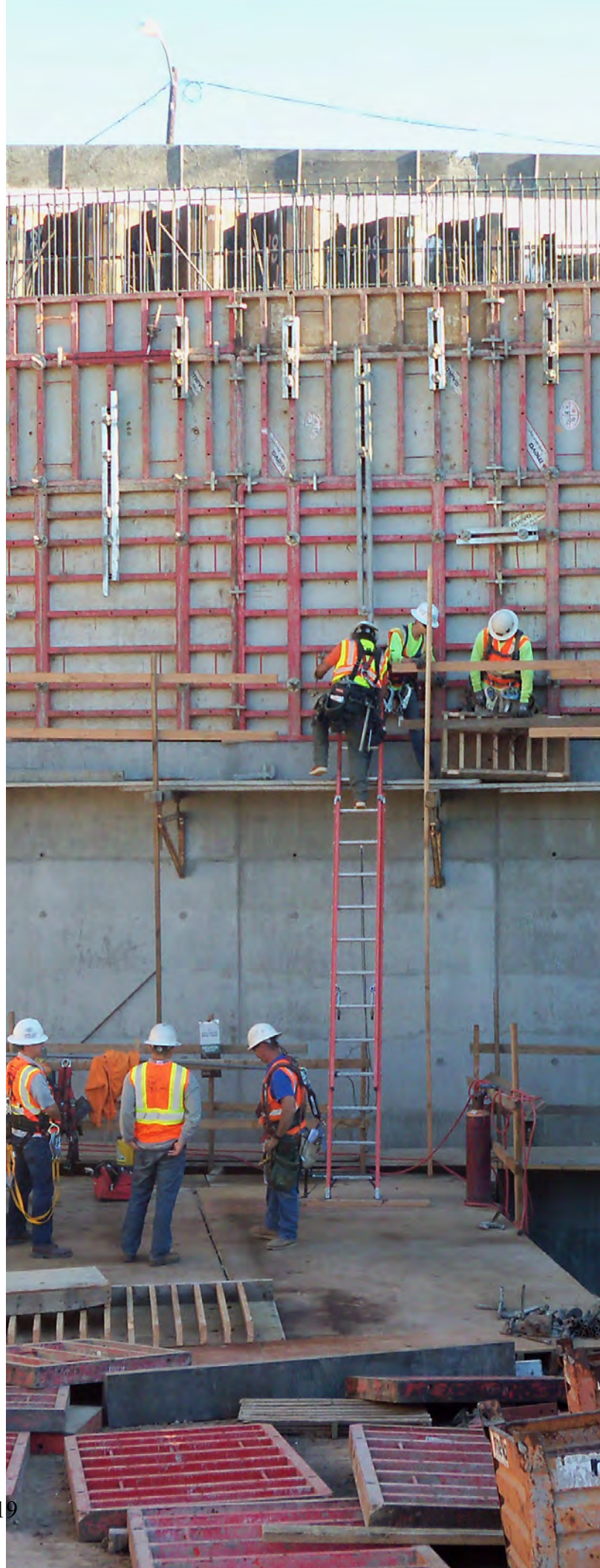
At the conclusion of each construction season, the CMT will perform a thorough check of files, calculations, and modifications to the construction documents to confirm that contractual, technical, and regulatory requirements have been addressed. This check will include a final verification that the contractor's red-line drawings accurately represent as-built conditions.

The CMT will obtain, review, and incorporate pertinent files from subconsultants into the final project record, confirming consistency and proper indexing. Documentation will be organized in accordance with IRWD standards to facilitate long-term access and use.

Operations and Maintenance manuals will be reviewed for adequacy and compliance, and the CMT will verify that punch list items are closed, required spare parts and warranties are obtained, and documentation is properly cataloged for IRWD Operations.

For record drawings, the CMT will coordinate closely with the Design Team, which will perform AutoCAD revisions, while the CMT will verify that the final record drawings, provided in both PDF and AutoCAD formats, accurately reflect approved project changes and the as-built condition of the work.

At closeout, HDR's CMT will provide IRWD with an organized project handoff that includes construction records, final documentation, O&M materials, warranties, permit closeout support, record drawings, and a formal turnover meeting with IRWD Operations and Maintenance staff to support a smooth transition from construction to long-term operation.



2 | Scope



HDR’s scope of work follows IRWD’s presented scope and adds the anticipated deliverables, controls, and management tools necessary to execute the work, document performance, and maintain accountability throughout the project. The CMT will co-locate in our HDR Irvine office starting in the pre-construction phase.



Final Design Phase

1. General Project Review: The CMT will review the Contract Documents in preparation for the Bid Phase and Construction Phase.

A review schedule will be developed to align HDR review team deliverables and effort levels with IRWD, DSOD, and AECOM/GEI for both the General Project Review and the Final Design Review. The CMT will meet with IRWD, AECOM/GEI, DSOD, and the dam risk team as appropriate to establish goals and schedules for this phase. The CMT will review the documents, checking for completeness, clarity, and conflict within the bid documents. The review will consider schedule and phasing, focusing on the amount of work included in each work phase. The reviews will include project plans, permits, front-end documents, inclusion of appropriate management tools (requirements for safety, quality control, scheduling, construction management information systems), measurement and payment clauses, permit requirements, and other non-technical information to identify potential risks and issues.

- The team will consider opportunities to reduce expected construction bid costs, reduce change orders and claims, and reduce schedule risk.
- The team will meet with IRWD operations staff to fully understand their requirements for O&M and ILP flows, both during and after construction.
- The team will work collaboratively in a Bluebeam studio environment and in Teams.
- The team will conduct focused meetings with the design team for each feature of work as needed to develop an understanding of the design intent. The CMT will develop a draft CMP with appendices for the CMT Site Safety Plan, Quality Assurance Plan, and Project Team Coordination Plan. The CMP will also describe our first 120 days on the project with clear roles and responsibilities.

- Deliverables:**
- Meeting Agendas and Minutes
 - General Project Review Comment Matrix
 - Draft CMP and appendices

2. Final Design Review: The CMT will review the design package. The design review will include a constructability review that focuses on major Project elements that may significantly contribute to construction risk (e.g., schedule, phasing, change orders, safety).

- a. Construction Risk Register:** The CMT will complete development of a construction risk register and lead a Construction Risk Workshop. The CMT shall participate in a Dam Safety Risk Workshop.
- b. Temporary On-Site Office Facilities:** The CMT will review the Contract Documents and confirm the adequacy of, and identify missing elements of the temporary facilities.
- c. Temporary On-Site Geotechnical Laboratory Review:** The CMT will review the Contract Documents and confirm facility design and identify geotechnical testing that will occur in the on-site laboratory.

3. Design Review: The review team SMEs will meet with the lead designer for each feature to understand the background, justification for non-standard decisions, and challenges overcome during design. When possible, and where appropriate, the SME will discuss requirements with DSOD staff to understand staff’s critical issues.

Each SME will review the project documents in their area of focus, including the DDR, ECIFP, Plans, Specifications, OPCC, Schedule, Permits, Risk Matrix and Operational Requirements.

SMEs will document risks in the work, with a focus on construction-related risks such as dam safety, cost, and schedule, and include them in the construction risk register.

- The team will work collaboratively in the same Bluebeam studio environment and in Teams as the General Project Review. The Final Design review will include the following:
- Review of the front-end documents and schedule constraints to consider the overall reasonableness;
 - Review of the front-end documents to confirm the Procure and processes are appropriately described;
 - Review the documents (DDR, ECIFP, Plans, Specifications, OPCC, Schedule, Permits) to identify items that may add value to the overall Project.

- Deliverables:**
- Comments log made in Bluebeam that includes comments identified by reviewer, reviewed document and location in the document.
 - Draft Construction Risk Register, Construction Risk Workshop Meeting Agenda / Minutes & Updated Construction Risk Register.
 - Updated Construction Risk Register including the dam safety risk component.
 - Recommendations for temporary facilities and equipment (e.g., offices, lab, utilities, cameras, security)

Facilitate a pre-bid kick-off meeting with IRWD, Design Team and the CMT to review the Pre-Bid Phase Services, to refine the roles and responsibilities during this critical time. Deliverables include an Agenda, Meeting Minutes and a Schedule.



Bid Phase Services

- 1. Pre-Bid Meeting Attendance:** Necessary staff from the CMT will attend the pre-bid site meeting in preparation for supporting the bid phase. The CMT will conduct project-specific bidder briefings and guided site visits to the dam, borrow areas, and staging locations, confirming contractors fully understand site conditions, constraints, and project requirements before submitting bids. This approach promotes more accurate pricing and reduces contractor assumptions.
- 2. Addenda Support:** The CMT will support IRWD, where requested, in the response to bidder questions. IRWD and the Design Team will be responsible for coordinating the bidder questions and responses with support from the CMT.
- 3. Miscellaneous Construction Phase Preparation:** The CMT will organize materials and resources to promptly provide Construction Management Services including procuring office equipment, laboratory equipment and other equipment and supplies that are not included in the Contractor’s scope of work and is required for the CMT to provide their services. The CMT’s proposal shall specifically identify the major items included in this task. The CMT will finalize the CMP and associated appendices, complete pre-construction project documentation and monitor drawdown of the Irvine Lake

- Deliverables:**
- CMT Health and Safety Plan
 - Project Team Coordination Plan
 - Pre-construction Conditions Summary
 - Review of preliminary 180-day contractor schedule
 - Final CMP
 - Quality Assurance Plan
 - Pre-construction Documentation



Construction Phase

- 1. Construction Management:**
- a. Project Management:** The CMT will manage personnel on their team and recommend adjusting staffing levels to IRWD at various phases of the construction project to effectively manage the services provided and budget. The Project Manager will:
- Coordinate with IRWD as needed.
 - Manage CMT staffing, sub-consultants, budgets, invoicing and reporting.
- Deliverables:**
- Monthly project status reports
 - Monthly invoices
- b. Quality Assurance/Quality Control:** The CMT will manage the project’s Quality process.

- The CMT will:
- Lead regular and as needed Quality Meetings
 - Coordinate with DSOD and AECOM/GEI on quality items
 - Track quality control activities taken by the contractor
 - Complete quality assurance activities
 - Coordinate between contractor’s quality control system and CMT’s quality assurance system.

- Deliverables:**
- Agendas and minutes for quality meetings including testing logs, non-compliance and non-conformance logs
 - Monthly quality reporting

c. Submittals and RFIs: The CMT will coordinate the review of submittals, Requests for Information (RFIs), and other construction-related communications. AECOM or their subconsultant will be the reviewer of technical submittals and RFIs. The CMT will review non-technical submittals that do not require the review of the Design Team.

- The CMT will review submittals and RFIs for:
- Overall completeness
 - Addressing of previous comments
 - Constructability
 - Potential for cost impacts
 - Sequencing and scheduling
 - Conformance with contract documents
 - IRWD’s Construction Manual (where applicable)
 - Other contract work consistency

The CMT shall track submittals, including resubmittals, and RFIs through the project’s Procure, and will work with reviewers to achieve required response times.

- Deliverables:**
- Submittal and RFI logs for weekly progress meetings
 - Review comments and dispositions for CMT reviewed submittals
 - Written evaluations of submittals and RFIs for the subjects listed in this section

d. Correspondence: The CMT will prepare construction-related correspondence. The CMT will coordinate with the design team and IRWD for input on technical correspondence as appropriate.

- Deliverables:**
- Written correspondence delivered through Procure.
 - Electronic correspondence and written records of significant conversations.

e. Coordination of Field Activities: The CMT will lead coordination of field activities, including but not limited to, coordinating inspections, coordinating QA testing, field meetings, third party topographic surveying, third party environmental activities, field investigations, regulatory audits and site visits with vendors.

f. Coordination with External Entities: The CMT shall lead the coordination with external agencies which include, but may not be limited to, Air Quality Management District (AQMD), OCFA, DSOD, SCE, RWQCB, and County entities including OCWR, OC Parks, and Orange County Public Works.

- Deliverables:**
- Written correspondence
 - Electronic correspondence and written records of significant conversations

Coordination with Other Consultants: The CMT shall lead the coordination with other consultants.

Environmental Consultant: The Environmental Consultant will review the EIR and regulatory permits from the Resource Agencies for compliance. The CMT will be responsible for facilitating and verifying permit compliance.

Risk Management: The CMT will manage the Project changes that may impact dam safety and summarize the changes for the Dam Safety Risk Representative. The CMT shall coordinate access to additional information to continue the management of dam safety risk.

Design Team: The CMT shall coordinate with the design team, including, but not limited to, submittals, RFIs, potential design changes, design changes, certain correspondence, necessary field observations and claims.

- Deliverables:**
- Electronic correspondence and written records of significant conversations
 - Monthly summary of changes that may impact the Risk Register and Dam Safety

g. Permit Compliance: The CMT shall understand the permits for the Project and lead compliance. Where external agencies, environmental consultants, the Design Team, IRWD, or other impacted parties require involvement to successfully comply with the permit, the CMT shall coordinate with the parties to satisfy the requirements of the permit. When required, the CMT shall obtain, organize, and provide necessary information to satisfy the permits.

- Deliverables:**
- Permit Compliance tracking log

2. Inspections and Materials Testing: The CMT will provide the required inspection services and Quality Assurance materials testing throughout the various phases of the Project. Materials testing services will include, at a minimum, the geotechnical testing and material testing

as stipulated in the Contract Documents or as required to complete QA. The CMT will complete testing listed as District responsibility in the Contract Documents.

Up to 90% of the required geotechnical testing for the project will be done at the on-site laboratory. The balance of the testing will be performed in Kleinfelder’s fully equipped, accredited production laboratory. Our fee estimate includes budget to purchase the required geotechnical laboratory equipment, calibrate the equipment, and set up and maintain the on-site laboratory for the duration of the project. Per the RFP, the contractor will be responsible for constructing the temporary housing structure and providing basic utilities for the on-site laboratory. Provided below is a table which identifies the item, specification section, and testing we would expect to perform in the on-site laboratory, along with minimal tests we’d perform at our local off-site accredited laboratory.

ITEM	SPECIFICATION SECTION	LABORATORY CAPABILITIES
Earthwork	02201 – Earthwork and Grading	• On-site Testing: ASTM C33, C117, C136, D1557, D4829 • Off-Site Testing: N/A
Zone 1A	02227 - Dam Embankment Construction	• On-site Testing: ASTM C117, C136, D698, D2216, D4318 • Off-site Testing: N/A
Zone 2A	02227 - Dam Embankment Construction	• On-site Testing: ASTM C117, C136, D2216, D4318, D1557 • Off-site Testing: N/A
Zone 3A	02227 - Dam Embankment Construction	• On-site Testing: ASTM C33, C117, C136, D4253, D4254, D6913 • Off-site Testing: N/A
Zone 3B	02227 - Dam Embankment Construction	• On-site Testing: ASTM C33, C117, C136, D4253, D4254, D6913, CT 217, CT 229 • Off-site Testing: CT 301
Zone 4	02227 - Dam Embankment Construction	• On-site Testing: ASTM C88, C127, C136, D4253, D4254, D6913 • Off-site Testing: ASTM C131

As an optional added benefit, Kleinfelder can also equip the on-site laboratory to cure specimens and perform testing of cast-in-place concrete, shotcrete, mortar, and masonry grout. Provided below is a table which identifies the item, specification section, and testing we would expect to perform in the on-site laboratory, along with minimal tests we would perform at our off-site accredited laboratory.

ITEM	SPECIFICATION SECTION	LABORATORY CAPABILITIES
Cast-in-Place Concrete	03300 - Concrete	• On-site Testing: ASTM C39 • Off-site Testing: N/A
Shotcrete	03361 - Shotcrete	• On-site Testing: ASTM C42 • Off-site Testing: ASTM C1550
Mortar and Masonry Grout	04232 - Reinforced Concrete Block Masonry	• On-site Testing: ASTM C140, C780, C1019 • Off-site Testing: ASTM C426

- Deliverables:**
- Inspection reports for each inspector for each shift of inspection in Procore
 - Material testing reports for each test in Procore

3. Environmental: The CMT shall understand the project mitigation measures and manage compliance with the measures and environmental commitments described in the EIR. Where the mitigation measure or environmental commitment requires coordination with other parties, such as, but not limited to, the environmental consultant or specialty service (e.g., biologist, archaeologist, palynologist) the CMT shall coordinate the services.

4. Meetings: The CMT will be responsible for leading meetings including preparing agendas, distributing the agendas to meeting participants in advance, preparing meeting minutes and following up with identified action items. Meeting minutes shall be distributed to meeting attendees within five (5) business days of the meeting. At a minimum, the anticipated meetings include the following:

a. Contractor Kick-Off Meeting: This meeting is an opportunity for the owner and contractor teams to meet, understand at a high level each team’s goals and approach.

b. Pre-Construction Meeting: This meeting will cover contract requirements and processes.

c. Initial Scheduling Meeting: This meeting will review CPM scheduling requirements, including software, schedule updates, and TIAs.

d. Weekly Construction Progress Meetings: This meeting will review safety, construction progress, look-ahead schedules, status of submittals, RFIs, permit and environmental compliance, disputes, claims, and coordination with outside entities and the public.

e. CMT Safety Meetings: These meetings will discuss CMT safety, upcoming activities that may change safety protocols, safety training, incidents and close calls.

f. Weekly Quality Meetings: These meetings will discuss the status of project Quality Control and Quality Assurance, including adherence to plans and specifications, materials testing results, planned upcoming tests, coordination with design team and DSOD for field observations, non-compliances, non-conformances and related matters.

g. Definable Feature of Work Quality Meetings: These meetings, in advance of the work, will review safety protocols, technical and coordination requirements, status of required submittals, outstanding RFIs or potential changes, sampling and testing, work shifts, hold points for review by CMT, DSOD or design team and similar items for each area of work. These meetings include work crews, inspectors and field-testing technicians. These meetings are led by the Contractor’s quality control manager, who prepares agendas and minutes.

h. Weekly Owner’s Team Meeting: This meeting, preceding the weekly progress and quality meetings, will include the CMT, design team and IRWD as necessary, DSOD as necessary, other entities as necessary and other non-design consultants as necessary will bring the team in alignment on status of team progress (e.g., submittals, RFIs, design changes, environmental compliance), review look-ahead schedule, coordinate team activities and other necessary actions prior to meeting with the contractor.

i. Monthly Scheduling Meeting: This meeting is to review the contractor’s proposed CPM update, significant changes to progress, adherence to contract time, Time Impact Analyses, and to discuss technical aspects of the update.

j. Monthly Project Management Meeting: The CMT will be responsible for preparing monthly reports and reviewing them with IRWD. Monthly Project Management meetings will be established to review the monthly reports and Project related items.

k. Other Project Meetings: Other types of meetings may include, but are not limited to, meetings with external agencies, kick-off meetings for certain phases of work, submittal review meetings, meetings with vendors, and focused issue meetings.

- Deliverables:**
- Meeting agendas distributed prior to the meeting
 - Meeting minutes and logs of participants distributed within five business days
 - Action item tracking logs

5. Reporting: Reporting on various activities is required throughout the Project. The CMT shall prepare and submit the following routine reports:

a. Daily Inspection Reports: Inspection Reports shall be completed and submitted to IRWD and other necessary recipients within one business day following the inspection. The Inspection Reports shall include, at a minimum, well-written descriptions with sufficient detail describing the work performed, documentation of compliance or non-compliance with the Contract Documents, photos, safety concerns, and other items relevant to the work. Reports will be posted, reviewed and be available in the document control system.

b. Monthly Reports: Monthly Report shall include, at a minimum, safety, progress report summary, spend rate, outstanding issues, change orders, schedule, a quality dashboard tracking the length of each submittal/RFI review to monitor timely completion of reviews, and other information that IRWD should be aware of. To be submitted under separate cover 1 week before the Monthly Project Management Meeting.

c. Quarterly Reports: The Quarterly Reports will be a higher-level summary of the Monthly Reports and will become the basis for IRWD staff's quarterly report to IRWD's Engineering and Operations Committee and/or Board of Directors. The CMT shall assist in gathering or developing additional information such as construction photos that represent construction progress or issues, developing exhibits or charts, and assisting in developing PowerPoint slides to support IRWD staff's presentation and written report.

1. **Drone Documentation:** The CMT's proposal shall include the optional task to produce drone aerial photos/videos and inspections as a component of the quarterly report. The CMT may propose a different drone footage frequency for IRWD's consideration and explain the advantages of the services to the Project.

d. Non-conformance Reports: As part of the CMT's construction oversight and QA, they shall identify and document instances of non-conformance with the Contract Documents. The Non-conformance Reports shall specifically identify the deviation from the Contract Documents or industry standards and serve as formal notice for non-conforming work. The CMT shall actively track non-conformance issues and collaborate with the Contractor to resolve the issues. CMT shall provide Non-Compliance and Non-Conformance Logs with corrective actions and final dispensation.

e. Structural Observation Reports: Structural Observation Reports shall be completed and submitted as the nature of the work requires. Issues identified in the report shall be promptly reviewed with the Contractor and addressed.

f. Final Geotechnical Report: The final geotechnical report shall provide a log of QA materials testing, analysis of testing frequency and distribution by feature of work, closeout of non-compliant QA testing, tracking of foundation review and acceptance by DSOD and the design team, and technical memoranda or changes to the project documentation related to geotechnical issues. The contractor's QC testing summaries will be attached as an appendix to this report.

In addition to the routine reports, the CMT will prepare other investigation, monitoring, and test reports reasonably necessary to sufficiently document the project and support compliance with the Contract Documents. These may include, but are not limited to, reports such as the Final Geotechnical Report, as applicable to the project needs.

Deliverables:

- Draft and final reports as appropriate for the individual report.

6. Progress Payments: The CMT will be responsible for reviewing the Contractor's regularly submitted progress payments and providing recommendations to IRWD on amounts. The review of the progress payment shall include the following items, at a minimum.

a. Completeness Review: The CMT shall verify the Contractor submits a progress payment request with the required backup information, limited to what was observed, such as schedules of values, certified payroll, backup invoices, quantity calculations, and an updated construction schedule.

b. Progress Review: The CMT shall review the progress pay items with the Contractor to make sure the progress payment represents the construction progress. The review shall also include the adequacy of backup information that supports the pay request, verification of quantities and suitability of storage for items that are partly paid for but not yet installed, and other contract requirements related to progress payments.

c. Labor Compliance Review: The CMT shall review the certified payroll documents to confirm they represent the labor performed for the period the Contractor is requesting payment. The certified payroll documents, which typically trail the progress payment by a couple of weeks, shall be regularly tracked. IRWD will serve as the primary contact with the Department of Industrial Relations (DIR) and also track and regularly review labor compliance documents.

Deliverables:

- Recommendation for payment for each progress payment request, including backup.

7. Contract Change Orders: The CMT will be responsible for receiving, reviewing, researching, negotiating, responding to, and recommending Contract Change Orders to IRWD. Contract Change Order recommendations will require a justification memorandum that explains the circumstance, the original condition stipulated in the Contract Documents, reason for the change, and references to the relevant Contract Documents.

Deliverables:

- Draft Change Orders with justification memorandum and backup documents.
- Final approved change orders in Procore.
- Change Order tracking log
- Marked-up drawings incorporating changes
- Inspection reporting for change orders, especially Time and Materials or Cost Plus change orders

8. Potential Claims and Disputes: If potential claims are submitted or disputes arise through the course of the Project, the CMT will review and track the potential claims and disputes and actively seek to resolve them in coordination with IRWD.

Deliverables:

- Potential Claim or Dispute research
- CMT opinion of probable cost estimates
- Analysis of schedules, recovery schedules and Time Impact Analysis
- Negotiation records

9. Schedule Review: The CMT shall review the updated construction schedule or recovery schedule and work with the Contractor to manage progress towards timely completion. Other schedules will be submitted throughout the Project, which may focus on certain components of the overall Project such as anchorage and tie-back installation sequence schedules, concrete pour schedules, and startup schedules. The CMT shall critically and constructively review the submitted schedules.

Deliverables:

- CPM update, recovery and TIA reviews
- Task specific schedule reviews

10. Document Control: The CMT will be responsible for managing the documents related to the Project that are prepared by or processed through the CMT. This includes, but is not limited to, submittals, RFIs, correspondence, field directives, notices of non-conformance, inspection reports, permits, test results, monitoring results, record drawings and other construction related documentation. Documents shall be electronically searchable and legible. IRWD, including for this Project, is subject to Public Records Request and therefore documents should be completed with the understanding that they may be reviewed by the public.

The CMT shall establish a meaningful and intuitive method for naming and cataloging photos taken throughout the Project. The system shall enable staff to quickly retrieve the photos in the future based on the area, activity, phase of the project, and date.

Deliverables:

- Complete set of project records processed by the CMT in Procore.

11. Quality Assurance/Quality Control Plan: The CMT will be responsible for establishing and implementing a program to monitor and verify the quality of construction. The potential for defects, deficiencies, or substandard craftsmanship shall be closely monitored. Unacceptable work shall be rejected with a formal notice of non-conforming work and the issue tracked until successfully corrected to the satisfaction of IRWD or the entity having jurisdiction. Except for minor variations in the work, the CMT is not authorized to change, alter, relax, or release requirements of the Contract Documents. The CMT shall provide topographic surveys on an as-needed basis to provide QA support, support site quantities from stockpiled materials, confirm rough and fine grading lines, support claims avoidance, and provide survey reports.

Deliverables:

- Quality Assurance Plan
- Non-conformance and non-compliance reports and logs
- Survey records and notes

12. Safety: HDR recognizes that responsibility for establishing, implementing, maintaining, and enforcing the Site-Specific Safety Plan (SSSP) rests solely with the Contractor. Consistent with IRWD requirements, HDR will develop and implement our own CMT SMP and field safety protocols to protect CMT personnel, subconsultants, and other individuals under its supervision while supporting overall project safety objectives.

Prior to construction activities, the CMT will prepare a SMP and protocols to provide a safe work environment that addresses employee responsibilities, hazard awareness, communication protocols, emergency procedures, visitor requirements, and field work expectations. The plan will be aligned with applicable Contractor site requirements and IRWD project expectations while remaining focused on the activities performed by CMT personnel.

The CMT will observe the implementation of the Contractor's SSSP through routine observations, documentation reviews, participation in safety meetings, and engagement with contractor leadership. Oversight activities may include review of job and activity hazard analyses, safety observation reports, incident investigation reports, corrective action documents, emergency response procedures, training records, and other project safety-related information.

A key component of the CMT SMP will be a formal visitor safety orientation program. The orientation will be required for all visitors coordinated through the CMT. All site visitors entering through the CMT trailer will receive a project safety orientation prior to accessing the work area. Orientation materials, including the safety video and site-specific safety requirements, will be developed and provided by the Contractor. The overall project safety is a contractor responsibility therefore the orientation will be provided by the contractor's safety personnel and incorporate the contractor's safety orientation, addressing site-specific hazards, emergency procedures, restricted areas, traffic and equipment movement, PPE requirements, and other relevant safety considerations. The CMT will maintain documentation demonstrating completion of the orientation and will establish procedures to verify visitor compliance with project safety requirements while on site.

Deliverables:

- CMT SMP (consistently updated)
- Contractor's safety plan monitoring reports
- Visitor safety orientation material and tracking log

13. Training: The CMT will be responsible for coordinating training for appropriate personnel including IRWD, external agencies, and visitors including, at a minimum, safety training, equipment training, operational training, environmental compliance and constraints training, document control training. The CMT will be responsible for coordinating the training with appropriate personnel including IRWD, external agencies, and visitors.

Deliverables:

- Training logs

14. Public Relations: The CMT will support IRWD’s public outreach by preparing construction updates, graphics, schedule information, responses to construction-related questions, and follow-up documentation for up to three public meetings, helping IRWD communicate progress, anticipated impacts, safety considerations, and project benefits clearly and consistently.

Deliverables:

- Draft and final presentation materials

15. Partnering: The CMT will participate in IRWD or Contractor-requested partnering efforts, including facilitated workshops, group or one-on-one meetings, evaluations, and follow-up actions, to strengthen communication, establish shared goals, resolve issues early, and maintain a cooperative project environment focused on safety, quality, schedule, DSOD coordination, and claims avoidance.

Deliverables:

- Summarize action items
- Update project charter



Training, Commissioning, and Startup Services

1. Startup: The CMT will be the lead reviewer of the Contractor-prepared startup plan. The CMT shall thoroughly understand

IRWD’s startup requirements and collaborate with the Contractor to develop a startup plan that meets the contract requirements. The CMT, in collaboration with the Contractor, shall manage the startup process to achieve a functioning facility for IRWD. Owner-witnessed factory testing and field testing shall be completed by the CMT.

Deliverables:

- Review of contractor’s start up plan

2. Training: Training shall be provided by the contractor for the equipment, instruments, processes, procedures, and systems described in the Contract Documents or deemed necessary to successfully complete the Project and transfer the Project to IRWD.

Deliverables:

- Training manuals and procedures documents collection

3. Final Permitting: The CMT shall assist in closing out permits for the Project including the Certificate to Operate with DSOD and other permits listed in the Contract Documents.

Deliverables:

- Assemble the package of permits necessary for project closeout.



Post-Construction Services

1. Project Closeout: At the end of the Project, the CMT shall conduct a project closeout to assemble the pertinent documents into the official record and transfer the documents to IRWD. IRWD anticipates that the project closeout will include the following activities, at a minimum.

Deliverables:

- A final audit of files, calculations, and modifications to the construction documents to confirm that submittal reviews, RFIs and other pertinent information have been adequately addressed.
- Obtain pertinent files from subconsultants incorporated into the final project documents.
- Operations and maintenance manuals, warranties and spare parts provided to IRWD
- Completed final punchlist
- Conduct a final hand-off meeting to the IRWD Operations and Maintenance Team.
- Final complete record drawings in PDF and AutoCAD format.
- Provide electronic versions of pertinent project documents





3 | Draft Construction Risk Registry



Risk Register Process

Risk is the potential for events or conditions that, if they occur, may adversely affect project cost, schedule, quality, or performance. The HDR Santiago Creek Dam CM Team conducted workshops and performed a detailed review of the 90% design documents, including plans, specifications, and supporting technical information, supplemented by a site visit to evaluate existing field conditions. This effort was conducted to identify and assess potential construction risks associated with project implementation.

The team developed a preliminary construction phasing plan to evaluate key construction activities, sequencing constraints, and operational considerations across anticipated dry and wet seasonal conditions. This analysis establishes a framework for understanding how seasonal variability may influence construction risks, site access, emergency response for potential wildfires, and overall project execution.

Identified risks were evaluated based on their likelihood and potential impact, allowing for prioritization and assignment of appropriate mitigation measures. The Risk Register will serve as a living document, updated regularly throughout design and construction to reflect evolving project conditions and the status of mitigation efforts.

Constructability reviews are a critical component of this process, with a focus on identifying high-risk elements, prioritizing key concerns, and developing practical solutions. The accompanying figure presents the draft Risk Register, illustrating how risks are defined, assigned to responsible parties, and addressed through proposed mitigation strategies.

Approach to Risk Management

HDR's risk management process follows five steps: identification, qualitative analysis, quantitative analysis, risk response, and risk monitoring. During the planning stage, HDR will work closely with Dam Safety Risk Specialists, the Design Team, and IRWD to determine how to approach, plan, and execute risk management activities. A critical outcome of this step is that the process for risk identification is analyzed, acted upon, and communicated to project leadership.

HDR has developed a draft Risk Management Plan that defines the levels at which risk management will be performed for each construction activity and sequence. The plan identifies the members of the Project Risk Management Team, both within HDR and, in this case, at IRWD.

The HDR Risk Management Process

During this step, HDR determines which risks might affect the project and documents their characteristics in a project Risk Register, a living document that lists risks and the manner in which they are being addressed. The Risk Register identifies not only threats to the project, but opportunities as well. Project risks can be identified by anyone on the Project Team.



To estimate the probability that a project will meet its cost and schedule objectives, HDR conducts a Quantitative Risk Analysis. Cost and schedule impacts in terms of dollars and days are used to analyze project risks. High, medium, and low values of impact are estimated for each risk. Using a three-point estimate, a probability impact for cost and schedule is then calculated.

HDR's Project Manager, along with the Contract Administrator, will track the Risk Register on a monthly basis with IRWD during project review meetings. During these meetings, HDR will review identified risks and examine residual risks, identify new risks, and review progress on risk response plans.

Risk Management Communication and Accountability

Consultation with project stakeholders and IRWD is a critical factor in executing an effective risk management plan. HDR will use its established relationship with IRWD to review project progress and the Risk Register on a monthly basis. Construction Manager Brian Hollis will be responsible for communicating with IRWD's Project Manager regularly to review project performance and risks. At a minimum, significant project risks will be identified in a monthly report providing status for current risks and potential risks identified during the period. Risks with a significant impact on project execution or performance will be communicated immediately to IRWD's Project Manager and to the appropriate leadership level. Risks will be addressed in the manner described above, with identification and communication handled consistently with the risk registry process.

Santiago Creek Dam Construction Risk Management

The CMT will conduct a comprehensive Final Design Review prior to the Design Team completing the Contract Documents and IRWD proceeding with advertisement for construction. This review will confirm that the design is constructible, coordinated, and aligned with project objectives while reducing construction risks. The CMT will perform a disciplined evaluation of the design package, including drawings, specifications, technical reports, and construction sequencing plans, to verify that the documents clearly convey design intent and can be efficiently executed in the field.

The review will emphasize constructability and focus on major project elements with the potential to significantly affect construction outcomes. Particular attention will be given to dry and wet season constraints, construction sequencing, phasing, site access and staging constraints, utility coordination, permitting, and temporary works. The CMT will evaluate procurement requirements, environmental compliance considerations, and other factors that may affect construction execution. In parallel, the CMT will perform a risk-based assessment to identify issues that could affect schedule, cost, and quality. This effort will include evaluating potential impacts to the critical path, identifying areas of design ambiguity that could lead to change orders, and assessing risks associated with construction activities.

The Final Design Review will be supported by coordination among CMT discipline leads to confirm a thorough, multidisciplinary perspective. The CMT will collaborate closely with the Design Team and IRWD to review findings and develop practical recommendations. The results will be documented in a Final Design Review memorandum and constructability review report that clearly define critical issues requiring resolution as well as advisory recommendations to strengthen project delivery. These findings will directly inform the development and refinement of the Construction Risk Registry and set the stage for the Dam Safety Risk Workshop led by the Dam Safety Risk Review Team.

The HDR CMT has prepared a draft Construction Risk Registry that reflects its systematic approach to identifying and addressing construction risks. This initial registry is based on available project information and identifies notable concerns that could affect successful delivery, such as wet and dry season sequencing, limited site access, subsurface uncertainties, environmental permitting challenges, interfaces with existing infrastructure, and wildfire exposure. The draft includes preliminary consideration of dam safety risks and DSOD coordination and approvals. HDR recognizes that this component will be further developed in coordination with IRWD, Dam Safety Risk Review Team, Design Team (AECOM/GEI), CMT, and DSOD as appropriate

Each risk will be evaluated using a consistent framework that considers both likelihood and potential impact, allowing for prioritization and clear understanding of consequences. The registry will include preliminary mitigation strategies outlining practical measures to reduce or address identified risks. This approach confirms that risks are identified early, systematically analyzed, and actively tracked throughout the project lifecycle.

Dam Safety Risk Management

The Construction Risk Registry will serve as the foundation for a Construction Risk Workshop led by **Nate Snorteland** on September 14–17, 2026. Through this workshop, the CMT will facilitate a collaborative process involving IRWD, the Design Team, and key stakeholders to validate, refine, and expand the identified risks. The workshop will establish consensus on critical risks, assign ownership, and define mitigation strategies and action plans. The updated registry resulting from this effort will function as a central tool for ongoing risk management.

A critical element of the Construction Risk Registry will be the integration of dam safety risk during construction. The CMT will actively participate in the 100% Design Dam Safety Risk Workshop led by the Dam Safety Risk Review Team and will coordinate with dam safety specialists, the Design Team, and IRWD to identify potential failure modes associated with construction activities. These risks will be evaluated in the context of construction sequencing and staging, with consideration of hydraulic, hydrologic, geotechnical, and

structural factors. The CMT will incorporate identified failure modes, triggering conditions, and mitigation measures into the registry.

Mitigation strategies for dam safety risks will include controls on construction sequencing, monitoring and instrumentation requirements, and contingency planning to address adverse conditions. The CMT will confirm that dam safety risks are fully integrated with the broader project risk registry so they can be consistently tracked and updated.

Following the workshops, the CMT will maintain the Construction Risk Registry as a living document throughout final design, pre-construction, and construction. The registry will be updated regularly to reflect evolving project conditions, the status of mitigation measures, and the identification of new risks. Ongoing reporting will be provided to IRWD to confirm full visibility into the project’s risk profile and the effectiveness of risk management efforts.

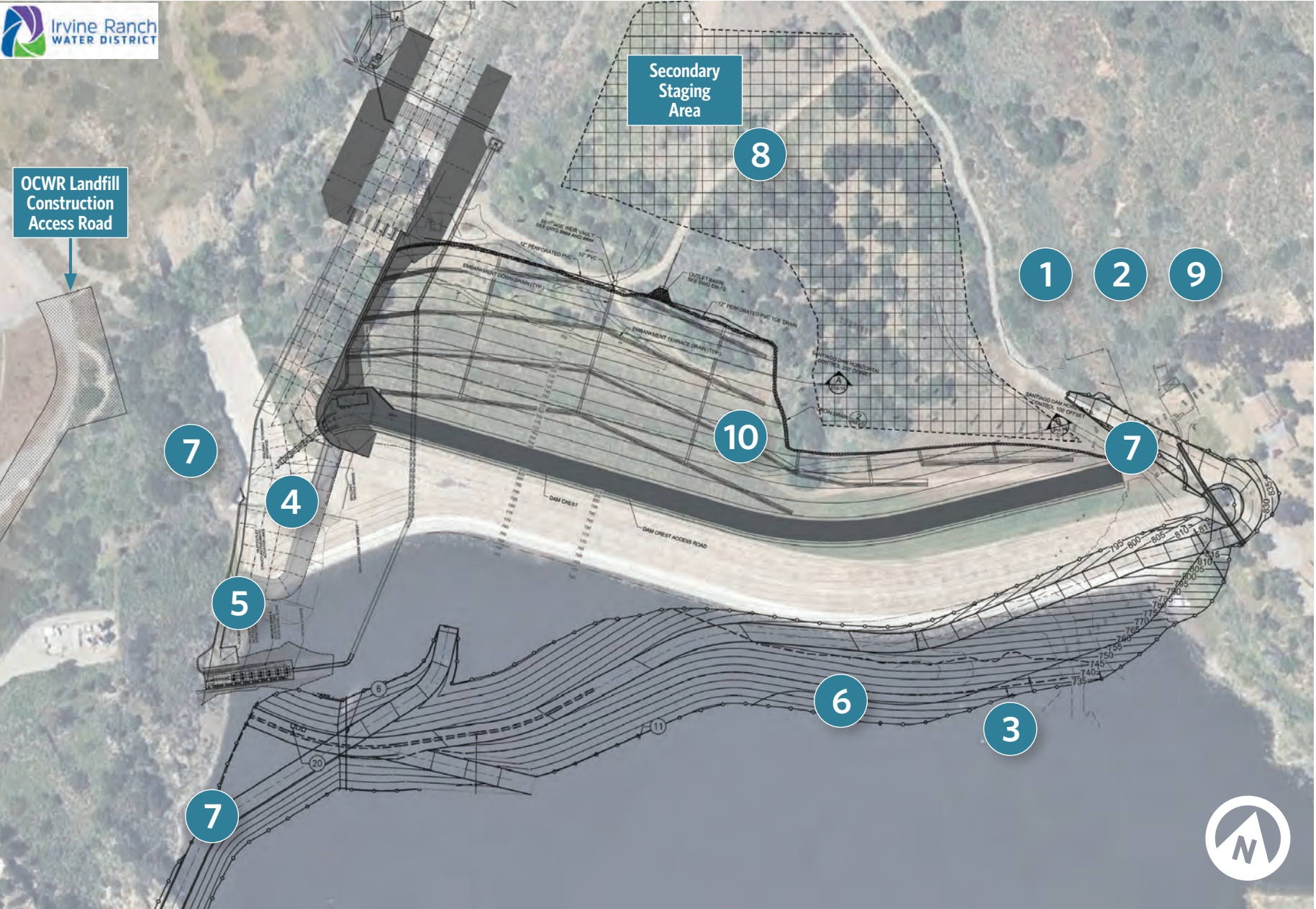
Through this structured and proactive approach, the CMT will strengthen design quality, improve constructability, reduce

uncertainty, and support IRWD in effectively addressing both general construction risks and dam safety risks throughout the project lifecycle.

The Strategic Risk Reduction Map on the following page translates the Construction Risk Registry into a site-based visual tool, showing where the top 10 construction risks are expected to occur and how they relate to the project’s phasing, access, staging, dam safety, and work sequencing constraints. The map highlights critical risk areas such as schedule management, dewatering, RCC placement, fractured bedrock, temporary diversion berm performance, site access, high-wind and wildfire exposure, batch plant operations, and filter-drain construction, allowing IRWD, the CMT, the Design Team, DSOD, and the Contractor to quickly connect each risk to a physical location and mitigation strategy. This visual approach makes the Construction Risk Registry more actionable by supporting early decision-making, improving workshop discussions, assigning accountability, and tracking mitigation measures before risks affect quality, cost, schedule, or dam operability during wet-season transitions.

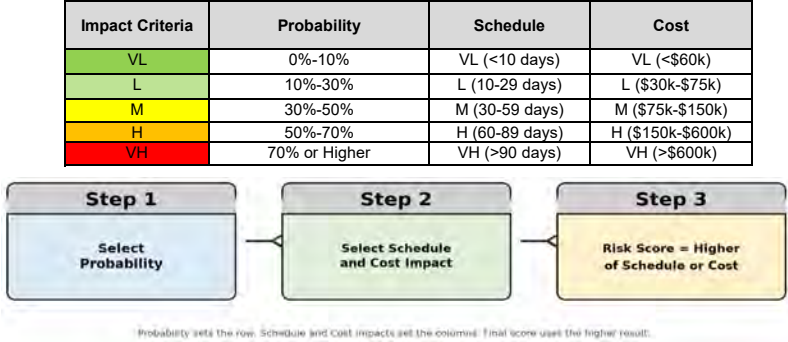


SANTIAGO CREEK DAM IMPROVEMENT PROJECT - Strategic Risk Reduction Map



1	Site Hazard Assessment & Safety Project Site	2	Schedule Management Project Site	3	Dewatering Embankment	4	RCC Placement Spillway	5	Fractured Bedrock Spillway	6	Temporary Diversion Berm Embankment	7	Site Access Project Site	8	Onsite Batch Plant Staging Area	9	High Winds (Wildfire) Project Site	10	Filter Drain Embankment
Challenge: Concurrent operations and difficult working environment will trigger advanced safety measures. Mitigation: Early communications and involvement with the contractor to discuss safety issues during construction and work together for a plan to address and mitigate safety issues. Develop site seasonal specific job hazard assessment, per major component of the project. HDR will provide a safety officer that will observe contractor safety program.		Challenge: Several key components in construction concurrently, conflicts in phasing. A 20hrs/6 days per week operation (April 15-November 15). Mitigation: Perform analysis on construction phasing sequence during constructability review and find efficiencies to perform the work utilizing seasons with least impacts to dam safety. Recommend measures to protect the dam during the wet seasons. Use Synchro 4D to visualize critical path delays and forecast the most efficient construction sequence. Prepare contingency phase for likely changes (Foundation, Grouting, Anchoring, Placement, etc.).		Challenge: Footings impacted by muddy conditions, not stable enough. ~7ft of residual water below lowest gravity draw down, saturated clayey lakebed sediment 45ft thick. Mitigation: Placement of subdrain material and add additional wells as contingency beyond what is prescribed to maintain water levels to a workable level. May have to install geogrid to strength foundation.		Challenge: Proper RCC stabilization with tall placements, narrow work area obtaining compaction while maintaining safety. Mitigation: The current RCC design should be reviewed and discussed with IRWD and designer during the constructability review and if designs are unable to address the issue, then discussions with the contractor early on to resolve the issues will be key.		Challenge: Stability for rock anchoring and blasting during excavation. Mitigation: Allow enough time for the excavation, over excavate as needed. Potential to add shotcrete to stabilize slopes. No blasting in specific areas, use options such as stick or slush grouting with DSOD and EOR approval.		Challenge: May be impacted by large storm events, breaching of berm. Mitigation: Observe proper foundation preparation of temporary berm. Contractor to establish Emergency Action Plan. Install Flood Warning System to alert IRWD/Orange Co that trigger emergency conditions. Use FIRO as a guide to forecast potential watershed rainfall and reservoir inflow 2 weeks in advance.		Challenge: Limited haul route may cause traffic jams. Steep access roads may limit specialized vehicles from accessing bottom of dam. Haul route is on the narrow side 30ft, for two-way traffic with mixed truck types. Road will require constant maintenance to stabilize increasing congestion. Blind spot at the right abutment that will require safe traffic management. Mitigation: Evaluate schedule to that haul roads are used in the most efficient manner. If excavation spoils hauling and concrete placements need to be performed during the same time period, conduct spoils hauling during the day and concrete placements at night. Allow for turnouts/widened areas in access road to allow safe passage.		Challenge: Power and water source may impact schedule including material storage. Limited work area, all materials on trucks. Mitigation: Have generator ready to go if dedicated connection is offline, protect bulk material from weather elements and contamination.		Challenge: Wildfire risk at and near the project site. Mitigation: Prepare project-specific Wildfire Response Plan integrated with the Site Safety Plan that aligns with OCFA requirements. Integrate risks into the schedule. Utilize surge operation and targeted recovery plans to minimize schedule impacts and maintain critical project milestones.		Challenge: Long, drawn-out process that impacts several key dam components. Mitigation: Carry out improvements early enough, work during the wet weather timeline as the work would be isolated to downstream side of dam. If degrading of dam is required, then prepare for lake water and water table drawdown prior to work starting, confirm that design accounts for constructability issues (filter drain layers worked in with machinery and construction of vertical chimney).	

Client: Irvine Ranch Water District
Project: Santiago Creek Dam Improvement Project
Date: July 15, 2026

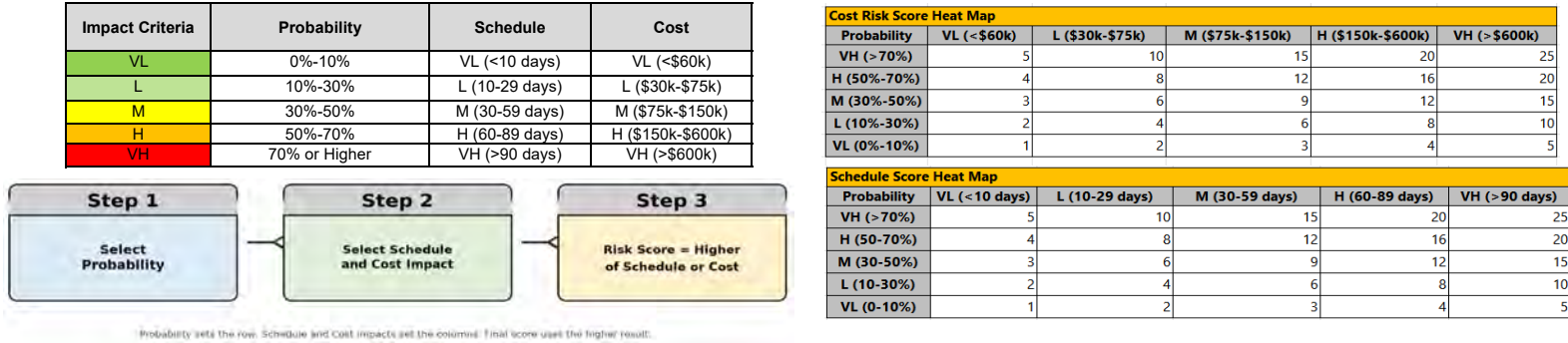


Cost Risk Score Heat Map					
Probability	VL (<\$60k)	L (\$30k-\$75k)	M (\$75k-\$150k)	H (\$150k-\$600k)	VH (>\$600k)
VH (>70%)	5	10	15	20	25
H (50%-70%)	4	8	12	16	20
M (30%-50%)	3	6	9	12	15
L (10%-30%)	2	4	6	8	10
VL (0%-10%)	1	2	3	4	5

Schedule Score Heat Map					
Probability	VL (<10 days)	L (10-29 days)	M (30-59 days)	H (60-89 days)	VH (>90 days)
VH (>70%)	5	10	15	20	25
H (50-70%)	4	8	12	16	20
M (30-50%)	3	6	9	12	15
L (10-30%)	2	4	6	8	10
VL (0-10%)	1	2	3	4	5

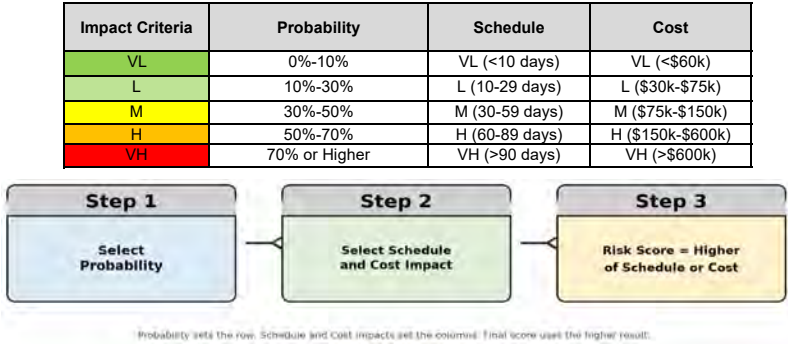
Draft Construction Risk Registry

Risk Identification									Qualitative Analysis (Pre-Mitigation)				Risk Response Planning		
Risk Rank	Risk ID	Status	Risk Name	Risk Description	Threat/ Opportunity	Risk Category	Risk Owner	Risk Triggers	Probability	Schedule Impact	Cost Impact	Risk Score	Risk Response	Response Timing/Phase	Proposed Risk Response Plan (draft)
1	R-01	Open	Site Hazard Assessment & Safety	Concurrent operations and difficult working environment will trigger advanced safety measures	Threat	12. Health & Safety	Contractor	Submittal Review	VH (>70%)	H (60-89 days)	M (\$75k-\$150k)	20	Mitigate	Preconstruction	Early communications and involvement with the contractor to discuss safety issues during construction and work together for a plan to address and mitigate safety issues. Develop site seasonal specific job hazard assessment, per major component of the project. HDR will provide a safety officer that will observe contractor safety program.
2	R-06	Open	Schedule Management	20 hours/6 days a week shifts (April 15 - November 15) Several key components in construction concurrently, conflicts in phasing	Threat	10. Construction	Owner	Non Constructable Phasing Plan	H (50% - 70%)	VH (>90 days)	VH (>\$600k)	20	Mitigate	Design	Perform a detailed analysis on the construction phasing sequence during the constructability review and try to find more efficient ways of performing the work utilizing the seasons with least impact to dam safety. Understand the risks to the project and dam during construction and measures to protect the dam during the wet seasons. Also use Synchro 4D to visualize critical path delays and forecast accurate schedule to determine the most efficient construction sequence. Prepare contingency plans at each phase for likely changes (Foundation, Grouting, Anchoring, Placement, etc.). Gain decisions and DSOD buy-in with contingency plans. Understand where factors of safety are high. Understand which items are Dam Safety Critical and allow for clear pivot scenarios.
3	R-05	Open	Dewatering	Footings impacted by muddy conditions, not stable enough. Seven feet of residual water below lowest gravity draw down, saturated clayey lakebed sediment 45 feet thick.	Threat	09. Site Conditions	Contractor	Soil conditions	VH (>70%)	H (60-89 days)	H (\$150k-\$600k)	20	Mitigate	Begin unwatering below dead pool	Placement of subdrain material and add additional wells as contingency beyond what is prescribed to maintain water levels. May have to install geogrid to strengthen foundation.
4	R-03	Open	RCC Placement	Proper RCC stabilization with tall placements, narrow work area for obtaining compaction and installing anchors on the edge while maintaining safety and structure integrity.	Threat	10. Construction	Contractor	Compaction testing and stability	H (50% - 70%)	H (60-89 days)	H (\$150k-\$600k)	16	Mitigate	Constructability Review and Preconstruction Meetings with contractor.	The current RCC design should be reviewed and discussed with the owner and designer during the constructability review and if designs are unable to address the issue, then discussions with the contractor early on to resolve the issues will be key.
5	R-07	Open	Fractured Bedrock	Will cause challenges for rock anchoring and blasting during excavation.	Threat	09. Site Conditions	Designer		H (50% - 70%)	H (60-89 days)	H (\$150k-\$600k)	16	Mitigate	Design	Allow enough time for the excavation, over excavate as needed. Potential to add shotcrete to stabilize slopes
6	R-04	Open	Temporary Diversion Berm	Temporary berm may be impacted by 100-year storm event, breaching of berm	Threat	10. Construction	Contractor	Weather forecast	H (50% - 70%)	H (60-89 days)	M (\$75k-\$150k)	16	Mitigate	Early discussions with the contractor to discuss how to address scenarios.	Observe proper foundation preparation of temporary berm. Contractor to establish Emergency Action Plan. Install Flood Warning System to alert IRWD/Orange Co that trigger emergency conditions
7	R-08	Open	Site Access	Limited haul route may cause traffic jams especially during peak haul phases. Steep access roads may limit specialized vehicles from accessing bottom of dam. Haul route is on the narrow (30 feet) for two-way traffic with mixed truck types. Road will require constant maintenance to stabilize increasing congestion. Blind spot at the right abutment that will require safe traffic management.	Threat	09. Site Conditions	Contractor		H (50% - 70%)	H (60-89 days)	H (\$150k-\$600k)	16	Mitigate	Preconstruction	Evaluate schedule to optimize haul road usage are used in the most efficient manner. If excavation spoils hauling and concrete placements need to be performed during the same time period, conduct spoils hauling during the day and concrete placements during the night.



Draft Construction Risk Registry

Risk Identification									Qualitative Analysis (Pre-Mitigation)				Risk Response Planning		
Risk Rank	Risk ID	Status	Risk Name	Risk Description	Threat/ Opportunity	Risk Category	Risk Owner	Risk Triggers	Probability	Schedule Impact	Cost Impact	Risk Score	Risk Response	Response Timing/Phase	Proposed Risk Response Plan (draft)
8	R-10	Open	Onsite Batch Plant	Power and water source may impact schedule including material storage, check county permit requirements. Limited work area and all materials on trucks.	Threat	10. Construction	Contractor	No temp power provision	H (50% - 70%)	H (60-89 days)	H (\$150k-\$600k)	16	Avoid	Design	Have generator ready to go if dedicated connection is offline. Protect bulk material from weather elements and contamination.
9	R-21	Open	High Winds	Wildfires impacts site safety, may impact project schedule	Threat	12. Health & Safety	Contractor		H (50% - 70%)	H (60-89 days)	H (\$150k-\$600k)	16	Share		Have a plan in place for critical support facilities, compliance with Orange County Fire Authority, cease construction as prescribed in OCFA
10	R-02	Open	Filter Drain	Long, drawn-out process that impacts several key dam components.	Threat	10. Construction	Contractor	Production rates	M (30% - 50%)	VH (>90 days)	VH (>\$600k)	15	Mitigate	Design	Carried out improvements early enough, allow work during the wet weather timeline as the work would be isolated to the downstream side of the dam. If degrading of dam is required adequately prepare for lake water and water table drawdown prior to work starting, confirm that design accounts for constructability issues (filter drain layers to be worked with machinery and construction of a vertical chimney).
11	R-09	Open	Sensitive Habitat/Species	Impacts to habitat could pause construction	Threat	05. Regulatory & Permitting	Owner	Environmental site survey/clearing	M (30% - 50%)	VH (>90 days)	H (\$150k-\$600k)	15	Avoid	Preconstruction	Work with environmental team to develop buffer zones for work areas, mitigate sounds by conducting major blasting outside of nesting bird season
12	R-11	Open	Spillway/Outlet Structure Concrete	Concrete curing times, extreme heat conditions possible during scheduled pours	Threat	10. Construction	Owner	Weather Heat index	VH (>70%)	L (10-29 days)	M (\$75k-\$150k)	15	Mitigate	Preplacement Plan meetings to discuss mitigation strategies	Shift key concrete pours to night time construction, to prevent overheating of the concrete mix, incorporate ice, cool down aggregates and/ or nitrogen for cooling of concrete. Evaluate concrete placements and quantities to support optimal sequencing is achieved at a quantity that can be managed.
13	R-24	Open	Construction Team Emergency Action Plan	Wildfire, accounting for all construction team	Threat	12. Health & Safety	TBD		M (30% - 50%)	VH (>90 days)	VH (>\$600k)	15	Share	Preconstruction	Prepare a plan and a muster area, communications plan, check in list
14	R-13	Open	90 degree turn on the spillway	Complexity of reinforcement in concrete and in developing the finish flow surface of the weir	Opportunity	10. Construction	Contractor	Submittal/Plan review	M (30% - 50%)	H (60-89 days)	M (\$75k-\$150k)	12	Mitigate	Preconstruction	Review engineering plans to verify that sufficient details are provided to construct this portion of the weir. Conduct a preparatory meeting for concrete placement of this section to confirm that contractors means and methods can deliver acceptable finish product.
15	R-25	Open	Communications	Schedule impacts due to changes (foundation, treatment, anchor failures, different site conditions)	Threat	10. Construction	Designer		M (30% - 50%)	H (60-89 days)	H (\$150k-\$600k)	12	Mitigate	Design	Communication plan to include a decision matrix and contingency plans (DSOD, AECOM, GEI, IRWD & HDR)
16	R-26	Open	Coffer dam erosion	Full breach of the diversion structure. 735 water level for temp berm, only foot below the access road only 1ft of freeboard towards the left side of the access road	Threat	10. Construction	Contractor	Weather Forecast	M (30% - 50%)	H (60-89 days)	H (\$150k-\$600k)	12	Mitigate	Preconstruction	Additional pumps, more barges, armoring the downstream face of the diversion structure
17	R-28	Open	DSOD approval for foundation, bad bedrock and deep anchoring (need to get DSOD ready to go for approval)	Schedule delay	Threat	05. Regulatory & Permitting	Contractor		M (30% - 50%)	H (60-89 days)	M (\$75k-\$150k)	12	Mitigate	Design	Coordinate a contingency plan with DSOD prior to the work starting



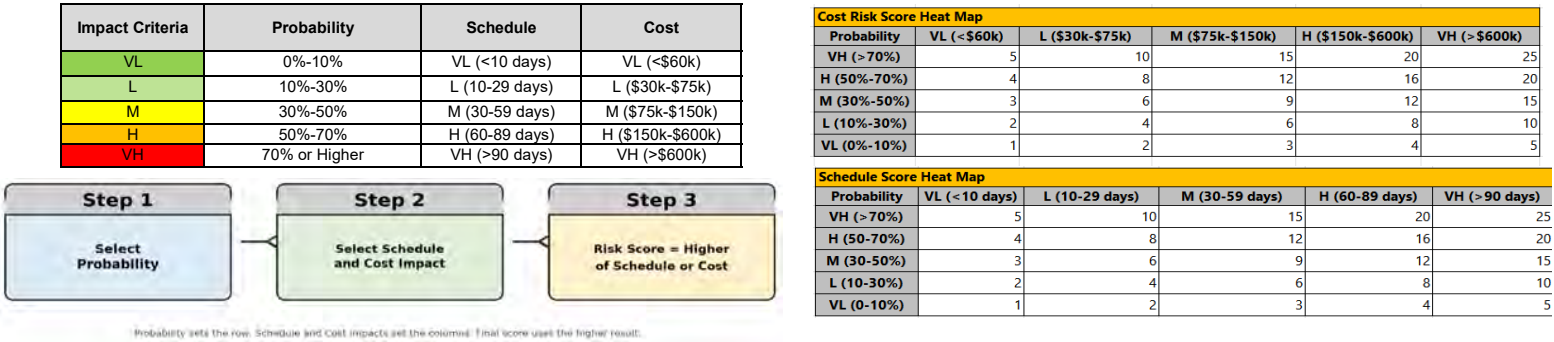
Cost Risk Score Heat Map					
Probability	VL (<\$60k)	L (\$30k-\$75k)	M (\$75k-\$150k)	H (\$150k-\$600k)	VH (>\$600k)
VH (>70%)	5	10	15	20	25
H (50%-70%)	4	8	12	16	20
M (30%-50%)	3	6	9	12	15
L (10%-30%)	2	4	6	8	10
VL (0%-10%)	1	2	3	4	5

Schedule Score Heat Map					
Probability	VL (< 10 days)	L (10-29 days)	M (30-59 days)	H (60-89 days)	VH (>90 days)
VH (>70%)	5	10	15	20	25
H (50-70%)	4	8	12	16	20
M (30-50%)	3	6	9	12	15
L (10-30%)	2	4	6	8	10
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Draft Construction Risk Registry

Risk Identification									Qualitative Analysis (Pre-Mitigation)				Risk Response Planning		
Risk Rank	Risk ID	Status	Risk Name	Risk Description	Threat/ Opportunity	Risk Category	Risk Owner	Risk Triggers	Probability	Schedule Impact	Cost Impact	Risk Score	Risk Response	Response Timing/Phase	Proposed Risk Response Plan (draft)
18	R-29	Open	Access over the dams, narrow road for the anchor tie backs	Road is narrow, limiting the equipment access	Threat	10. Construction	Designer		M (30% - 50%)	H (60-89 days)	H (\$150k-\$600k)	12	Mitigate	Design	Verify plans & specs allow for a temp ramp upstream in the outlet structure
19	R-31	Open	Borrow material	Does not meet spec	Threat	10. Construction	Contractor	Site survey of arrow areas	M (30% - 50%)	H (60-89 days)	M (\$75k-\$150k)	12	Mitigate	Preconstruction	Early testing of borrow material. Identify another source for borrow material or blend material
20	R-33	Open	Identify Construction Sequencing plan	Not meeting the schedule	Threat	10. Construction	Owner		M (30% - 50%)	H (60-89 days)	M (\$75k-\$150k)	12	Mitigate	Design	Work on the constructability constraints to allow the contractor to come up with a better/different plan
21	R-27	Open	Keep water out of the new spillway and in the old spillway	Blowing out of training wall allowing flows into the stilling basin. Potential embankment erosion.	Threat	12. Health & Safety	Contractor	Weather Forecast	L (10% - 30%)	VH (>90 days)	VH (>\$600k)	10	Mitigate		Build a temporary wall
22	R-36		Instability of left abutment slope during spillway excavation	Spillway blockage when activated during wet season	Threat	12. Health & Safety	TBD		L (10% - 30%)	VH (>90 days)	VH (>\$600k)	10	Avoid	Preconstruction	Slope stability monitoring instrumentation and regular inspection during excavation.
23	R-12	Open	Dams Control Building Construction and bridge	Schedule impacts for long lead items required such as valves, instrumentation and custom fabrications	Threat	07. Procurement/Commercial	Contractor		M (30% - 50%)	M (30-59 days)	M (\$75k-\$150k)	9	Mitigate	Pre-construction	List out early procurement items as part of the pre-construction phase and have flexible specs to accommodate 2-3 equal products
24	R-14	Open	Service connection from SCE	Relocation of SCE & AT&T infrastructure will make this critical path	Opportunity	10. Construction	Contractor	CPM Schedule Review	M (30% - 50%)	M (30-59 days)	M (\$75k-\$150k)	9	Mitigate	Preconstruction	Early communication and expected timeline factored into the project schedule
25	R-23	Open	Downstream releases	Coordination with impacted agencies and entities	Threat	10. Construction	Designer		M (30% - 50%)	M (30-59 days)	M (\$75k-\$150k)	9	Mitigate	Design	Identification of agencies and entities and production of a plan
26	R-34	Open	Maintaining accessibility to helopods	Construction traffic inhibiting access to the helopods	Threat	12. Health & Safety	Contractor		M (30% - 50%)	M (30-59 days)	M (\$75k-\$150k)	9	Mitigate	Preconstruction	Identify risks with the contractor and incorporate with their safety plan, divert traffic around the helopods, and widen the access roads
27	R-35	Open	Site evacuation	Wildfires and floods	Threat	12. Health & Safety	Contractor		M (30% - 50%)	M (30-59 days)	M (\$75k-\$150k)	9	Mitigate	Preconstruction	Work with contractor on emergency evacuation and action plan
28	R-30	Open	Contractor designed item for the temp wall to bypass the new spillway	Acceptable design that meets all project criteria	Threat	10. Construction	Contractor	Submittal Review	L (10% - 30%)	H (60-89 days)	H (\$150k-\$600k)	8	Mitigate	Preconstruction	Early discussions with contractor to get early approval
29	R-22	Open	Communication with Orange County	Could be multiple people in OC	Opportunity	02. Project Management	Contractor		M (30% - 50%)	VL (<10 days)	L (\$30k-\$75k)	6			Have a communication plan to identify key people to communicate with.
30	R-15	Open	Easements	IRWD is underway with OC Real Estate, OCWR, OC Parks, and OC Public Works. Coordination with DDW, Well Permits, Encroachment Permits, Noise Ordinance Waiver, Easements & Licenses	Threat	02. Project Management	Owner		L (10% - 30%)	M (30-59 days)	L (\$30k-\$75k)	6	Avoid	Design	Identify the status of the permits and monitor status with updates.
31	R-19	Open	Access impacts to haul road, Fremont Canyon Staging Area, and the Dam Road behind the spillway on OC	Impacts to OC Parks team and park patrons. Haul road provides critical emergency access for OC Parks.	Threat	09. Site Conditions	Contractor		L (10% - 30%)	M (30-59 days)	L (\$30k-\$75k)	6			Traffic control plan and awareness sharing facilities during construction

Client: Irvine Ranch Water District
Project: Santiago Creek Dam Improvement Project
Date: July 15, 2026



Draft Construction Risk Registry

Risk Identification									Qualitative Analysis (Pre-Mitigation)				Risk Response Planning		
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32	R-20	Open	Public safety on haul roads and secondary staging area	Public biking, pedestrian activities take place and safety of the public during construction	Threat	12. Health & Safety	Contractor		M (30% - 50%)	L (10-29 days)	L (\$30k-\$75k)	6			Construction traffic awareness signing, traffic control plan and following speed limit noted in EIR as 20 miles per hour.
33	R-16	Open	Access to closed Santiago Canyon Landfill	Orange County Waste & Recycling concerned about access to the Closed Santiago Canyon Landfill, as they have maintenance to landfill cover, landfill gas collection and monitoring activities. Also concerned about flare facility which is near the dam.	Threat	10. Construction	Contractor		L (10% - 30%)	L (10-29 days)	L (\$30k-\$75k)	4	Mitigate	Design	Identify routes that will mitigate this concern.
34	R-17	Open	Habitat restoration on OC Property	Orange County concerned about coastal sage and endangered species restoration should not be considered on closed Santiago Canyon Landfill property or near monitoring wells MW-A, MW-x and MW-11 on OC Parks property	Threat	05. Regulatory & Permitting	Owner		L (10% - 30%)	L (10-29 days)	L (\$30k-\$75k)	4	Mitigate	Design	Understanding of restoration process and coordination with Orange County.
35	R-18	Open	Temporary and permanent impacts associated with temporary domestic waterline	OC Parks concerned that may conflict with vehicle traffic	Threat	02. Project Management	TBD		L (10% - 30%)	L (10-29 days)	L (\$30k-\$75k)	4	Mitigate	Design	Construct below ground as necessary to facilitate vehicular access.
36	R-32	Open	Condition assessment of the 39 inch Irvine Lake pipeline. 5-day window to dewater, assess condition	Condition is unknown and could be worse than expected	Threat	10. Construction	Designer		L (10% - 30%)	L (10-29 days)	L (\$30k-\$75k)	4	Mitigate		Confirm constraints for the 5 day window. Have a plan prior to work for replacement of pipe if needed.

4 | Team



IRWD needs a construction management team that has already delivered California dam work at the scale, complexity, and regulatory scrutiny of Santiago Creek Dam. **HDR** brings that proven capability, paired with an Irvine-based CM leadership team that has supported **more than 200 dam projects across California** and served as a trusted resource during **DSOD construction audits**, giving IRWD a team that understands how to manage construction risk, maintain regulatory alignment, and keep dam work moving under close oversight.

For Santiago Creek Dam, **we assembled a team tailored to this project's** most critical features, including **large embankment filter placement** and **RCC spillway construction**, so that IRWD benefits from field-proven oversight where failure, delay, or rework would have the greatest consequences.

HDR is a full-service firm with broad technical resources across 15,000 professionals nationwide, giving the CM team immediate access to dam, RCC, geotechnical, and DSOD advisors as challenges arise in the field. That access reduces delays, improves decision quality, and helps IRWD avoid costly rework and schedule disruption. Our team is prepared to continue IRWD's Risk-Informed Decision-Making framework throughout construction by leading Dam Safety Risk and Construction Workshops at key construction milestones to track interim dam configurations, identify potential failure modes, and confirm that mitigation measures are in place before each wet season.

We recognize that IRWD has limited internal resources to conduct a project of this magnitude. That is why we are providing a **self-sufficient CM team** built to protect IRWD's interests, maintain compliance, and conduct day-to-day construction oversight with minimal burden on IRWD staff.

The team is led by **Brian Hollis, PE, as Construction Manager** and **Randy Lovan, Cert. CM, as Project Manager**, combining owner-focused dam construction oversight with extensive experience conducting large, complex civil works contracts, schedule control, quality assurance, change management, and risk mitigation. **Jim Lorenzen, PE, CCM, QSD, serves as Resident Engineer**, bringing field-level technical authority and direct coordination with DSOD on construction inspection and quality protocols. **Jerome Ruddins, CCM, DBIA, leads quality assurance**, conducting the QA program and working directly with the Contractor's quality control manager and DSOD inspection staff. **Tim Luu leads safety for the CM team**, drawing on his Southern California construction safety experience to develop and implement the project-specific SMP and conduct ongoing safety oversight throughout construction. Together, this leadership structure gives IRWD disciplined day-to-day field management, strong contract control, and dedicated quality and safety accountability throughout construction.

HDR is prepared to staff Santiago Creek Dam for its demanding delivery requirements during the dry-weather periods, including a dedicated field team of up to 16 FTEs to support day and night shifts for the **20-hour operations, six days per week over the five-year construction period, with key CM leadership relocating to Irvine to be closer to the site.** The team is prepared to conduct watershed management across the 63-square-mile upstream drainage area, coordinating the temporary diversion berm and pumping barge operations to maintain dam safety and flood protection throughout each construction season.

Our capacity is further strengthened by long-standing Dam CM collaborators **Kleinfelder and MCK**, with whom HDR has teamed successfully on **Lake Hodges emergency repairs, Lake Isabella Dam seismic retrofits, and Crystal Springs Dam improvements.** Together, our combined team offers a bench of more than **1,600 dam construction inspection and management professionals**, giving IRWD the depth needed to maintain continuous site coverage, uphold safety and quality expectations, and respond quickly to changing field conditions without resource gaps.

For IRWD, this means a team that brings the right dam construction proficiency to the project's highest-risk elements and the field leadership needed to keep **Santiago Creek Dam safe, compliant, and moving without avoidable delays.**

HDR recognizes the importance of team continuity and will not reassign key personnel without IRWD's prior written approval. Any proposed replacement personnel will be submitted to IRWD for review and approval prior to assignment.

The staffing plan presented in table reflects HDR’s current understanding of the anticipated project phasing, sequencing, and level of effort based on the RFP documents and our conceptual construction schedule. Actual staffing levels and timing will be refined following contract award and review of the Contractor’s baseline schedule to confirm resources are aligned with the Contractor’s means, methods, and planned work activities.

Proposed Construction Management Team Staffing by Project Phase

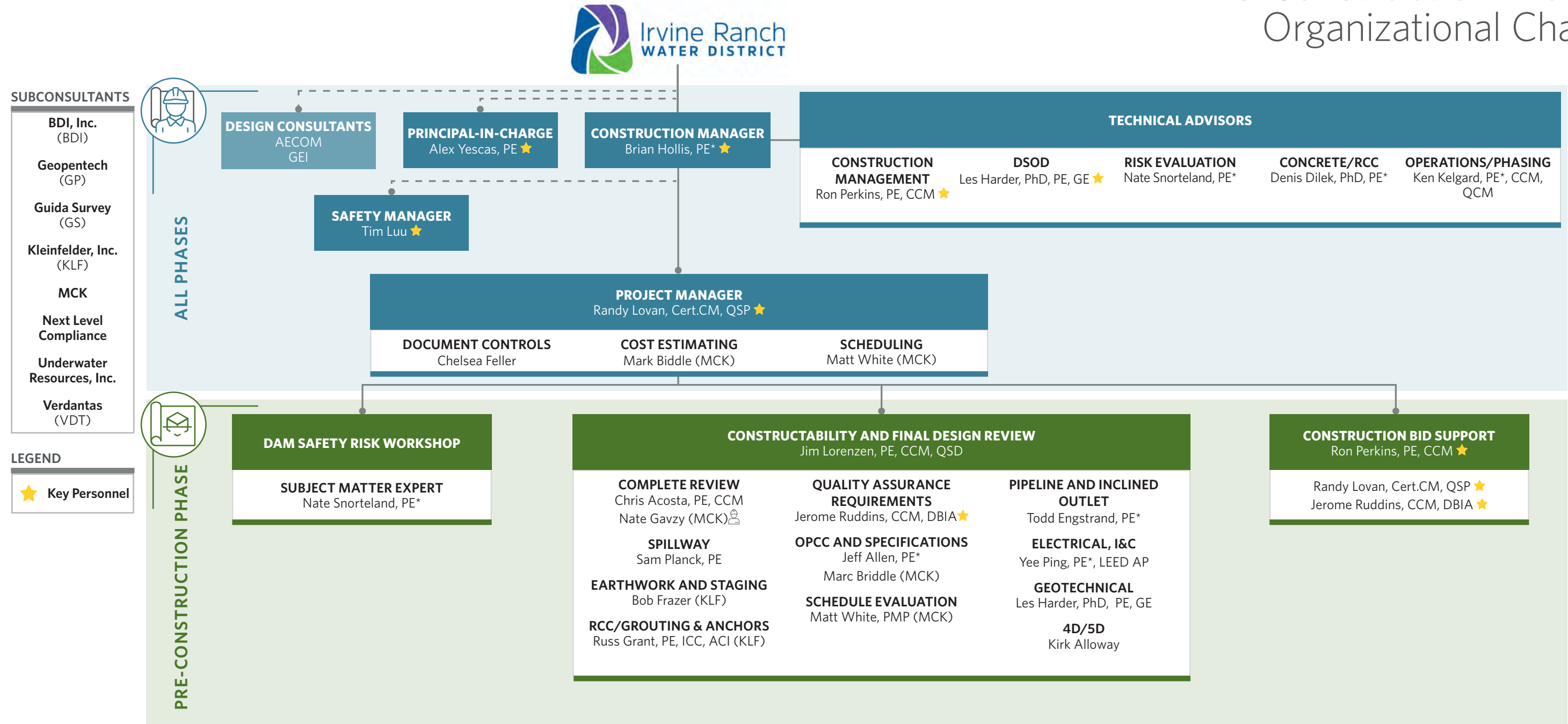
Staff Member	Role	Final Design	Bid & Award	Construction	Startup & Commissioning	Closeout
Alex Yescas	Principal	PT	PT	PT	PT	PT
Brian Hollis	Construction Manager	PT	PT	FT	FT	FT
Randy Lovan	Project Manager	PT	PT	PT	PT	FT
Jim Lorenzen	Resident Engineer	PT	—	FT	—	PT
Chris Acosta	Assistant Resident Engineer	PT	—	FT*	—	—
Chelsea Feller	Document Controls Lead	—	PT	FT	—	FT
Tim Luu	Safety Manager	—	PT	PT/FT (Day/Night)	PT	—
Jerome Ruddins	Quality Assurance Manager	PT	PT	PT	PT	—
Bob Frazer	Chief Inspector	—	—	FT	FT	—
Chris Pollack	Materials Testing / Lab Manager	—	PT	FT*	PT	—
Rick Barajas	Earthwork Inspector	—	—	FT*	FT	—
Russell Grant	RCC Inspector	PT	—	FT*	—	—
Matt Burris	Assistant Resident Engineer - Night	—	—	FT* (Night)	—	—
Chris Rice	Concrete Inspector (2nd Shift)	—	—	FT* (Night)	—	—
Djan Chandra	Earthwork Inspector (2nd Shift)	—	—	FT* (Night)	—	—
Johnathan Lopez	RCC Inspector (2nd Shift)	—	—	FT* (Night)	—	—
Lisa Lutz	Mechanical Inspector	—	—	FT*	PT	—
Albert Cochran	Electrical Inspector	—	—	PT	PT	—
Brien Clark	Coatings Inspector	—	—	PT	—	—
Chris Stinson	Welding Inspector	—	—	PT	—	—
Matt White	Scheduler	PT	—	PT	—	—
Nate Gavzy	Change Management Lead	PT	—	PT	—	PT
Mark Biddle	Estimator	PT	—	PT	—	—
Yuri Eguchi	Project Controller	PT	PT	PT	—	PT
Ron Perkins	Technical Advisor – Construction & Claims	—	PT	PT	—	—
Les Harder	Senior Dam Engineer	PT	—	PT	—	—
Denis Dilek	RCC Technical Advisor	—	—	PT	—	—
Jeff Allen	OPCC and Specifications	PT	—	—	—	—
Sam Planck	Spillway Technical Advisor	PT	—	—	—	—
Todd Engstrand	Pipeline/Outlet Technical Advisor	PT	—	—	—	—
Yee Ping	Electrical Technical Advisor	PT	—	—	—	—
Scott Jolsyn	Startup & Commissioning Lead	—	—	PT	PT	—
Jon Salerno	SCADA Coordinator	—	—	—	PT	—
TOTAL FULL-TIME STAFF		0	0	13 (Day: 9 Night: 4)	3	3
TOTAL PART-TIME STAFF		16	9	15 (Day: 15 Night: 0)	9	4

FT = Full-time assignment during the applicable phase.

FT* = Full-time assignment during active construction operations or specific work activities; duration varies based on the construction schedule.

PT = Part-time support generally averaging less than 20 hours per week and provided as needed based on project requirements.

Pre-Construction Phase Organizational Chart

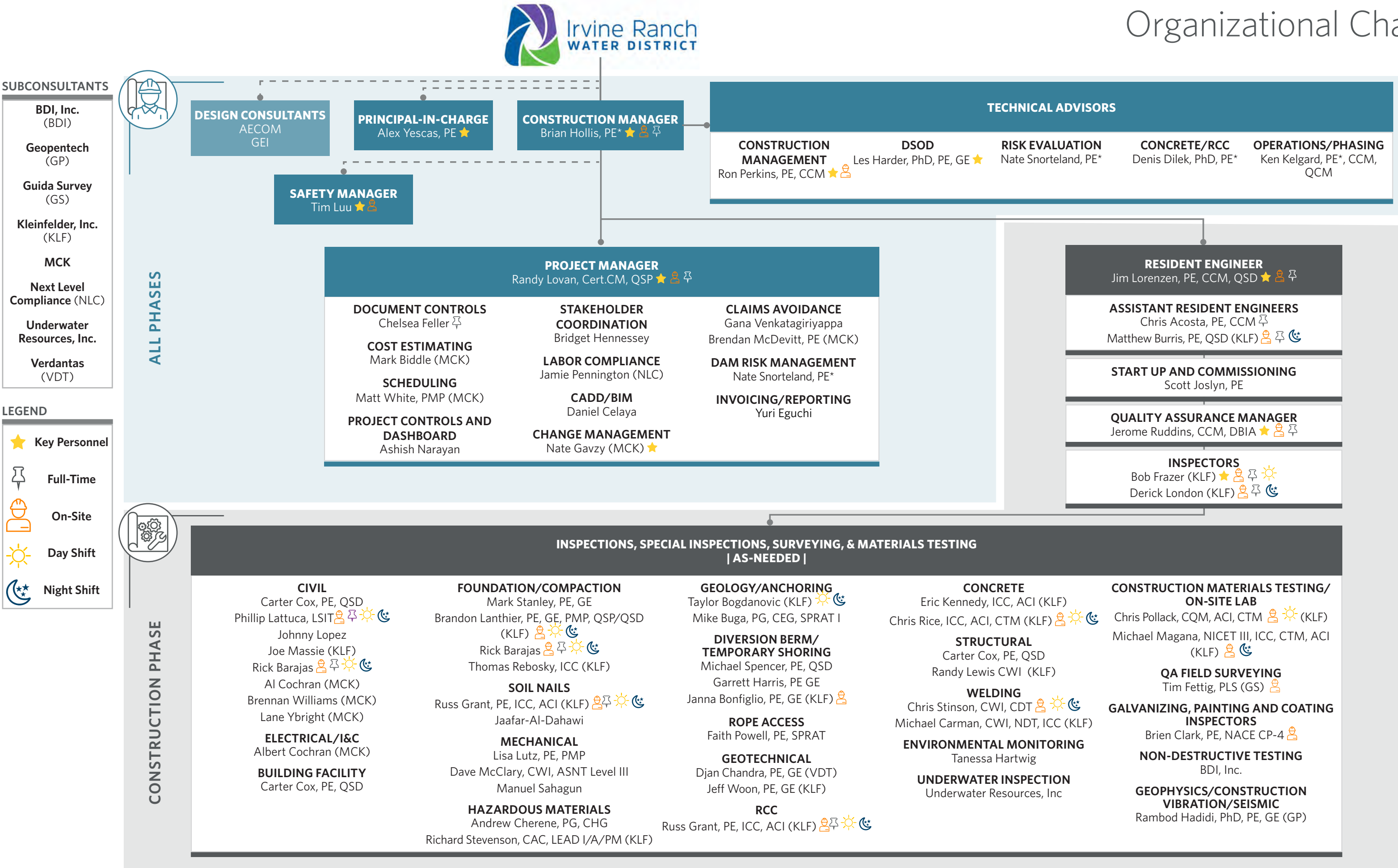


An asterisk (*) denotes non-California Registration.



Our team has already taken a proactive approach to construction risk management, evaluating phasing, sequencing, and dam safety considerations and developing targeted mitigation strategies aligned with the Construction Risk Registry and upcoming workshop process. As a result, we can begin work at NTP with a well-defined understanding of critical risks and mitigation measures. We will continue to refine these strategies in advance of the 100% Design Dam Safety Risk Workshop (September 14-17, 2026) while concurrently advancing the constructability review to maintain progress toward the October 22, 2026 milestone.

Construction Phase Organizational Chart



Key Subconsultants

FIRM NAME		ROLE ON PROJECT	KEY RESPONSIBILITIES	PRIOR TEAMING EXPERIENCE
	Kleinfelder, Inc. (fee included)	QA Testing, On-Site Laboratory Materials Testing, Asst RE, Special Inspection	- Provide on-site materials testing (soil, RCC, concrete) - Perform special inspections and field QA Staff on-site laboratory - Support inspectors and QA Manager with compliance documentation	- Isabella Dam - Lake Hodges Dam Emergency Repairs - San Vicente Dam Raise - Success Dam Improvements
	MCK (fee included)	Scheduling, Project Controls, Cost & Change Management	- Develop and maintain CPM schedule - Track progress and production vs. baseline - Support cost estimating and budgeting - Support change order evaluation and claims avoidance	- Crystal Springs Dam - SFPUC Peninsula Transmission Systems
	Guida Surveying (fee included)	Survey QA / Third-Party Survey Support	- Perform QA survey checks (grades, elevations, quantities) - Validate contractor layout and as-built conditions - Support progress quantity verification and dispute resolution	- Rossmoor Dam - Harbor View dam - Sulphur Creek Dam - Yorba Dam
	Next Level Compliance (fee included)	Labor Compliance	- Monitor certified payroll and prevailing wage compliance - Perform DIR compliance tracking and reporting - Support audits and documentation requirements	N/A
	Underwater Resources, Inc. (fee not included optional service)	Underwater Inspection	- Perform submerged inspections of dam/outlet structures - Provide underwater video and condition assessments - Support inspection of inaccessible features	- Lake Hodges Dam Emergency Repairs - Pyramid Dam - Cedar Springs Dam
	GeoPentech (fee not included optional service)	Geophysics / Seismic & Vibration Monitoring	- Perform vibration and seismic monitoring during construction - Support anchor testing and specialty instrumentation	- Lake Mathews Dam - San Gabriel Dam - Lake Murray Dam - Lower Otoy Dam
	BDI, Inc (fee not included optional service)	Nondestructive Testing (NDT)	- Perform specialty structural testing and monitoring - Support weld inspections and structural diagnostics	- Lake Hodges Dam Emergency Repairs - Pyramid Dam - Cedar Springs Dam
	Verdantas (fee included)	Geotechnical Engineering Support	- Provide additional bench for geotechnical analysis and review - Support foundation, embankment, and compaction QA - As-needed use of offsite lab near the site	- I-5 Widening Segment 2 - SR91 Corridor

Roles & Responsibilities Matrix

Successfully delivering the Santiago Creek Dam Improvement Project depends on having the right people in the right roles, with clearly defined responsibilities and decision-making authority. We have intentionally structured the CMT to provide IRWD with coverage across leadership, field oversight, quality management, safety, contract administration, risk management, regulatory coordination, and technical advisory services.

The following matrix tables identify each key team member, how they interact within the project organization, and the specific responsibilities they will perform on behalf of IRWD. This structure gives you a clear picture of who is accountable for each project function, promotes efficient communication and issue resolution, and confirms that critical construction, quality, safety, and dam safety requirements receive the attention and oversight needed for successful project delivery.

Construction Management Leadership & Oversight

Role	Lead	Reporting Relationship	Responsibilities
Principal-in-Charge	Alex Yescas	IRWD	Executive accountability for project delivery; contract compliance and client oversight; strategic decision-making and escalation.
Construction Manager	Brian Hollis	IRWD/PIC	Overall construction field execution leadership; advance planning; coordinate teams and resource scheduling; interface with IRWD and Contractor; decision authority, schedule management.
Resident Engineer	Jim Lorenzen	Construction Manager	Advance Planning; Day-to-day field oversight; coordination with the contractor; coordination with DSOD; coordination with other external entities; coordination with AECOM/GEI; manage field staff; maintain compliance; resolve field issues; support change orders; support claim mitigation and strategy; manage permit compliance; day-to-day coordination of field teams (Environmental Consultant, QA surveyor, IRWD Operations).
Quality Assurance Manager	Jerome Ruddins	Resident Engineer	Tracks Contractor Quality Control. Develops and oversees Quality Assurance program; coordinates with DSOD on Quality; inspections; audits. Documents Non-Conformances, oversees onsite Lab.
Safety Manager	Tim Luu	Construction Manager	Oversee safety program; monitor contractor and CM team safety compliance; conduct audits; report incidents and mitigation.

Construction Management Administration

Role	Lead	Reporting Relationship	Responsibilities
Project Manager	Randy Lovan	Construction Manager	Contract administration; invoicing and reporting, change orders; claims support; risk tracking.
Document Controls	Chelsea Feller	Project Manager	Supports Procore management and document control processes; coordinates submittals, RFIs, correspondence, schedule coordination, progress payment documentation, meeting agendas and minutes, safety reporting; and maintains complete, accurate, and auditable project records.
Risk Management	Nate Snorteland	Project Manager	Maintain risk register; mitigation strategies; facilitate workshops; coordinate with Risk Management Consultant.
Project Controls	Ashish Narayan	Project Manager	Cost/schedule tracking; dashboard reporting; forecasting.
Scheduler	Matt White	Project Manager	Provides scheduling support to the PM during construction. Reviews and recommends for approval for Baseline and Update Schedules. Reviews Contractor's Time Impact Analysis (TIA) for change re-requests and schedule claims analysis. Develops independent TIAs as required.
Cost Estimating	Marc Biddle	Change Management Lead	Benchmarks costs for change analysis. Provides independent cost estimating sup-port for the review and assessment of change requests and value engineering change proposals.
Change Management Lead	Nate Gavzy	Project Manager	Manages the contract change process including monitoring and tracking changes and claims resolution and coordinates with the RE and Construction Manager on the identification of change requests to be incorporated into Change Orders
Stakeholder Coordination	Bridget Hennessey	Project Manager	Support stakeholder communication; coordinate outreach.
CADD/BIM	Daniel Celaya	Project Manager	Maintain models for as-built conditions; support visualization; assist 4D/5D.
Labor Compliance	Next Level	Project Manager	Confirm prevailing wage compliance; reporting and audits.

Roles & Responsibilities Matrix

Field Inspections

Role	Lead	Reporting Relationship	Responsibilities
Chief Inspector – Day Shift	Bob Frazer	Resident Engineer	Coordinate with RE and QAM to confirm required inspection needs are met. Review and approve daily inspection reports for RE review and approval. Observe and document detailed daily activities. Verify contractor is in compliance with contract documents.
Inspector – Night Shift	Derick London	Resident Engineer	Observe and document detailed daily activities. Confirm contractor is in compliance with contract documents.
Assistant Resident Engineer	Chris Acosta (Day Shift)	Resident Engineer	Serve as RE in the absence of RE. Day-to-day field oversight; confirm compliance; assist with resolving field issues. Assist with inspection responsibilities. Assist with QA responsibilities
Assistant Resident Engineer	Matthew Burris (Day Shift)	Resident Engineer	Serve as RE in the absence of RE. Day-to-day field oversight; confirm compliance; assist with resolving field issues. Assist with inspection responsibilities. Assist with QA responsibilities
Assistant Resident Engineer	Irfan Patel, PE (Night Shift)	Resident Engineer	Serve as RE in the absence of RE. Night-to-night field oversight; confirm compliance; assist with resolving field issues. Assist with inspection responsibilities. Assist with QA responsibilities
Constructability and Final Design Review	Jim Lorenzen	Construction Manager	Coordinate constructability review of final design. Conduct constructability reviews of potential change orders. Review final design for fatal flaws.
Construction Bid Support	Ron Perkins	Construction Manager	Support IRWD in reviewing bid questions/ responses, assist with determining bid compliance, and fair market pricing.

Field Materials Testing

Role	Lead	Reporting Relationship	Responsibilities
QA Testing Manager		QAM	Coordinates with Chief Inspector and QAM, manages field lab, completes QA materials testing, completes testing documentation, coordinates with Contractor QC testing manager.
Technicians		QA Testing Manager	Complete field and field lab testing.

Advisors

Role	Lead	Reporting Relationship	Responsibilities
Construction Management Advisor	Ron Perkins	Construction Manager	Support the CM and orchestrate meetings to maintain support for field staff. Serve on escalation ladder for issue resolution.
DSOD	Les Harder	Construction Manager	Coordinate regulatory compliance with CM and Contract teams; support IRWD with DSOD site meetings, support DSOD contingency plans.
Risk Evaluation	Nate Snorteland	Construction Manager	Coordinate with CM to mitigate risks with a proactive approach.
Concrete/RCC Advisor	Denis Dilek	Construction Manager	Technical oversight for RCC/concrete; review QA.
Operations/Phasing Advisor	Ken Kelgard	Construction Manager	Define sequencing; maintain operational continuity.



Brian Hollis, PE*

CONSTRUCTION MANAGER

Brian has more than 28 years of experience supporting complex dam, reservoir, and water infrastructure projects for federal and public sector clients. As Construction Manager, he will lead construction-phase delivery, overseeing field activities, contractor coordination, QA, and contract administration. He will serve as IRWD’s on-site representative, working with the IRWD, engineer, and contractor to manage risk, maintain schedule and budget, and resolve field and constructability challenges. He brings extensive experience supporting the Department of the Interior Safety of Dams programs, including risk evaluations and construction oversight for dams, spillways, outlet works, and related structures, and collaborates with project teams to deliver high-risk infrastructure under demanding regulatory and schedule requirements.

FIRM
HDR Engineering, Inc.

EDUCATION
BS, Civil Engineering,
Montana State
University

AAS, Design Drafting,
Montana State
University-Northern

REGISTRATION
Professional Engineer,
MT

INDUSTRY TENURE
28 Years

“I’m excited to work alongside IRWD to bring a risk-informed, constructability-focused approach that supports safe, efficient project delivery.”

Relevant Experience

Goshen Irrigation District, CMAR Design of Replacement of the Fort Laramie Canal Tunnels | Fort Laramie, WY

Construction Manager. Brian joined the project during construction of replacement tunnels for Tunnel #1 and Tunnel #2 on the Fort Laramie Canal, a long-term repair solution addressing system reliability. The work included tunnel construction, geotechnical conditions management, and coordination of complex field activities.

In his role, Brian worked with the owner, contractor, and project team to oversee construction activities, support field coordination, and resolve constructability challenges. He contributed to risk management, schedule monitoring, and coordination of technical issues to support safe, efficient project execution.

LaPrele Irrigation District, LaPrele Dam Rehabilitation CMAR Coordination | Douglas, WY

Construction Manager. Brian joined the project during construction of a new roller-compacted concrete (RCC) dam and associated appurtenant facilities, including the spillway, outlet works, and access roads, within a CMAR delivery framework.

He worked with the owner, contractor, and project team to support construction-phase coordination, provide constructability input, and address field and technical challenges. His role included supporting risk management, schedule alignment, and resolution of construction issues to maintain progress and support successful project delivery.

U.S. Department of the Interior, Bureau of Reclamation, Regional Programs Oversight | Montana

Sr. Advisor/Program Oversight. Brian provided senior-level oversight for regional engineering, construction, safety, project management, and infrastructure programs supporting Reclamation facilities and water projects. He advised regional leadership on program priorities, risk management, and resource allocation, and supported coordination across area offices, federal agencies, tribes, contractors, and stakeholders. Responsibilities included evaluation of program risks, policy impacts, and delivery strategies for mission-critical water infrastructure and dam safety initiatives, as well as providing strategic guidance to align project execution with regional and national program objectives.

Brian’s construction management leadership experience includes disciplined execution, proactive issue resolution, and reliable cost, schedule, and quality outcomes for complex dam projects.

U.S. Department of the Interior, Bureau of Reclamation, Glendo Dikes Modifications Project | Glendo, WY

Resident Engineer/Construction Manager. Brian oversaw construction activities for modifications to three dam dike embankments, including excavation of existing embankments and berm foundations and reconstruction using zoned earth fill materials to raise all three dikes. His work included oversight of HDPE toe drainpipe installation, construction of cast-in-place concrete slabs and weir boxes, construction of a new auxiliary spillway with an RCC foundation, and removal and replacement of roadway surfacing with asphaltic concrete pavement. Brian coordinated closely with the contractor and project stakeholders to monitor progress, resolve field conditions, and maintain schedule and quality objectives. He monitored compliance with contract documents, safety standards, and design intent through ongoing inspections, documentation, and review of construction activities.

U.S. Department of the Interior, Bureau of Reclamation, Red Willow Dam Modifications Project | McCook, NE

Resident Engineer/Construction Manager. Brian oversaw construction activities for the modification of a 3,600-foot-long, 160-foot-tall earthen embankment dam, including excavation of the downstream embankment and construction of a new toe drain system. His responsibilities included oversight of geonet composite fabric installation, development of a two-stage chimney drain, and construction of a stability berm to improve overall embankment performance. He coordinated closely with the contractor and project stakeholders to monitor construction progress, address field issues, and verify compliance with design intent, safety requirements, and contract specifications throughout all phases of work.

U.S. Department of the Interior, Bureau of Reclamation, Safety of Dams Projects - Bull Lake Dam Modifications | Wyoming

Construction Liaison/Risk Advisor. Brian supported dam safety modifications at Bull Lake Dam during active

construction, providing construction liaison and risk advisory services. The work included embankment modifications, drainage system installations, and construction of a new labyrinth spillway, which was executed while keeping the existing spillway operational. In this role, Brian worked closely with the owner, contractor, and project team to evaluate construction risks, support constructability reviews, and resolve field and technical challenges. He contributed to inspection coordination, schedule alignment, and technical decision-making to support safe, efficient project delivery.

U.S. Department of the Interior, Bureau of Reclamation Power and Dam Infrastructure Projects | Great Plains Region

Construction Oversight/Contract Administration. Brian supported construction oversight and contract administration for multiple concurrent safety of dams, hydropower, and infrastructure projects. Responsibilities included technical proposal evaluations, contractor negotiations, claims support, constructability reviews, value engineering studies, and specification reviews, as well as construction inspections and acceptance of work. He participated in specialized dam inspections, including rope access reviews of concrete dams, spillways, intake towers, and gates, and collaborated with project teams to address field conditions, resolve construction issues, and maintain compliance with contract requirements, safety standards, and design intent.

U.S. Department of the Interior, Bureau of Reclamation, Hyrum Dam Spillway Improvement Project | Utah

Construction Liaison/Construction Manager. Brian oversaw early construction activities for a \$100M+ project to construct a new spillway in a new location while keeping the existing spillway operational during construction, serving as construction liaison and subsequently as COR at the request of the region due to his Level III certification and experience. He worked with the owner, contractor, and project team to support schedule-critical construction startup activities, coordinate field efforts, and address technical and constructability challenges.



Randy Lovan, CERT CM, QSP

PROJECT MANAGER

Randy has more than 34 years of experience delivering complex water, wastewater, and public works infrastructure projects for public agencies throughout California. As project manager, he will lead overall project delivery, providing leadership in project controls, risk management, stakeholder coordination, and regulatory compliance. His experience spans design-bid-build, design-build, CMAR, and third-party delivery methods. Randy's experience managing complex infrastructure programs will support IRWD through proactive planning, schedule and cost management, issue resolution, and effective team coordination. Drawing on extensive construction administration and contract management experience, he will help mitigate risk, strengthen collaboration, and promote successful project delivery.

FIRM

HDR Engineering, Inc.

EDUCATION

AS, Construction Management, Ashworth University

ME, California State University, Fullerton

AS, Water Science, Santa Barbara City College

REGISTRATION

Qualified SWPPP Practitioner (QSP), No. 20944

INDUSTRY TENURE

34 Years

"I'm excited to partner with IRWD to advance contract execution and change management that drive predictable cost and schedule outcomes."

Relevant Experience

Irvine Ranch Water District, Irvine Lake Pipeline Relocation and Improvements | Irvine, CA

Resident Engineer/Inspector. Randy served as the inspector for the removal and replacement of an existing 54-inch pre-stressed concrete cylinder pipeline with 54-inch CML&C steel pipe at two locations, as well as the installation of a 54-inch valve into the existing pre-stressed concrete cylinder pipeline. Randy's responsibilities included material inspections, construction inspection, reviewing shop drawings and RFIs, establishing a construction schedule and facilitating negotiations between the contractor and client.

California Department of Water Resources Division of Engineering, Salton Sea Species Conservation Habitat (SCH) Design-Build Project | Sacramento, CA

Project Manager. Randy supported delivery of the Salton Sea Species Conservation Habitat Project, a large-scale design build initiative led by the California Department of Water Resources to address habitat restoration and dust suppression at the Salton Sea. The project encompasses approximately 3,770 acres of exposed lakebed and includes construction of water management ponds, berms, islands, pump stations, river intake and

crossing structures, pipelines, access corridors, and habitat features. Randy provided project management support focused on delivery coordination, issue resolution, and alignment of design build activities to maintain schedule and project momentum. The work advances water dependent habitat, fish and bird conservation, and dust suppression efforts as lake levels continue to recede.

California Department of Water Resources Division of Engineering, On-Call State Water Project (SWP) | Sacramento, CA

QA/QC Manager. Randy provided quality assurance and quality control leadership in support of capital program management services for State Water Project facilities. He supported development and implementation of QA and QC plans, constructability reviews, risk management strategies, cost estimating and controls, and schedule management using Primavera P6. His work also included supporting preparation and review of technical documents, construction management plans, and delivery approaches, including design build. The program encompasses construction activities at major water infrastructure assets, including dams and reservoirs, hydroelectric pumping and generation plants, aqueducts, large

Randy drives disciplined contract execution and proactive change management to minimize risk and deliver greater cost and schedule certainty.

diameter pipelines, levees, spillways, flood prevention facilities, conveyance structures, and related buildings, as well as environmental mitigation and restoration features.

Long Beach Water Department, 10th Street Main Lining | Long Beach, CA

Construction Inspection/Contract Administration. Randy oversaw construction inspection and contract administration for a \$1.05 million water main rehabilitation project involving cleaning and cement mortar lining of approximately 7,700 linear feet of 10-inch cast iron water main. Work included installation of ductile iron mains, valves, laterals, and appurtenances, along with bypass, testing, and disinfection. Randy supported contract execution by managing RFIs, submittals, change orders, and progress payments, and worked with the owner and contractor to resolve field issues and maintain compliance with contract, schedule, cost, and quality requirements.

Chino Basin Desalter Authority, Expansion & Desalter Projects | Riverside/San Bernardino, CA

Construction Manager. Randy served as construction manager for the \$48 million Chino I Expansion and Chino II Desalter Projects, which expanded and upgraded groundwater treatment facilities to improve regional potable water supply. The program included construction of new and expanded desalter facilities, multiple groundwater wells, reservoirs, pump stations, and an integrated conveyance system serving agencies across the Inland Empire. Randy supported delivery through construction management, coordination with multiple member agencies and utilities, contract administration, schedule and budget control, and oversight of commissioning and startup activities. The improvements enhance groundwater quality by removing nitrates and salts while supporting long-term water supply reliability for participating communities.

Long Beach Water Department, Groundwater Treatment Plant Improvements | Long Beach, CA

Construction Manager. Randy served as Construction Manager for this \$384,000 Pump Replacement project. He provided construction management and

inspection services and the work encompassed: replacing two pumps and removing and replacing 24-inch piping valves and pumping unit. The work took place while the plant remained in operation and required extensive coordination with LBWD Staff.

Long Beach Water Department, Artesia Boulevard Cast Iron Replacement Project | Long Beach, CA

Construction Manager. Randy provided construction management and inspection services for a major water main replacement project focused on upgrading aging cast iron infrastructure. The work included installation of new ductile iron water mains, associated laterals, valves, fittings, meter connections, and surface restoration within an active urban corridor. Randy supported project delivery through construction oversight, contract administration, schedule coordination, quality control, and site safety monitoring. His responsibilities also included public coordination, shutdown and tie-in planning, processing of construction documentation such as RFIs, submittals, change orders, and progress payments, and management of inspections through final punch list and project closeout.

Mojave Water Agency, Regional Recharge and Recovery Project | Victorville, CA

Manager/Construction Manager. Randy provided project and construction management services for the \$65 million Regional Recharge and Recovery Project, a large-scale water supply initiative designed to recharge up to 40,000 acre feet per year of State Water Project water into the Upper Mojave River floodplain. The project included construction of extraction and recovery wells, reservoirs, a high-capacity pump station, and an integrated conveyance system delivering water to multiple retail agencies across the High Desert. Randy supported successful delivery through coordination of complex construction activities within a constraint-heavy environment, including concurrent infrastructure programs, regulatory requirements, and multi-agency interfaces, while minimizing community impacts and maintaining schedule performance.



Jim Lorenzen, PE, CCM, QSD

RESIDENT ENGINEER & CONSTRUCTABILITY/FINAL DESIGN REVIEW

Jim has more than 34 years of experience delivering complex heavy civil and infrastructure construction programs for public agencies and private owners. He provides leadership across all phases of project delivery, from preconstruction planning and constructability review through field supervision, bid evaluation, and closeout. His background includes oversight of schedule, cost, quality, and regulatory compliance on dam, flood control, levee, highway, bridge, and utility projects, with a focus on resolving field challenges and managing risk on complex, environmentally sensitive programs. Jim brings construction leadership that supports disciplined preconstruction planning, strong field oversight, and proactive risk management to reduce risk and provide greater schedule and cost certainty for IRWD.

FIRM
HDR Engineering, Inc.

EDUCATION
BS, Civil Engineering,
California State
University, Chico

REGISTRATION
Professional Engineer,
CA, No. 47554

Certified Construction
Manager, No. 34875

Qualified Stormwater
Pollution Prevention Plan
(SWPPP) Developer, No.
00629

INDUSTRY TENURE
34 Years

“I look forward to collaborating with IRWD to bring a constructability-focused approach that supports an efficient, predictable project delivery.”

Relevant Experience

Irvine Ranch Water District, Syphon Dam Owner's Representative | Orange, CA

Constructability Review. Jim supports expansion of the reservoir from 500 to 5,000 acre-feet, including removal of the existing dam and construction of a new 130-foot-high embankment dam, intake and outlet works, spillway, and treatment facilities. He provides owner's representative services throughout planning and design, including coordination across investigation, design, permitting, and agency approvals. Jim works closely with IRWD, the engineer of record, and regulatory agencies to provide constructability input, support development of construction sequencing and access strategies, and identify risks and constraints early in design, while reviewing design packages and technical deliverables to help maintain alignment between design intent, environmental requirements, and construction means and methods to support a smooth transition into construction.

City of San Diego, Lower Otay Dam Mid-Level Outlet | San Diego, CA

Constructability Review. Jim reviewed the approach for constructing a mid-level outlet on a concrete arch dam, including installation of a 5-foot-6-inch outlet pipe at mid-height while maintaining full reservoir storage.

The work involved evaluation of constructing an 8-foot-diameter outlet more than 80 feet down the sloped dam face, including excavation through cyclopean concrete and addressing complex access constraints. Jim provided constructability input on excavation methods, access and safety considerations, and approaches to maintaining dam integrity and controlling water during construction. He coordinated closely with the design team to identify risks, refine construction sequencing, and help verify the proposed approach was practical, safe, and aligned with design intent.

San Francisco Public Utilities Commission, Moccasin Dam Alternatives Analysis Report | California

Constructability Review/Design Support. Jim supported development of an Alternatives Analysis Report and 30% design plans for the Moccasin Dam auxiliary spillway improvements. Jim developed phasing and staging approaches that addressed control of water, site access, and sequencing constraints for construction within an active dam environment. His work included supporting project scheduling, cost estimating, and integration of constructability considerations into early design, as well as contributing to development of environmental documentation. He worked with the project team to evaluate alternatives

Jim's experience managing complex civil construction helps resolve field challenges early while strengthening coordination among owners, engineers, and contractors to maintain cost control, quality assurance, and regulatory compliance.

and refined approaches that balanced technical feasibility, environmental requirements, and construction efficiency.

Sutter Butte Flood Control Agency, Feather River West Levee Rehabilitation Program | Yuba County, CA

Resident Engineer/Construction Manager. Jim led construction management and resident engineering for a \$378M levee rehabilitation program spanning 44 miles. Work includes embankment and cutoff walls, stability berms, relief wells, drainage systems, roadway work, and utility coordination. He supported delivery across multiple concurrent contracts, including a fast-tracked emergency segment following the Oroville Dam incident. Jim coordinated with agricultural operations, utilities, and regulatory agencies, including DWR and USACE, to meet State and Federal requirements.

Sacramento Area Flood Control Agency, Natomas Levee Improvement Program | Sacramento, CA

Manager & Resident Engineer. Jim managed construction and resident engineering for a fast-tracked levee rehabilitation program upgrading 10 miles to achieve 200-year flood protection. He oversaw multiple contracts including utility relocations, structure removal, levee and canal construction, and habitat restoration. Jim coordinated work near active airport operations, supported cultural resource monitoring, and maintained agricultural and irrigation operations. He also coordinated with DWR and USACE to meet State and Federal requirements.

Stockton East Water District, Bellota Weir Modifications | Stockton, CA

Construction Manager. Jim provided construction management for replacement of an existing water intake facility while maintaining full operation of the existing structure and continuous stream flows. The project included construction of a new weir with adjustable gates, diversion intake and conveyance structures, fish passage facilities, and fish exclusion structures to improve habitat conditions and protect native species. Jim oversaw construction activities, coordinated closely with the owner, engineer, and contractor, and managed phasing and sequencing to maintain water delivery and

environmental compliance throughout construction. His responsibilities included construction inspection, contractor coordination, and resolution of field challenges to support safe, efficient project delivery and adherence to schedule, cost, and quality objectives.

U.S. Army Corps of Engineers, American River Common Features - Sacramento Weir Widening | Yolo County, CA

Constructability Review. Jim supported construction phase engineering services for weir widening improvements along the Sacramento River. Work included new fixed crest weir construction, levee and bridge improvements, roadway realignments, railroad embankment removal, and associated fish passage features. Jim provided technical support during construction activities, including coordination of civil improvements and integration of fish passage components to support flood risk reduction and environmental objectives.

San Joaquin County Flood Control and Water Conservation District, Upper Mormon Slope Erosion Repair | Linden, CA

Construction Manager & Resident Engineer. Jim provided construction management and resident engineering services for a slope protection project addressing erosion along Upper Mormon Slough. The work included removal of compromised channel material and reconstruction of channel slopes using rock slope protection, filter beds, earthfill, and launch rock. Jim supported project delivery through coordination of construction activities within constrained access conditions, maintaining water quality requirements, and close coordination with adjacent Caltrans work along State Route 26.

Lewis County Dept of Public Works, Chehalis Basin Avoidance Engineering Support | Chehalis, CA

Construction Manager & Resident Engineer. Jim provided engineering design services for the Chehalis Dam and Fish Passage project. This new flood control dam will provide protection for downstream communities from flood events while maintaining anadromous fish passage to upstream spawning areas.



Jerome Ruddins, CCM, DBIA

QUALITY ASSURANCE MANAGER/CONSTRUCTION BID SUPPORT

Jerome brings more than 42 years of experience delivering dam, water, and public works infrastructure projects totaling more than \$2 billion throughout Southern California. His dam experience includes supporting DSOD requirements during construction for projects such as Lower Otay Dam Mid-Level Outlet Improvements, Murray Dam Near-Term Repairs, and Santa Anita Dam Improvements. He has managed complex construction involving dam spillways, outlet works, wall anchors, reservoir retrofits, large valve replacements, pump stations, large-diameter pipelines, reservoirs, and other critical water infrastructure. His extensive experience on Orange County water and public works projects provides valuable insight into local agency requirements and stakeholder coordination. This experience provides a strong foundation for managing dam construction risks and stakeholder coordination. He recently supported IRWD by providing constructability reviews for the Michelson WRP Tertiary Filter Project.

FIRM

HDR Engineering, Inc.

EDUCATION

BS, Construction Management, California State University, Long Beach

REGISTRATION

Certified Construction Manager, No. 3172

Design-Build Professional, No. 4908

Associate Design-Build Professional, No. 3012

INDUSTRY TENURE

42 Years

Relevant Experience

Irvine Ranch Water District, Michelson Water Recycling Plant Tertiary Filters Engineering Services During Construction | Irvine, CA

Schedule and Change Order Reviewer.

Jerome supports Irvine Ranch Water District with engineering services during construction for improvements to the tertiary filter facilities at the Michelson Water Recycling Plant. He provides construction schedule and change order reviews to help maintain cost and schedule control for upgrades to filtration, backwash, and associated treatment systems. Jerome works with project teams to evaluate schedule impacts, assess change order justification, and coordinate implementation of improvements. The work requires careful sequencing to maintain continuous plant operations while enhancing treatment efficiency and overall system performance.

City of San Diego, Lower Otay Dam Bridge Deck Repair | San Diego, CA

Senior Construction Manager. Jerome is supporting the City of San Diego with the repair of deteriorated concrete bridge deck surfaces at the Lower Otay (Savage) Dam. The project focuses on extending the service life of critical dam crest infrastructure while maintaining safe and reliable access during construction.

His work supports improvements at a DSOD-regulated facility, emphasizing quality, constructability, and long-term performance.

Santa Margarita Water District, Oso Creek Water Reclamation Plant | Ranch Santa Margarita, CA

Construction Manager. Jerome is responsible for providing Santa Margarita Water District with construction management, resident engineering, and inspection services for the Oso Creek Water Reclamation Plant, delivered through CMAR. The project includes a new 3.3 MGD WRP with supporting facilities to treat wastewater and process return flows for recycled water use. Improvements include influent pumping and screening, aeration basins, MBR treatment, disinfection, and effluent pumping.

City of San Diego Public Utilities Department | San Diego, CA

Construction Manager. Jerome supports the City of San Diego Public Utilities Department with condition assessment services for Lake Murray Dam, evaluating infrastructure condition to inform repair planning, support regulatory compliance, and maintain safe, reliable operations.



Alex Yescas, PE, CFM, ENV SP

PRINCIPAL-IN-CHARGE

Alex brings 26 years of experience leading dam safety, construction management, and water infrastructure programs throughout California. He provides executive oversight for major dam rehabilitation, dam safety, and construction management efforts for agencies including Irvine Ranch Water District, Metropolitan Water District, California Department of Water Resources, and the City of San Diego. As Principal-in-Charge for the Santiago Creek Dam Improvement Project, Alex will provide strategic leadership and oversight to the Construction Management Team (CMT), supporting proactive risk management, regulatory compliance, and successful project delivery. He is experienced in building and directing multidisciplinary teams that provide construction management, quality assurance, inspection, risk management, and dam safety services on complex infrastructure projects. Alex can quickly mobilize additional personnel and specialized expertise to support peak construction demands and evolving project needs.

FIRM

HDR Engineering, Inc.

EDUCATION

BS, Civil Engineering,
San Diego State
University

REGISTRATION

Professional Engineer,
CA, No. 71418

Certified Floodplain
Manager (CFM),
No. US-05-01491

Envision Sustainability
Professional

INDUSTRY TENURE

26 Years

Relevant Experience

Irvine Ranch Water District, Dam Safety Program | Fountain Valley, CA

Project Manager. Alex developed a comprehensive Dam Safety Program for IRWD's portfolio of five dams, establishing a risk-based framework to guide capital investments over a 20-year horizon, including Semi-Quantitative Risk Assessments and Potential Failure Mode Analyses for each facility. He led program-level coordination, analysis, and planning to align dam safety priorities with operational, regulatory, and asset management objectives, providing a consistent, defensible basis for risk management, capital planning, and systemwide compliance.

Irvine Ranch Water District, Syphon Reservoir | Fountain Valley, CA

Technical Advisor. Alex supports IRWD as part of the Owner's Representative team for the Syphon Reservoir Improvements Project, expanding recycled water storage from 500 to 5,000 acre-feet. The \$90 million program includes removal of the existing dam and construction of a new 130-foot-high embankment dam with intake and outlet works, spillway, and on-site treatment facilities. Alex coordinates across investigation, design, environmental documentation, permitting, public outreach, and agency

approvals, focusing on operational considerations, phased delivery, and integration of dam safety and regulatory requirements to enhance long-term system reliability and support expansion of IRWD's recycled water program.

City of San Diego, Lake Hodges Emergency & Near-Term Repairs | San Diego, CA

Principal-In-Charge. Alex was principal-in-charge for this project in which HDR provided construction inspection services for Lake Hodges Dam emergency repairs, supporting the City of San Diego through rapid mobilization and field oversight. During construction, the team performed daily inspections, documented activities, verified contractor compliance, and maintained records supporting the Resident Engineer's decisions. HDR supported RFI and submittal reviews to resolve issues and minimize schedule impacts. Specialized inspections included rope access evaluations of the arch barrels and underwater assessments to confirm repair effectiveness. Following construction, HDR conducted post-repair inspections to document seepage conditions and verify compliance with DSOD requirements, ensuring coordinated delivery and successful closeout.



Tim Luu

SAFETY MANAGER

Tim has extensive experience leading construction safety programs for major capital improvement projects, including more than \$200 million in active construction. While supporting Orange County Sanitation District's CIP program, he reviewed contractor safety plans, performed site compliance audits, supported OSHA Voluntary Protection Program (VPP) initiatives, and managed Owner Controlled Insurance Program (OCIP) activities. His experience includes oversight of heavy civil construction operations involving earthwork, concrete placement, crane activities, confined spaces, lockout/tagout, and other high-risk work. Tim has developed behavior-based safety and hazard reporting programs that improved compliance and reduced risk. His experience working on the owner side of public agency projects provides valuable insight into regulatory requirements, contractor oversight, documentation, and stakeholder coordination, helping agencies strengthen safety performance and maintain compliance throughout construction.

FIRM

HDR Engineering, Inc.

EDUCATION

BS, Occupational Health & Safety, California State University, Fullerton

INDUSTRY TENURE

22 Years

Relevant Experience

Orange County Sanitation District, Capital Improvement Program | Orange County, CA

Senior Health and Safety Representation. Tim provided health and safety oversight for a capital improvement program exceeding \$200 million in construction value, supporting multiple concurrent projects across active wastewater treatment facilities. He reviewed contractor safety plans, coordinated with the Owner Controlled Insurance Program (OCIP), and worked with project teams, contractors, and client representatives to promote safe work practices and regulatory compliance. His responsibilities included conducting audits, inspections, and high-risk activity reviews; supporting site-specific safety programs; monitoring safety performance metrics; and verifying corrective actions. Tim also delivered safety training, maintained project safety records and certifications, and supported OSHA Voluntary Protection Program (VPP) initiatives to help sustain strong safety performance across the program.

Inland Empire Utilities Agency, Condition Assessment Digester 5 | Claremont, CA

Health and Safety Representation/Confined Space Supervisor. Tim served as the Health and Safety Representative, Confined

Space Supervisor, and Confined Space Entry Attendant for a permit-required confined space entry conducted in support of the condition assessment of Digester No. 5. He led field safety planning and implementation, including preparation and review of job hazard analyses (JHAs), coordination of safety requirements with project staff, and verification that all confined space entry procedures met applicable regulatory and client standards. Tim worked directly with IEUA personnel to review and implement lockout/tagout procedures, ensuring the isolation of hazardous energy sources prior to entry. He reviewed air monitoring logs and equipment certification records, verified atmospheric testing requirements, and conducted continuous air monitoring during confined space operations to protect entrant safety. Throughout the assessment, Tim performed site inspections and safety walks to confirm compliance with project safety requirements, identify potential hazards, and verify that all protective measures remained in place. His oversight helped support the safe execution of field investigations and condition assessment activities within a complex wastewater treatment facility environment.



Ron Perkins, PE, CCM

TECHNICAL ADVISOR - CONSTRUCTION MANAGEMENT

Ron brings more than four decades of experience delivering complex water infrastructure, dam improvement, and major civil construction projects. He led construction management for the Peninsula Region Water Supply Improvements Program, including the \$250 million Lower Crystal Springs Dam Improvements, a DSOD-mandated project that restored approximately three billion gallons of storage capacity. His experience includes major earthwork, large-diameter pipelines, dam and reservoir facilities, and construction in environmentally sensitive and urban settings. Ron is skilled at managing multidisciplinary teams, construction sequencing, regulatory requirements, and stakeholder coordination on high-profile projects. He has successfully delivered projects under demanding schedules and complex site constraints while maintaining compliance, minimizing risk, and supporting safe project execution.

FIRM

HDR Engineering, Inc.

EDUCATION

MBA, Business Administration, California State University, Sacramento

BS, Civil Engineering, University of California, Davis

REGISTRATION

Professional Engineer, CA, No. 44906

Certified Construction Manager (CCM), No. 9921

INDUSTRY TENURE

40 Years

Relevant Experience

San Francisco Public Utilities Commission, Lower Crystal Springs Dam and Transmission System Upgrades Improvements | San Mateo County, CA

Regional Construction Manager. Ron leads construction management and inspection services under an on-call program supporting \$570M in capital improvements across dams, reservoirs, transmission pipelines, pumping stations, and conveyance facilities. Key efforts include Lower Crystal Springs Dam Improvements, involving spillway widening, reconstruction of parapet and training walls, installation of a new ogee weir, construction of a reinforced concrete stilling basin, and downstream erosion protection. He coordinates concurrent projects, regulatory interfaces, and construction activities to maintain system operations and advance dam safety improvements.

Three Rivers Levee Improvement Authority, Phase IV Yuba River Levee Repairs | Yuba County, CA

Project Director. Ron provided project-level leadership for construction management and inspection services supporting Phase IV levee improvements along the Yuba River. The work included installation of deep cutoff walls, construction of seepage berms, and raising of existing levees to improve flood protection and

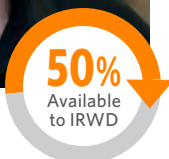
long-term performance. Ron directed construction delivery, oversight, and coordination to support successful execution of complex levee rehabilitation activities within an active river corridor.

City of Santa Cruz Water Department, Newell Creek Dam Inlet/Outlet Improvements | Santa Cruz, CA

Constructability Review and CM Program Oversight. Ron performs constructability review and construction management oversight for a \$60M inlet and outlet replacement to meet Division of Safety of Dams requirements. He reviews inlet and outlet structures, valves and controls, seepage collection and monitoring systems, and large-diameter tunnel and pipeline components. Ron coordinates preconstruction planning and development of CM procedures, and oversees construction activities including new intake facilities, access improvements, pipeline replacement, and decommissioning of existing works.

San Francisco Public Utilities Commission, Pulgas Reservoir Dechlorination Facility Modifications | San Francisco, CA

Project Manager. Ron led construction management and inspection for upgrades, including sodium bisulfite retrofits, flow measurement, controls improvements, and tank and pipeline modifications.



Les Harder, PhD, PE, GE

TECHNICAL ADVISOR - DSOD

Les brings more than 51 years of dam safety and geotechnical engineering experience, including 30 years with the California Department of Water Resources (DWR), where he served as Deputy Director for DSOD. Through his leadership role and decades with DSOD, Les developed an exceptional understanding of dam safety regulations, review processes, and approval requirements that helps owners efficiently navigate complex regulatory challenges. He has led and reviewed geotechnical investigations, dam foundation evaluations, seepage and stability analyses, seismic assessments, and risk-informed dam safety construction for major California dams, including Oroville, Castaic, Thermalito, and other State Water Project facilities. For the Santiago Creek Dam Improvements Project, Les will provide senior dam risk oversight and DSOD support, helping IRWD proactively address foundation and geotechnical risks, proactively guide the contractor for successful DSOD inspections to maintain project momentum.

FIRM

HDR Engineering, Inc.

EDUCATION

PhD, Civil Engineering,
University of California,
Berkeley

MS, Civil Engineering,
University of California,
Davis

BS, Civil Engineering,
University of California,
Davis

REGISTRATION

Professional Engineer -
Civil, CA, No. 30472

Professional Engineer -
Geotechnical, CA, No.
34875

INDUSTRY TENURE

51 Years

Relevant Experience

California Department of Water Resources (DWR), Engineering Geological Services Contract | California Technical Advisor/Geotechnical Lead.

Les supports dam safety studies for State Water Project facilities, including Oroville, Castaic, and Thermalito Dam. He served as a technical advisor during the Oroville spillway emergency response and as Deputy Design Branch Lead for geotechnical design and forensic studies supporting the Spillway Recovery Project. He has led seepage and stability evaluations, contributed to dam safety assessments, and supports PFMA workshops, helping inform risk management and dam safety decisions across DWR programs.

DWR Oroville Dam Comprehensive Needs Assessment (CNA) | California Geotechnical Advisor.

Les was lead geotechnical advisor and a member of the project integration team for the CNA, a risk-informed study evaluating vulnerabilities at the Oroville Dam Complex and developing risk reduction measures. This three-year effort represented the most comprehensive risk evaluation of a non-federal dam in the U.S. and informed updates to DWR's Asset Management Risk Program and targeted facility improvements.

Irvine Ranch Water District, Syphon Reservoir Expansion | Irvine, CA

Technical Advisor. Les supports IRWD on expansion of the existing 500 acre-foot Syphon Reservoir to 5,000 acre-feet, including replacement of a 59-foot-high dam with a new 130-foot-high embankment dam, along with spillway, outlet works, and related facilities. He supported IRWD and stakeholders to support design development, permitting, and agency coordination, helping navigate regulatory requirements and advance approvals for this complex dam project.

DWR, Oroville Dam Potential Failure Modes Analysis (PFMA) | California Technical Expert.

Les supported PFMA and semi-quantitative risk analysis workshops for the Oroville Complex, including Oroville, Parish Camp Saddle, and Bidwell Bar Canyon Saddle dams. The workshops included participation from DWR, Division of Safety of Dams (DSOD), FERC, and independent review board members. In this role, he contributed technical expertise to identify and evaluate potential failure modes and supported development of workshop findings, helping inform dam safety decisions and risk management strategies for critical State Water Project facilities.



Matthew Burris, PE, QSD

ASSISTANT RESIDENT ENGINEER - NIGHT SHIFT

Matthew has more than 11 years of experience supporting construction-phase delivery for water infrastructure projects. As Assistant Resident Engineer, he will support on-site construction activities, including inspection coordination, contractor oversight, QA, and contract administration, working with the IRWD, engineer, and contractor to maintain progress and address constructability challenges. He brings experience across water conveyance, sewer and storm drain systems, bridges, retaining walls, and rail infrastructure, supporting submittal and RFI review, change order development, construction documentation, and quality assurance activities. Matthew has worked as a consultant, contractor, and agency representative, bringing perspective across all sides of construction. He is experienced in Caltrans standards and safety requirements and works with project teams to resolve field issues and support safe, efficient project delivery.

FIRM

Kleinfelder

EDUCATION

BS, Civil Engineering,
California State
University, Long Beach

REGISTRATION

Professional Engineer,
CA, No. 93830

Qualified Stormwater
Pollution Prevention Plan
(SWPPP) Developer, No.
28125

Safety Trained
Supervisor -
Construction, No. 22249

INDUSTRY TENURE

11 Years

Relevant Experience

Orange County Transportation Authority, Laguna Niguel to San Juan Capistrano Passing Siding Project | Orange County, CA

Assistant Resident Engineer. Matthew worked with the owner, contractor, and project team to support construction-phase coordination, provide inspection oversight for structural work, and address field and technical challenges. The project included construction of approximately 1.8 miles of new siding track, along with bridge replacement, retaining walls, drainage improvements, and utility relocations to support expanded rail operations. He contributed to submittal reviews, RFI responses, and non-conformance resolution, and supported documentation of construction activities. His work included coordination of structural installations, monitoring of quality compliance, and support of ongoing progress across multiple work elements.

City of Chula Vista Bayfront Development Phase 1A | Chula Vista, CA

Resident Engineer/City Representative. Matthew worked with the owner, contractor, and project team to oversee construction activities, support field coordination, and resolve constructability challenges. The project included offsite infrastructure improvements supporting

a 535-acre waterfront redevelopment, including installation of water, sewer, and storm drain systems, pump station facilities, and roadway realignments. In his role, He contributed to submittal reviews, RFI responses, and change order development, and supported cost tracking and compliance with contract documents. His work included coordinating with stakeholders, addressing field issues, and supporting safe, efficient delivery of complex utility improvements

University of California, San Diego, Pedestrian Bridge | La Jolla, CA

Project Engineer. For this project, Matthew worked with the owner, contractor, and project team to support construction operations, coordinate subcontractors, and address constructability challenges. The project included construction of a multi-span pedestrian bridge and associated site improvements, including retaining walls, drainage systems, and foundation elements within an environmentally sensitive area. He contributed to project controls, quality and safety implementation, and scheduling coordination, and supported development of formwork solutions and mitigation of site conditions. His work included assisting with field coordination and resolving technical issues to maintain progress and support successful delivery.



Derick London

INSPECTOR - NIGHT SHIFT

Derick brings more than 27 years of experience, including direct dam construction experience on the San Vicente Dam Raise Project, where he provided safety and quality assurance inspection for aggregate production, demolition, and roller-compacted concrete placement, critical components of dam safety and structural performance. He will apply this hands-on dam experience to monitor inspection of embankment, spillway, and outlet works construction at Santiago Creek Dam, confirming compliance with the Contract Documents and dam safety requirements. Derick's proven ability to identify issues early and maintain quality in safety-critical dam work will reduce rework, mitigate risk during phased operations, and support delivery of a durable, compliant dam facility.

FIRM

Kleinfelder

REGISTRATION

CAL/OSHA 10-Hour

Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer

INDUSTRY TENURE

27 Years

Relevant Experience

San Diego County Water Authority (SDCWA), San Vicente Dam Raise Project | San Diego County, CA

Safety and Quality Assurance Inspector.

In his role, Derick provided inspection services for the \$140 million San Vicente Dam Raise project, which increased the dam height by 117 feet and more than doubled reservoir storage capacity as part of the San Diego County Water Authority's Emergency Storage Project. Responsibilities included inspection of aggregate production operations, demolition activities, and roller-compacted concrete (RCC) placement and curing.

San Bernardino County Transportation Authority (SBCTA), Redlands Passenger Rail | San Bernardino and Redlands, CA

Senior Civil Inspector. Derick provided inspection services for SBCTA's \$154 million, nine-mile passenger rail extension between San Bernardino and Redlands. Responsibilities included inspection of track grading, drainage systems, grade crossings, asphalt paving, station platforms, retaining walls, and culverts, as well as preparation of pay applications and daily reports. The project included new track installation, bridge replacement and retrofit, four new stations, safety improvements at 22 at-grade crossings,

and construction of park-and-ride facilities.

Caltrans District 7, I-110 Pavement Rehabilitation | Los Angeles, CA

Roadway Construction Inspector.

Performed field inspection for pavement rehabilitation improvements along I-110 from San Pedro to downtown Los Angeles, including concrete panel replacement, ADA upgrades, bioswale installation, and slab replacement. Responsibilities included contractor coordination, progress meeting participation, preparation of extra work bills, flood condition monitoring, and project documentation.

County of San Diego, Countywide Slurry Seal Resurfacing Program | San Diego County, CA

Assistant Resident Engineer. In this role, Derick provided quality assurance inspection services for countywide roadway resurfacing improvements, including slurry seal, chip seal, scrub seal, pavement rehabilitation, curb ramp retrofits, traffic delineation, and signal improvements. Responsibilities included inspection of paving, traffic control, striping, curb and gutter work, and SWPPP compliance, as well as preparation of daily reports and quantity documentation.



Bob Frazer

INSPECTOR - DAY SHIFT

Bob has 25 years of experience providing construction inspection and field and laboratory materials testing for large complex projects. His work includes inspection and testing of soils, concrete, asphalt, masonry, steel, excavation, and large pipelines. He supports dam and spillway improvements, including RCC core logging, concrete and pavement evaluation, and inspection of embankments and structural elements. Bob performs QA observation and testing in conformance with project requirements, supporting dam repairs, roadway and bridge improvements, utilities, and earthwork. He coordinates testing, documents field conditions, and reviews construction for compliance. Bob works closely with clients, contractors, and stakeholders to support efficient project delivery.

FIRM

Kleinfelder

EDUCATION

BA, Geology (in progress), California State University, Sacramento

REGISTRATION

ACI Concrete Field Testing - Grade 1

Nuclear Gauge/Troxler Certification, No. 090988

WAQTC Certified - Aggregate, Asphalt, Nuclear Gauge

Caltrans Test Methods - CT 105, CT 106, CT 125, CT 201

INDUSTRY TENURE

25 Years

Relevant Experience

San Diego County Water Authority (SDCWA), San Vicente Dam Inclinator Installation & Dam Raise | Lakeside, CA

Chief Inspector/Materials Tester. Bob contributed to the \$140 million San Vicente Dam Raise, which increased the dam height by 117 feet and expanded regional water storage capacity. He performed geotechnical observation, compaction testing, and sampling and testing of roller-compacted concrete (RCC), conventional concrete, and aggregate materials during mass grading and dam construction activities. Bob coordinated QA/QC testing programs, managed night-shift testing personnel, generated non-conformance reports, and supported RCC coring operations, including core logging and tensile testing. He served as the owner's representative for installation of dam instrumentation, including drilling and casing of a 125-foot vertical bore for seismic performance monitoring. Bob oversaw RCC core logging during drilling operations, observed inclinometer installation, coordinated grout sampling and laboratory testing, and supported future dam inspection planning. Additional responsibilities included contractor quantity verification, quality control oversight, progress reporting, coordination with the Resident Engineer,

and support for testing and inspection of structural concrete, HMA, and related site development features.

City of San Diego, Lake Hodges Dam Near-Term Repairs | San Diego, CA

Civil Inspector. Bob provided inspection services for spillway and gallery concrete repairs, including crack injection, rebar coating, and spall remediation. Oversaw construction activities, coordinated with biological monitors to maintain environmental compliance, and implemented alternative work schedules for noise and seasonal constraints. Documented daily progress, facilitated coordination meetings with the design team, City staff, and DSOD, and performed electrical inspection support.

San Diego County Water Authority (SDCWA), San Vicente Bypass Pipeline | San Diego County, CA

Civil Inspector/Materials Tester. Bob supported construction of a 12-mile, 8-foot-diameter steel pipeline connecting the San Vicente Reservoir to the Second Aqueduct. He performed field inspection and materials testing for subgrade, aggregate base, and concrete structures, and observed embankment and roadway construction. Bob provided inspection support for precast pipeline installation and verified compliance with project specifications.



Nate Gavzy

CHANGE MANAGEMENT

Nate has over 15 years of experience in construction management, project controls, and change order management for public and private infrastructure projects. He specializes in contract administration, cost control, and managing change, with extensive experience supporting water and wastewater projects, including dams and reservoirs. His background includes roles as Resident Engineer, Project Controls Manager, and Change Order Manager, as well as Field Contract Administrator. Nate supports review and negotiation of change orders, budget management, invoice review, and project reporting, along with oversight of submittals, RFIs, and as-builts. He is experienced in managing inspection and testing coordination, enforcing contract requirements, and maintaining compliance with project specifications. Nate is proficient in Unifier and works closely with project teams to support clear documentation, cost control, and well-coordinated project delivery.

FIRM

MCK

EDUCATION

BS, Business
Administration, Sierra
Nevada College

REGISTRATION

Program Management
Certificate

INDUSTRY TENURE

15 Years

Relevant Experience

El Dorado Irrigation District, Forebay Dam Modifications | Pollock Pines, CA *Project Controls Manager & Construction Inspector.*

Nate provides project controls and inspection for a \$20M dam safety improvement, including construction of an earthen buttress, raising the dam crest, spillway upgrades, intake and penstock repairs, and site access improvements. He manages change orders, cost tracking, and coordination with the construction team to maintain compliance with project requirements.

Placer County Water District, Hellhole Dam Raise Project | Placer County, CA *Project Controls.*

Nate provided project controls for an \$11M dam safety and water storage improvement, including dam core raising, installation of a core and filter system, and construction of temporary access roads. Performs change order tracking, cost control, and project documentation to support compliance with design and safety requirements.

Department of Water Resources, Tisdale Bypass Sediment Removal Project | Sacramento, CA *Construction Inspector/Office Engineer.*

Nate performs inspection and office engineering for sediment removal operations to restore channel capacity and improve flood conveyance. He

prepares daily reports, cost estimates, change order documentation, and non-conformance reports, and monitors contractor performance.

Department of Water Resources, Emergency Levee Erosion Repair Project | Sacramento, CA *Construction Inspector.*

Nate provides inspection for a large-scale levee repair program involving multiple emergency repair sites. Coordinates field activities, tracks quantities and production, and documents extra work, disputed work, and environmental and safety issues.

San Francisco Public Utilities Commission, Treasure Island Water Resource Recovery Facility | San Francisco, CA *Field Contract Administrator/Project Controls.*

Nate performs contract administration and project controls for a \$202M design-build wastewater treatment facility. Manages change orders, cost tracking, and reporting, and coordinates testing, activation, and startup activities with operations and the contractor.

El Dorado Irrigation District, Main No. 2 Conditions Assessment | El Dorado County, CA *Construction Manager.*

Nate provides construction management for inspection of a primary transmission pipeline serving multiple communities.

Additional Key Staff



Nate Snorteland, PE*

*Technical Advisor - Risk
Evaluation & Dam Risk
Management*

Nate is HDR's Dams Practice Lead and a civil and geotechnical engineer with 30 years of experience in dam and levee safety, risk assessment, and rehabilitation. He previously served as Director of the USACE Dam Risk Management Center, where he provided leadership on dam safety policy, risk governance, and construction monitoring across the USACE dam portfolio. His background covers the full lifecycle of dam safety, including risk assessments, failure mode analyses, safety improvements, and major dam construction across earthfill, rockfill, concrete gravity, spillways, and outlet works. He has contributed to more than 20 dam and levee construction and modification projects, serving as design engineer of record, construction monitor, senior reviewer, and program manager, and has published on hydrologic and geotechnical risk, risk-informed decision making, and dam and levee safety practice. For the Santiago Creek Dam Improvement Project, Nate will serve as the dedicated SME for the risk workshop and Dam Risk Management Lead and track the risk register, applying risk-informed practices to guide construction decisions, reduce uncertainty, and support on-time, cost-conscious delivery. His involvement gives IRWD clear, actionable guidance at each critical stage of the work.

Scott brings more than 36 years of experience leading startup, testing, commissioning, and operational readiness programs for complex water infrastructure projects. Having managed commissioning efforts for more than 40 large-scale facilities nationwide, he combines the perspective of a former operator, wastewater manager, and resident engineer to help owners achieve a seamless transition from construction to operations.

For the Santiago Creek Dam Improvement Project, Scott will support the commissioning and startup planning for the outlet works, controls, instrumentation, and associated dam facilities, reviewing testing procedures, turnover plans, and operator training programs that help IRWD minimize operational risk, verify system performance, and confirm staff are fully prepared to operate the upgraded facilities



Scott Joslyn, PE

Startup & Commissioning



Chris Acosta, PE, CCM

Assistant Resident Engineer

Chris has built a notable reputation as a dam resident engineer on complex spillway and structural projects where technical precision and field judgment are critical. His experience on high-profile dam projects, including the Lake Isabella Dam Safety Modification, the Oroville Dam Spillway Emergency Response, and the Success Lake Spillway Enlargement, reflects his ability to lead intricate structural work, navigate challenging site conditions, and coordinate effectively between DSOD, project teams, and contractors.

Chris brings a consistent record of resolving construction and reinforcement conflicts, developing efficient field procedures, and confirming that critical hydraulic and structural elements are built to exacting standards. His ability to work through complex structural challenges, such as the Isabella Dam labyrinth weir spillway and the spillway walls with tie-back anchors along the Tule River Dam Spillway Improvement, keeps critical spillway elements on schedule, directly reducing project risk and confirming reliable implementation of structural elements. That work has earned national recognition from both ASDSO and CMAA.

Phillip brings 36 years of field monitoring and construction experience supporting complex earth retention, excavation support, and heavy civil infrastructure projects. His background includes monitoring and verification of geotechnical construction activities such as drilled elements, excavation support systems, grading, and earthwork operations. Phillip focuses on documenting field conditions, verifying contractor compliance with plans and specifications, and coordinating with engineers to resolve subsurface challenges. On major infrastructure projects, Phillip has worked closely with construction managers, geotechnical engineers, contractors, and survey teams to monitor critical construction activities and maintain quality assurance documentation.

For the Santiago Creek Dam Improvement Project, he will support field monitoring of soil nail and slope stabilization work, helping IRWD verify proper installation, testing, and documentation of ground support systems while maintaining continuous field monitoring during excavation and stabilization activities.



Phillip Lattuca, LSIT

Civil Inspection



Johnny Lopez

Civil Inspection

Johnny brings 46 years of experience supporting construction management teams through field monitoring, quality verification, documentation, and contractor coordination. His responsibilities include monitoring construction activities, documenting field conditions, verifying compliance with plans and specifications, and supporting timely resolution of field issues to maintain project quality and progress.

For the Santiago Creek Dam Improvement Project, Johnny will provide field monitoring support during critical earthwork, embankment improvements, spillway construction, structural concrete placement, and site civil improvements. Working closely with the Resident Engineer, Chief Inspector, and Quality Assurance team, he will help IRWD maintain continuous field monitoring, accurate construction documentation, and proactive identification of issues that could affect quality, schedule, or dam safety objectives, driving successful project delivery in accordance with contract requirements.

Russ is a civil engineer with 42 years of experience in quality assurance and quality control for heavy civil and dam construction projects across the United States. His background spans QA/QC programs and resident engineering on concrete, earth, rock, and RCC dam projects, confirming compliance with the DSOD and FERC, with technical guidance and coordination across on-site laboratories, materials testing, and QA/QC staff.

Russ has supported clients including San Diego County Water Authority, Denver Water, Northern Water, and the U.S. Army Corps of Engineers, collaborating with owners, engineers, and contractors to monitor construction activities, maintain compliance with specifications, and support efficient project delivery.



**Russ Grant, PE, ICC,
ACI**

RCC Inspection (KLF)



Chris Pollack, CQM, ACI, CTM

*Construction Materials Testing/
On-Site Laboratory Services Lead (KLF)*

Chris brings 27 years of materials testing and laboratory experience, with a background focused on DSOD-regulated dam and levee projects. He guides technical and quality functions for Kleinfelder's laboratories and facilities and has authored Kleinfelder's Quality Management System Manual for laboratory testing.

For IRWD, Chris will apply his proficiency in QA materials testing, on-site laboratory setup, soils and aggregates testing, RCC/PCC materials, Portland hydraulic cement, masonry, and field and laboratory technical support. He served as Project Manager for QA sampling and testing services on the Lake Isabella Dam Safety Modification Project for HDR, where Kleinfelder established a full-service on-site laboratory and received USACE Materials Testing Center validation within weeks of mobilization.

Taylor is a geologist with nine years of experience supporting geotechnical investigations, subsurface exploration, construction observation, and geologic hazard assessments for critical infrastructure and water conveyance projects. Her background includes soil and rock characterization, drilling monitoring, rock coring, test pit investigations, geologic mapping, slope stability evaluations, and documentation of subsurface conditions that inform construction decisions.

Taylor has broad field experience supporting complex projects for agencies such as Metropolitan Water District, where she performed foundation assessments, geotechnical investigations, and field characterization of challenging geologic conditions. For the Santiago Creek Dam Improvement Project, she will provide on-site soils inspection and geotechnical field support, helping IRWD verify foundation and earthwork conditions, document construction activities, identify potential geotechnical concerns early, and maintain quality assurance throughout construction to support sound project delivery.



Taylor Bogdanovich, GIT

Soils Inspection and Field Investigation (KLF)



Chris Rice, ACI, ICC, CTM

Concrete Inspection (KLF)

Chris is an ICC Master Special Inspector and Concrete Inspector with six years of experience on large-scale infrastructure projects, including multiple Kleinfelder assignments exceeding \$200 million. His background spans reinforced and post-tensioned concrete, structural steel, masonry, shotcrete, soils, and ASTM-based testing standards across treatment plants, pump stations, water facilities, roads, bridges, and pipelines for agencies including Orange County Sanitation District, Eastern Municipal Water District, and the City of Long Beach.

For the Santiago Creek Dam Improvement Project, Chris will provide a versatile inspection resource from below-grade foundation activities through concrete, structural, and specialty inspection, helping verify compliance with plans and specifications and reduce the risk of rework during critical dam, spillway, and outlet works construction.

Marc is a construction professional and cost estimator with more than 33 years of experience across construction management, general contracting, subcontracting, preconstruction, contract negotiation, cost control, value engineering, and construction pricing. For IRWD, he will support cost estimating and change evaluation by benchmarking costs, developing independent estimates, and delivering pricing analysis for change requests and value engineering change proposals.

His project background spans civil, water, wastewater, flood protection, utility, aviation, park, and vertical construction, including the Foster City Levee Improvements, EBMUD's Almond Reservoir Project, San Francisco International Airport storm drain and force main infrastructure work, Treasure Island Wastewater Treatment Plant, and the Pacifica Sea Wall project.



Marc Biddle

Cost Estimating (MCK)



Rick Barajas

Civil Inspection

Rick brings more than 46 years of experience in heavy civil construction, mass grading, pipelines, water infrastructure, and construction inspection, with a unique background that includes serving as a laborer, operator, foreman, superintendent, quality control supervisor, safety officer, and senior field inspector. His extensive field experience includes oversight of major water, pipeline, valve replacement, treatment facility, and utility infrastructure projects, where he has been responsible for contractor coordination, quality assurance, construction documentation, utility coordination, and verification of compliance with plans and specifications.

For the Santiago Creek Dam Improvement Project, Rick will provide experienced field oversight during earthwork, embankment improvements, excavation, utility installations, outlet works, and other heavy civil construction activities. His practical construction knowledge and strong field presence will help IRWD proactively resolve field issues, maintain construction quality and safety, and ensure the project is delivered in accordance with contract requirements, schedule, and dam safety objectives.

Matt is a project controls and scheduling specialist with 30 years of experience in schedule development, project controls, dispute resolution, delay analysis, and claims support across more than 100 domestic and international projects. For IRWD, he will support the Project Manager by reviewing baseline and update schedules, evaluating Time Impact Analyses, conducting schedule claims analysis, and developing independent TIAs as needed.

His background spans scheduling and claims support for dam, levee, water, wastewater, and infrastructure projects, including the Foster City Levee Improvements, Forebay Dam Modification, Upper Alameda Creek Diversion Dam, Upper Main Ditch Piping, Treasure Island Water Resource Recovery Facility, Sunol Valley Water Treatment Plant, Harry Tracy Water Treatment Plant, and EBMUD as-needed construction and monitoring services.



Matt White, PMP

Scheduler (MCK)



Our Team brings together professionals from HDR, Kleinfelder, MCK, and VDT, each selected for their direct experience on DSOD-regulated dam construction, technical credentials, and ability to perform across the full project lifecycle. The matrix below identifies each team member’s role, firm, years of experience, and applicable registrations, alongside their anticipated phase and task assignments. The personnel shown in the matrix represent the core team committed to the Project; however, HDR may bring in additional HDR, Kleinfelder, MCK, or VDT resources as needed to address specific technical, inspection, testing, safety, or construction management needs throughout the project. Collectively, the team covers all phases of the project, from Final Design to Closeout.

Specialized task coverage, including site safety, field monitoring, materials testing, environmental compliance, public relations, and reporting, is assigned to personnel with directly relevant credentials and field experience. The combination of depth and specialization gives IRWD a team structured to perform at each phase, not just at peak construction, and to maintain continuity, accountability, and technical rigor from first design review through final handoff.

					Construction Phases					Tasks					
Name	Role	Firm	Years of Experience	Applicable Registrations	Final Design	Bid Services	Construction	Training, Commissioning, and Startup	Post-Construction	Site Safety	Inspections	Materials Testing	Environmental	Public Relations	Reporting
Brian Hollis	Construction Manager	HDR	28	PE*	●	●	●	●	●	●	●		●	●	●
Randy Lovan	Project Manager	HDR	34	CERT. CM, QSP	●	●	●	●	●	●	●	●	●	●	●
Jim Lorenzen	Resident Engineer	HDR	34	PE, CCM, QSD	●	●	●	●	●	●	●	●	●	●	●
Chris Acosta	Assistant Resident Engineer	HDR	23	PE, CCM	●		●	●		●	●	●	●		●
Jerome Ruddins	Quality Assurance Manager	HDR	42	CCM, DBIA	●	●	●	●	●	●	●	●	●	●	●
Alex Yescas	Principal in Charge	HDR	26	PE, CFM, ENV SP	●		●			●	●				●
Tim Luu	Safety Manager	HDR	22	-	●		●			●	●			●	●
Ron Perkins	Technical Advisor	HDR	40	PE, CCM	●	●	●	●	●	●			●	●	●
Les Harder	Technical Advisor	HDR	51	PHD, PE, GE	●		●		●	●	●				●
Denis Dilek	Technical Advisor	HDR	26	PHD, PE*	●		●			●	●	●			●
Ken Kelgard	Technical Advisor	HDR	36	PE*, CCM, CQM	●	●	●			●	●				●
Phillip Lattuca	Soil Nails	HDR	36	LSIT			●		●	●	●	●			●
Lisa Lutz	Mechanical	HDR	38	PE, PMP			●	●		●	●	●			●
Chris Stinson	Welding	HDR	28	ACI, ATTI			●	●		●	●	●			●
Brien Clark	Coatings Inspector	HDR	25	PE, AMMS, NCEES			●	●		●	●	●			●
Scott Joslyn	Startup & Commissioning	HDR	36	PE			●	●	●	●	●				●
Daniel Celaya	CADD/BIM	HDR	24	-			●		●	●					
Chelsea Feller	Document Controls	HDR	17	-	●	●	●	●	●	●				●	●
Gana Venkatagiriappa	Claims Avoidance	HDR	41	-			●		●	●					●
Nate Snorteland	Dam Risk Management	HDR	30	PE*	●		●	●		●				●	●
Yuri Eguchi	Accounting and Reporting	HDR	20	-	●		●		●	●					●
Rick Barajas	Civil/Foundation	HDR	46	-			●			●	●	●	●		●
Bob Frazer	Inspector	Kleinfelder	25	ACI	●		●		●	●	●	●	●		●
Derick London	Inspector	Kleinfelder	27	-			●		●	●	●	●	●		●
Russ Grant	RCC	Kleinfelder	42	PE, ICC, ACI	●		●			●	●	●	●		●
Chris Rice	Concrete	Kleinfelder	6	ACI, ICC, CTM			●			●	●	●	●		●
Chris Pollack	Materials Testing	Kleinfelder	27	ACI, CQM			●	●	●	●	●	●	●		●
Matthew Burris	Assistant Resident Engineer	Kleinfelder	11	PE, QSD			●	●		●	●	●	●		●
Taylor Bogdanovic	Geology/Soils Testing	Kleinfelder	9	GIT			●		●	●	●	●	●		●
Albert Cochran	Electrical	MCK	30	-			●	●	●	●	●	●			●
Marc Biddle	Cost Estimating	MCK	33	-	●	●	●			●	●				●
Matt White	Scheduling	MCK	30	PMP	●	●	●			●	●				●
Nate Gavzy	Change Management	MCK	15	-	●	●	●	●	●	●	●		●	●	●
Djan Chandra	Geotechnical	VDT	37	PE, GE			●			●	●	●	●		●

An asterisk (*) denotes non-California Registration.

5 | References



Dam Project Experience

HDR'S EXPERIENCE BY THE NUMBERS



#4
in the Country for
Dams and Reservoirs
(2025 ENR)



1,600+
Construction
Professionals
Worldwide



3,800+
CEI/CM Projects
Worldwide



1,650
Hydraulic Steel
Structure Projects



40+
Years Providing
CEI/CM Service



200+
Dams
Worked on in
California



\$70B+
CEI/CM Project
Worldwide
(construction value)



250
Dam Embankment
Inspections



52
SPRAT-
Certified Staff



30
EDCs for Gate
Construction



200
Spillway
Inspections



1,000
Gate
Inspections

Project Client	Santiago Dam Scope of Work																																				
	Dams/Water Conveyance	Regulatory Agency Interaction (DSOD, BOR, USACE)	Pre-Construction	Contract Administration	Construction QA	Construction Inspection	Rock Excavation	Temporary Diversion Berms	Tunneling	Outlet Works	Challenging Access/Remote Project Location	Dam Operations/Seasonal Constraints	Mass Concrete	Mass Earthwork	Onsite Concrete Batch Plant	Dam/Spillway - Mechanical/Electrical/Controls/Startup	Seepage Cutoff Walls	Traffic Control	Roadway Work	Utility Coordination	Phased Construction	Environmental/Cultural Constraints	Bridge Construction	Concrete Structures	Contractor Procurement/Outreach	Partnering with the Owner, Engineer, and Contractor	Cost Management	Schedule Management/Analysis	Risk Management	Document Management	Differing Site Conditions	High Fire Risk Areas	Multi Agency Stakeholders	Claims Avoidance	Timely Project Close Out		
Oroville Dam Spillway Emergency Response California DWR*	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●		●	●				●	●					
Dam Safety Modification at Lake Isabella USACE – Sacramento District*	●	●	●		●	●	●	●		●	●	●	●	●	●	●		●	●	●	●	●	●		●		●		●	●		●	●		●		
Success Lake Spillway Enlargement Project USACE – Sacramento District*	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●		●		●	●	●	●	●		●			●	●	●	●	●	●	●		
Lake Hodges Dam Emergency Repairs City of San Diego*	●	●	●	●	●	●		●	●	●	●	●	●			●		●		●	●	●		●		●		●	●	●	●	●	●	●	●	●	
San Vicente Dam Raise San Diego County Water Authority*	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
Lower Crystal Springs Dam Improvements San Francisco Public Utilities Commission*	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	
Pyramid Dam Service and Emergency Spillway Investigation California DWR*	●	●	●		●		●			●	●	●			●						●	●		●	●		●	●	●	●	●	●	●		●	●	
LaPrele Dam Reconstruction Project LaPrele Water and Irrigation District*	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Sacramento Weir Widening USACE – Sacramento District*	●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Lower Baker Dam Seepage Reduction Project, Construction Management Support Concrete, WA*	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●					●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	
C-44 Reservoir and Stormwater Treatment Area USACE – Jacksonville District	●	●	●	●	●	●		●		●		●	●	●	●	●	●		●	●	●	●	●		●	●	●	●	●	●	●	●		●	●	●	
EchoWater Advanced Wastewater Treatment Program Sacramento Regional County Sanitation District	●		●	●	●	●		●	●			●	●	●	●			●	●	●	●	●		●	●	●	●	●	●	●	●	●		●	●		
McMicken Dam Rehabilitation Maricopa County Flood Control District	●	●	●	●	●	●	●	●			●	●	●	●		●	●	●		●		●		●		●		●	●	●	●	●			●		
Feather River West Levee Program Sutter Butte Flood Control Agency	●	●	●	●	●	●	●	●				●		●			●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	
Yuba River South and Bear River Levees Three Rivers Levee Improvement Authority	●	●	●	●	●	●		●						●			●			●		●		●	●	●		●			●	●	●	●	●	●	
Blackburn Dam Rehabilitation Upper Neches River Municipal Water Authority	●	●	●	●	●	●	●	●		●			●	●		●		●	●	●	●			●	●	●		●		●			●		●	●	
Dam 4 Auxiliary Spillway Cutoff Wall Upper Brushy Creek Water Control and Improvement District	●	●	●	●	●	●		●			●		●	●		●		●	●	●				●	●	●		●		●			●		●	●	
Dam 18 Rehabilitation Upper Brushy Creek Water Control and Improvement District	●	●	●	●	●	●		●		●	●		●	●		●		●	●	●		●		●	●	●		●		●			●		●	●	
Red Bluff Dam Safety Program Red Bluff Water Power Control District	●	●	●	●	●	●	●	●		●	●	●	●	●		●		●	●	●	●			●	●	●		●		●			●		●	●	
Lake Leon Dam Rehabilitation Project Eastland County Water Supply District	●	●	●	●	●	●	●	●		●			●	●				●	●	●		●		●	●	●		●		●			●		●	●	
I-5 Widening Segment 2 – Oso Parkway to Alicia Parkway Orange County Transportation Authority			●	●	●	●	●		●		●		●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	
SR 91 Corridor Improvement Project Riverside County Transportation Commission			●	●	●	●	●		●		●		●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●

*Full project descriptions and client references are included on the following pages

Oroville Dam Program - Spillway Incident Response to Recovery

California Department of Water Resources | Oroville, CA



Emergency Response

On February 7, 2017, during routine visual inspections, DWR discovered damage to Oroville’s main spillway. At 770 feet high, Oroville Dam is the tallest dam in the U.S. and serves mainly for water supply (1 trillion gallons of water), hydroelectricity generation, and flood control. HDR was the first responder at 2 am with DWR leadership to assess the damage. In just over three days, HDR mobilized 150 staff from across the U.S. to conduct services around the clock, seven days a week, supporting DWR’s mission at the dam.

Construction Phase Support Emergency Response

During the Oroville Dam spillway emergency reconstruction, HDR provided construction-phase support as an extension of DWR, delivering 24/7 monitoring, inspection, and technical advisory services across both temporary repair and full reconstruction phases. The team mobilized engineers, inspectors, and safety specialists to maintain continuous construction oversight, including rope access inspections, geotechnical and structural evaluations, and real-time condition monitoring of the spillways and adjacent slopes. HDR led staffing, scheduling, and coordination for a large monitoring program, supporting more than 150 personnel across rotating field positions for day and night shifts, while delivering daily reporting, data analysis, and direct coordination with contractors and regulatory agencies. Construction support extended to QA oversight of major work elements such as RCC placement, structural concrete repairs, and secant pile wall installation, confirming that construction activities were continuously evaluated against performance, safety, and regulatory requirements.

This hands-on, field-driven role enabled DWR to make informed decisions in real time, maintain safety during a rapidly evolving emergency, and successfully deliver one of the largest dam spillway reconstruction efforts in the country.

Comprehensive Needs Assessment (CNA)

Following the incident, HDR supported DWR by performing an in-depth CNA of the Oroville Dam complex. The CNA considered modifications to the dam and its existing appurtenances, additional facilities, flood control operations, and other dam safety measures.

Proposed solutions provided secondary benefits, such as operational redundancy, improving compliance with downstream flow and temperature criteria, and seasonal increases in storage.

The CNA was split into six technical tasks, each focusing on different aspects of the Oroville complex including spillways, embankments, the Hyatt low level outlet and power plant, the flood control outlet structure, operations and instrumentation/monitoring. For each task, the facility’s needs and key objectives were evaluated, and an existing condition assessment was conducted using potential failure mode analyses and semi-quantitative risk analysis methods. The team assessed the reliability, resiliency, robustness, and redundancy of the respective systems while keeping public safety the priority.

Each task team then developed measures to address the potential failure modes that posed the highest risk. DWR assembled an integration team for the CNA that combined measures into alternative plans that were evaluated for the Oroville Dam complex.



PROJECT DETAILS

CLIENT
California Department of Water Resources

TOTAL PROJECT COST
\$630M

HDR CM FEE
\$10M

REFERENCE
David Sarkisian, Chief Dam Safety Engineer
P: 916.653.4395
E: david.sarkisian@water.ca.gov

CONTROL OF COSTS

Costs were controlled by providing real-time construction oversight with risk-informed decision support, and continuous coordination among DWR, contractors, and regulators, allowing issues to be identified and resolved before they impacted major reconstruction activities.

QUALITY OF WORK

Exceptional quality was maintained through 24/7 inspection, geotechnical and structural evaluations, condition monitoring, and QA oversight of RCC placement, secant pile walls, and concrete repairs to verify compliance with performance and regulatory requirements.

ABILITY TO MEET SCHEDULE

More than 150 personnel were rapidly mobilized within a month of the incident and provided continuous, around-the-clock construction support that enabled DWR to advance emergency repairs and complete one of the nation’s largest spillway reconstruction programs under extreme schedule constraints



RELEVANT SCOPE ELEMENTS

Delivery & Coordination	Heavy Civil & Structures	Dam & Site Complexity	Risk & Constraints
✓ 150+ staff mobilized within a month ✓ 24/7 field coordination ✓ DWR, contractor, regulator interface ✓ Daily reporting and staffing control ✓ DSOD Coordination	✓ RCC placement QA ✓ Spillway concrete repairs ✓ Secant pile wall oversight ✓ Slope and spillway monitoring	✓ Embankment dam with concrete spillway ✓ Active flood-control facility ✓ Emergency spillway reconstruction ✓ Difficult access inspections	✓ Public-safety response during spillway failure ✓ Emergency dam safety response ✓ Rapidly changing site conditions ✓ Rope-access/steep terrain work ✓ High fire risk area relevance




2023 ASDSO
Dam Safety Award
West Region

PROJECT DETAILS

**CLIENT**
USACE - Sacramento District

**TOTAL PROJECT COST**
\$335M

**HDR CM FEE**
\$14M

**REFERENCE**
Victor Ozuna, Resident Engineer
P: 619.843.1151
E: victor.ozuna@usace.army.mil

Dam Safety Modification at Lake Isabella

USACE - Sacramento District | Kern County, CA

HDR provided construction support and inspection services for USACE’s Isabella Lake Dam Safety Modification Project, which raised the earthen main and auxiliary dams by 16 feet and added a 300-foot-wide emergency spillway with a 28-foot-tall, 1,300-foot-long arced labyrinth weir. The innovative weir, USACE’s first of its kind, was designed to regulate flows through the emergency spillway and reduce flood risk for more than 300,000 people in Lake Isabella, Bakersfield, and surrounding areas.

HDR supported USACE with program management, construction oversight, project engineering, scheduling, claims consultancy, quality assurance for the rock aggregate material lab, and earthwork oversight for 2.8 million cubic yards of onsite-mined rock used to build both dams. The project required a new resident field office, relocated USACE staff, and an augmented field team of 40 onsite construction management personnel, most of whom were certified construction managers.

HDR’s data acquisition team documented construction and developed a survey-grade reality-mesh model of the 450-acre site using high-resolution drone imagery. The team produced custom earthworks data to quantify stockpiles, identify material types and volumes, and assess offsite hauling needs.

In early 2023, record Central Valley rainfall and Sierra Nevada snow melt increased river flows. The completed dam improvements enabled USACE to return Isabella Lake to its original design capacity of 568,000 acre-feet.

Key construction challenges included a shortage of high-quality rock material, discovery of Native American archaeological remains, disposal-site capacity constraints, extreme temperatures affecting concrete production, wildfire impacts, and spillway apron design issues caused by over-excavation and unsuitable rock surfaces.

Because all rock products were planned to come from the emergency spillway excavation, material shortages were addressed by adding an excavation area and adjacent borrow site and reconfiguring the emergency spillway. The reconfiguration required reevaluating post-construction hydraulics, slope stability, disposal needs, archaeologically sensitive excavation areas, construction sequencing, and project footprint limits. Coordination among stakeholders resolved the impacts and constraints.

To maintain concrete production and schedule, onsite personnel and the contractor developed placement plans for hot and cold weather. Summer measures included chilled aggregates, liquid nitrogen injection, and nighttime placements. Winter measures included covering aggregates, using thermal blankets, and heating surfaces to support bonding and avoid rapid cooldown.

Wildfires over multiple fire seasons created labor displacement, air-quality hazards, and schedule impacts. Through coordination and air-quality monitoring, production continued only when conditions were safe.

During spillway excavation, over-excavation and unsuitable rock created surface voids that could affect hydraulic

performance. HDR onsite personnel and the USACE engineering team collaborated on a structurally sound apron design that mitigated hydraulic impacts while controlling costs.

CONTROL OF COSTS
Cost impacts were mitigated by identifying alternative borrow sources, reconfiguring the emergency spillway, and collaborating with stakeholders to address material shortages, archaeological discoveries, and unforeseen field conditions without jeopardizing project objectives.

QUALITY OF WORK
Quality was confirmed through comprehensive construction oversight, QA management of earthwork and aggregate materials, reality-model validation, and continuous monitoring of critical dam and spillway construction activities.

ABILITY TO MEET SCHEDULE
Progress was maintained despite wildfires, severe weather, material shortages, and design challenges by implementing adaptive construction sequencing and concrete placement strategies that supported uninterrupted production.

RELEVANT SCOPE ELEMENTS			
 Delivery & Coordination	 Heavy Civil & Structures	 Dam & Site Complexity	 Risk & Constraints
✓ \$335M USACE dam safety project ✓ 40-person onsite CM team during dry weather work ✓ Scheduling and claims support ✓ Agency/contractor coordination	✓ Main and auxiliary dam raises ✓ Emergency spillway and labyrinth weir ✓ 2.8M CY rock/earthwork ✓ Aggregate and concrete QA	✓ Active reservoir facility ✓ Large-scale flood-risk reduction ✓ Seasonal construction constraints ✓ Drone/reality-mesh documentation ✓ Significant temporary diversion berm	✓ Wildfire-season construction impacts ✓ Air-quality monitoring to protect staff ✓ Material shortage mitigation ✓ Archaeology and unsuitable rock ✓ Management of heat warnings and staff health safety

HDR provided full-time onsite construction inspection support for the USACE resident office at the Tule River project site. This project provides dam safety and spillway improvements for Success Lake - Schafer Dam, addressing seepage in the existing dam and installing a new ogee weir and spillway to accommodate a 10-foot increase in lake elevation for increased water storage in Success Lake. The improvements also address the removal or relocation of existing features outside the new high-water elevation, as well as erosion control measures to address wave action for the new high-water elevation, the highway bridge and embankment, and the existing levee.

This is a very remote site, and the USACE Sacramento District had difficulty staffing the field resident office. We provided a senior project engineer and all management and supervision support to our onsite senior PE, seamlessly to the support USACE needed on this project. This included:

- On-site construction QA inspections for compliance with the intent of contract documents. This included drilling rock anchors, rock blasting, excavation, concrete placement, rip-rap placement, and briefings to USACE leadership on project progress.
- Daily onsite evaluation of construction methods and materials

- Review of the submittals and RFIs, drafting of initial response for recommendation by USACE RE in RMS, coordination with USACE Engineering staff for responses to RFIs and submittals, and onsite logging and tracking of submittals, RFIs, shop drawings, and serial letters, using RMS.
- Developed agendas and assisted in conducting preparatory meetings, progress meetings, and field resolution meetings between USACE and the contractor. Provided detailed meeting minutes for all meetings in which our CPS staff participated.
- Provided lead project engineer overseeing all construction, including rock blasting, Ogee Weir construction, spillway improvements, highway bridge and embankment erosion control placement, levee improvements, installation of seepage control measures, and onsite QA inspections for other improvements being constructed as part of the project.
- Provided lead project engineer overseeing all construction, including rock blasting, ogee weir construction, spillway improvements, highway bridge and embankment erosion control placement, levee improvements, installation of seepage control measures, and onsite QA inspections for other improvements being constructed as part of the project



PROJECT DETAILS

CLIENT
USACE - Sacramento District

TOTAL PROJECT COST
\$31.8M

HDR CM FEE
\$2.2M

REFERENCE
Greg Sokolis, Program Manager
P: 916.557.7341
E: greg.e.sokolis@usace.army.mil

CONTROL OF COSTS
Construction costs were controlled through proactive review of RFIs, submittals, field issues, and construction methods, allowing potential changes and claims to be addressed before affecting project budget.

QUALITY OF WORK
Provided full-time onsite QA inspections covering rock anchors, blasting, excavation, concrete placement, rip-rap installation, and seepage control measures to confirm compliance with contract requirements.

ABILITY TO MEET SCHEDULE
By serving as USACE's onsite representative and coordinating contractor activities, meetings, and field resolutions, HDR helped maintain construction momentum on this remote and resource-constrained project.



RELEVANT SCOPE ELEMENTS			
Delivery & Coordination	Heavy Civil & Structures	Dam & Site Complexity	Risk & Constraints
✓ Submittal/RFI management ✓ RMS document tracking ✓ Progress and field meetings	✓ Ogee weir construction ✓ Rock anchors and blasting ✓ Concrete and riprap inspection ✓ Seepage/levee improvements	✓ Remote dam safety site ✓ Spillway upgrades ✓ Higher lake elevation work ✓ Field resident support ✓ Significant temporary diversion berm	✓ Remote-site construction safety coordination ✓ Rock blasting QA ✓ Seepage control risks ✓ High fire risk area relevance

Lake Hodges Dam, located on the San Dieguito River near Escondido, California, impounds Lake Hodges Reservoir. The dam structure consists of 23 reinforced concrete arches supported by 25 concrete buttresses. When full, the reservoir has 1,234 surface acres, a maximum water depth of 115 feet, and 27 shoreline miles. It is one of nine local reservoirs that play a key role in San Diego County’s water supply. More than 100 years old, the dam is at the end of its useful service life.

The DSOD performed inspections of Lake Hodges Dam and provided maintenance and repair recommendations in 2019. In 2022, the City retained HDR for further detailed inspection of the dam surfaces; Bridge Diagnostics, Inc. (BDI) and Underwater Resources, Inc. (URI) provided nondestructive evaluation and performed an underwater investigation to locate defects.

HDR has performed construction inspection and QA supporting the City resident engineer on the Lake Hodges Dam Emergency Repairs, providing continuous field presence under an accelerated schedule to support safe and efficient execution of critical repairs.

Our team delivered daily construction inspections, detailed field documentation, and real-time coordination with the City and contractors, verifying work was completed in compliance with DSOD requirements and design intent.

These efforts included specialized inspection methods such as rope access and underwater evaluations to observe repairs in complex and difficult-to-access areas, while supporting submittal and RFI reviews and validating completed work through post-construction observations. This hands-on inspection experience directly translates to Santiago Creek Dam, where proactive field oversight, specialized access methods, and rigorous QA will be essential to safely deliver complex construction.



PROJECT DETAILS

CLIENT
City of San Diego

TOTAL PROJECT COST
\$10M

HDR CM FEE
\$2.8M

REFERENCE
Carolina Delgado, PE
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CONTROL OF COSTS

HDR together with Kleinfelder minimized cost impacts through continuous field oversight, timely resolution of construction issues, and coordinated management of contractor submittals and RFIs during emergency repair operations.

ABILITY TO MEET SCHEDULE

Working under an accelerated repair schedule, HDR and Kleinfelder maintained a constant onsite presence and real-time coordination with City staff and contractors to support efficient execution of critical dam repairs.

QUALITY OF WORK

We delivered rigorous quality assurance through daily inspections, detailed documentation, rope-access inspections, underwater evaluations, and verification that all repairs complied with DSOD requirements and design intent.

RELEVANT SCOPE ELEMENTS

Delivery & Coordination

- ✓ Quick team mobilization
- ✓ Daily inspection reports
- ✓ Submittal/RFI support
- ✓ DSOD coordination

Heavy Civil & Structures

- ✓ Rope-access inspection
- ✓ Underwater evaluations
- ✓ Post-repair verification

Dam & Site Complexity

- ✓ 100+ year-old dam
- ✓ Emergency repair work
- ✓ Difficult access areas
- ✓ Active DSOD oversight

Risk & Constraints

- ✓ Accelerated repair schedule while maintaining safety
- ✓ Aging infrastructure risks
- ✓ Underwater work constraints
- ✓ High fire risk area relevance

60

Irvine Ranch Water District | CM Services for the Santiago Creek Dam 94

San Vicente Dam Raise

San Diego County Water Authority | Lakeside, CA



HDR and Kleinfelder provided construction support efforts for the San Vicente Dam Raise Project, a cornerstone of the San Diego County Water Authority’s Emergency Storage Program, which raised the existing concrete gravity dam by approximately 118 feet and increased reservoir storage by approximately 152,000 acre-feet. The project represented the largest dam raise in the United States constructed using RCC methods and included construction of a new spillway, outlet tower, intake structures, and extensive foundation preparation and excavation within the existing dam footprint.

As part of the construction management team, Kleinfelder provided final design reviews at the 60% and 90% stages, construction oversight, and comprehensive quality assurance and inspection services for the dam raise and appurtenant facilities. Kleinfelder served as the resident geotechnical engineer and supported construction of access roads, slope stabilization, and large-scale earthwork operations, including rock anchor installation and verification. During dam construction, Kleinfelder provided RCC mix verification, construction observation, change-order support, and schedule monitoring, while operating a full-time, on-site materials testing laboratory staffed around the clock to support continuous construction activities and real-time reporting.

The project required coordination across multiple disciplines and stakeholders to manage large-scale RCC placement, foundation treatment, and modifications to existing infrastructure under active regulatory oversight.

Continuous quality control and timely verification of materials testing results were critical to maintaining production and guidance compliance with design criteria.

The team’s real-time data reporting and on-site laboratory capabilities enabled rapid response to construction conditions and supported informed decision-making during critical phases of the work.

Key construction challenges included maintaining consistent RCC quality during continuous placement operations, coordinating large-scale excavation and foundation preparation within the existing dam footprint, and managing real-time quality verification to meet strict regulatory and performance requirements. To address these challenges, the team implemented around-the-clock materials testing supported by an on-site laboratory, enabling immediate verification of RCC properties and rapid response to field conditions. Close coordination between design advisors, construction management, and field inspection teams supported timely adjustments to construction approaches, improved constructability, and maintained compliance with design criteria and regulatory expectations.

Through integrated design support and construction-phase services, HDR and Kleinfelder delivered a coordinated approach that emphasized constructability, quality, and risk management, resulting in reduced risk and greater schedule and cost certainty for this critical water supply infrastructure project.



PROJECT DETAILS

CLIENT
San Diego County Water Authority

TOTAL PROJECT COST
\$416M

CM FEE
\$5M+

REFERENCE
Jim Zhou, Project Manager
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E: jzhou@sdewa.org

CONTROL OF COSTS
HDR and Kleinfelder improved cost certainty through constructability reviews, change-order support, real-time materials testing, and proactive issue resolution that reduced construction risks before they affected project costs.

QUALITY OF WORK
An onsite laboratory operating around the clock, combined with RCC mix verification, geotechnical oversight, and continuous inspection services, supported compliance with stringent design and regulatory requirements.

ABILITY TO MEET SCHEDULE
HDR maintained schedule certainty by providing real-time reporting, immediate verification of materials testing results, and close coordination among designers, inspectors, and construction teams during continuous RCC placement operations.



RELEVANT SCOPE ELEMENTS			
Delivery & Coordination ✓ CM and QA support ✓ Owner/designer/contractor coordination ✓ Schedule monitoring ✓ 24/7 onsite lab support	Heavy Civil & Structures ✓ New spillway/outlet tower/intakes ✓ Foundation excavation/treatment ✓ Rock anchor verification	Dam & Site Complexity ✓ Active dam footprint ✓ Continuous RCC placement ✓ Major appurtenant facilities ✓ DSOD oversight	Risk & Constraints ✓ RCC quality control ✓ Foundation/geotechnical risk ✓ Real-time test reporting ✓ High fire risk area relevance



Northern California
American Public
Works Association
Project of the Year.



PROJECT DETAILS

CLIENT
San Francisco Public Utilities Commission

TOTAL PROJECT COST
\$290M

HDR CM FEE
\$20M

REFERENCE
Jim Wang, Project Construction Manager
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Lower Crystal Springs Dam and Transmission System Upgrades Improvements

San Francisco Public Utilities Commission (SFPUC) | San Mateo, CA

HDR provided construction management and inspection services for award-winning improvements to the Lower Crystal Springs Dam, satisfying a DSOD mandate to pass the probable maximum flood and restoring approximately 3 billion gallons of lost storage capacity in the Crystal Springs Reservoir System. Improvements included raising the parapet wall to 302 feet, widening the spillway from 88 to 208 feet, replacing the timber stop-log weir with a concrete ogee weir, constructing a new 150-by-105-foot reinforced concrete stilling basin, upgrading the 48- to 72-inch water transmission pipeline, constructing a new 180 mgd Crystal Springs Pumping Station, and building a 4,200-foot tunnel bypass with shafts up to 160 feet deep.

Managing Weather and Geotechnical Conditions

Extreme wet weather and unforeseen geotechnical conditions related to rock drilling and soil nail construction created a 65-day impact to the contract completion date. The construction management team and contractor collaborated to identify sequencing adjustments and accelerate critical path work to recover the schedule. Regulatory permit requirements called for a “dry” work area, making water flow management in the San Mateo Creek location a significant challenge. The team devised plans to capture water entering the work area while maintaining adequate downstream flow for special-status fish and other wildlife.

Minimizing Impacts to Historic Resources and Coordination

Two previously unknown historic resources were discovered during stilling basin excavation. The construction team rapidly completed field documentation, coordinated with agency representatives, and prepared reports so construction could proceed without delay. The stilling basin was immediately adjacent to the Crystal Springs Pumping Station, accessed via a single-lane driveway, requiring close coordination between the two projects. Concrete pours for the stilling basin required 170 continuous cement trucks per major pour, demanding precise planning. Removal of San Mateo County’s Skyline Boulevard Bridge over the dam required careful coordination between San Francisco and San Mateo County construction crews. New parapet wall construction involved concrete cable sawing and extensive anchor rod drilling into the existing dam to provide structural continuity.

Meeting Schedule

The project carried a 14-month construction schedule, with the majority of work performed between April and November due to environmental and operational constraints. Ponding on top of the existing dam had created habitat for the California Red-Legged Frog, delaying physical construction until April, while operational requirements called for all work to be complete by November to provide winter storage capacity.

CONTROL OF COSTS

Cost impacts were minimized by rapidly addressing unforeseen geotechnical conditions, historic-resource discoveries, and complex coordination challenges through collaborative construction planning and sequencing adjustments.

QUALITY OF WORK

High-quality construction was maintained through comprehensive CM and inspection services across major civil, structural, tunnel, pumping station, spillway, and transmission system improvements.

ABILITY TO MEET SCHEDULE

Despite weather delays, environmental restrictions, and a constrained work window, HDR worked with the contractor to recover schedule and complete critical construction activities necessary to restore winter reservoir operations.

RELEVANT SCOPE ELEMENTS



Delivery & Coordination

- ✓ CM and inspection services
- ✓ Multiple concurrent packages
- ✓ Agency/contractor coordination
- ✓ Schedule recovery planning



Heavy Civil & Structures

- ✓ Spillway widening
- ✓ Stilling basin construction
- ✓ Tunnel and shafts
- ✓ Pipeline/pump station upgrades



Dam & Site Complexity

- ✓ Operational reservoir system
- ✓ Strict environmental windows
- ✓ Adjacent project interfaces
- ✓ Limited access work



Risk & Constraints

- ✓ Safety oversight of deep excavation, shaft, and tunnel construction
- ✓ 65-day impact recovered
- ✓ Unforeseen geotechnical conditions on the San Andreas Fault
- ✓ Historic resource discoveries
- ✓ Dry work area constraints

Pyramid Dam Service and Emergency Spillway Investigations

California Department of Water Resources | Los Angeles County, CA



Following the Oroville Dam spillway incident, HDR provided extensive construction-phase support, inspection, and field management services for the Pyramid Dam Modernization Program. Working as an extension of the California Department of Water Resources (DWR), HDR planned, managed, and executed a series of complex field investigations that served as the foundation for future spillway rehabilitation and dam safety improvements. Services included structural and geotechnical inspections, non-destructive evaluation (NDE), foundation investigations, construction access planning, contractor coordination, instrumentation installation oversight, and on-site field management in challenging terrain requiring rope-access techniques, movable scaffolding, and helicopter-supported operations. HDR managed multiple specialty contractors and coordinated daily field activities while maintaining compliance with safety, environmental, and regulatory requirements.

As DWR expanded the modernization program, HDR provided quality assurance for drilling, coring, foundation exploration, permeability testing, instrumentation installation, and spillway access improvements. The team supported more than 450 helicopter flights, managed a nearly 200-day field program, and oversaw the execution of 41 subsurface borings while supporting schedule management, contractor coordination, field documentation, and risk mitigation activities. Throughout the program, HDR’s inspectors, engineers, and geologists maintained continuous field presence, verified contractor work quality, documented site conditions, and provided real-time technical support to DWR to support informed construction decisions and advance future spillway rehabilitation effort



PROJECT DETAILS

CLIENT
California Department of Water Resources

TOTAL PROJECT COST
\$180M

HDR CM FEE
\$17M

REFERENCE
David Sarkisian
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CONTROL OF COSTS

Construction cost risks were reduced by identifying geologic, hydraulic, and foundation challenges early in the project lifecycle, allowing DWR to streamline construction approaches and avoid costly field changes during implementation.

ABILITY TO MEET SCHEDULE

Through effective management of complex field investigations and accelerated delivery of technical findings, HDR provided the information required to keep construction activities on schedule.

QUALITY OF WORK

HDR’s detailed investigations and engineering evaluations provided the technical foundation necessary to support high-quality construction and long-term spillway performance.

RELEVANT SCOPE ELEMENTS

Delivery & Coordination	Heavy Civil & Structures	Dam & Site Complexity	Risk & Constraints
✓ Specialty contractor coordination ✓ Helicopter logistics ✓ Onsite field management	✓ Structural/NDE inspections ✓ Underdrain camera inspections ✓ Coring and borings ✓ Instrumentation support	✓ Concrete and unlined spillways ✓ Steep spillway slopes ✓ Rope-access work ✓ 450+ helicopter flights	✓ Difficult access logistics ✓ Foundation uncertainty reduction ✓ Environmental/safety constraints ✓ High fire risk area relevance

In 2019, LaPrele Irrigation District noticed major cracks in the 135-foot-high Ambursen-style LaPrele Dam, built in 1909 in Converse County, near Douglas, Wyoming. During construction of the LaPrele Dam replacement, HDR is serving as the Construction Manager within a Construction Manager at Risk (CMAR) delivery framework, providing integrated field and project-level oversight to guide the transition from emergency demolition through construction of the new RCC dam. Building on our lead role in planning and executing the accelerated removal of the existing dam, HDR is actively coordinating with the contractor, owner, and regulatory agencies to manage construction sequencing, contractor means and methods, and overall project execution. Our team is responsible for constructability oversight, schedule and cost control, and real-time risk management confirming that critical decisions are informed by both design intent and field conditions. Through this role, HDR is helping to maintain safety, regulatory compliance, and schedule certainty while advancing construction of the new facility, providing the owner with a single point of accountability across demolition, design integration, and construction delivery.

While advancing the design of a replacement dam, the project team installed crack gauges and performed additional inspections on the dam.

In August 2024, the crack meters triggered an alarm indicating movement of the cracks, and a subsequent inspection revealed changing and alarming conditions of the dam. The SEO issued an order on November 1, 2024, to have the dam demolished by April 1, 2025, in advance of spring runoff. What followed was an extraordinary, all-hands-on-deck effort to plan, permit, and design the dam’s demolition within 8 weeks.

This required collaboration, creativity, and flexibility from all stakeholders and regulatory and permitting agencies involved.

Big Sky Civil Constructors and Montana Civil Constructors Joint Venture were awarded the contract and completed dam demolition in compliance with the breach order. HDR (OE) and RESPEC (OA) are under contract to complete final design of the new RCC Dam. Construction of the new dam began in March 2026.

This is a successful project that involves the end of an aging dam and the emergency effort to protect the downstream public, design a demolition that reduced the risks of sediment washing downstream, and navigate environmental permitting and public outreach under a shortened time frame, while also recognizing the critical importance of reestablishing a new reservoir that is critical for the local economy.



PROJECT DETAILS

**CLIENT**
Wyoming Water Development Office

**TOTAL PROJECT COST**
\$12.6M

**HDR CM FEE**
Ongoing

**REFERENCE**
Jeff Kaiser, Project Manager
P: 307.777.7626
E: jeffrey.kaiser@wyo.gov

CONTROL OF COSTS
As Construction Manager under a CMAR delivery model, HDR is providing proactive cost control through constructability reviews, evaluation of contractor means and methods, risk-based decision-making, and close coordination among the owner, designer, contractor, and regulatory agencies, minimizing costly changes and maintaining budget certainty throughout demolition and reconstruction.

QUALITY OF WORK
HDR is maintaining quality through continuous construction oversight, field verification, regulatory coordination, and adherence to design intent, confirming demolition and RCC dam construction activities are completed safely and in accordance with project requirements and dam

safety standards.

ABILITY TO MEET SCHEDULE
HDR successfully led the accelerated planning, permitting, and demolition effort required to meet the State Engineer’s emergency breach order and continues to provide schedule management, construction sequencing oversight, and real-time issue resolution to advance construction of the replacement dam while maintaining schedule certainty.



RELEVANT SCOPE ELEMENTS			
 Delivery & Coordination	 Heavy Civil & Structures	 Dam & Site Complexity	 Risk & Constraints
✓ CMAR construction manager ✓ Owner/contractor/designer coordination ✓ Sequencing and schedule control ✓ Single-point accountability	✓ Emergency dam demolition ✓ Replacement RCC dam ✓ Water conveyance improvements ✓ Civil/structural oversight	✓ Emergency-to-reconstruction transition ✓ Aging dam removal ✓ New RCC facility ✓ Active regulatory coordination ✓ Significant temporary diversion berm	✓ Reduced downstream public-safety risks ✓ State Engineer deadline ✓ 8-week demolition planning ✓ Sediment/downstream protection ✓ High fire risk area relevance

Sacramento Weir Widening

USACE - Sacramento District | Yolo County, CA



This project is a \$320 million component of the larger USACE American River Common Features (ARCF) Project, which expands flood capacity across the American River and proximal Sacramento River areas by increasing Folsom Dam’s operational capacity, strengthening levees, providing erosion protection, and improving floodway conveyance. Key improvements include a new fixed crest weir north of the existing Sacramento Weir, a 1,500-foot widening of the Sacramento Bypass, approximately 2,700 feet of new levee, a fish passage structure, and a bridge structure. The project comprises six major elements: passive weir, road/bridge, north levee setback, fish passage structure, bypass transport channel, and railroad embankment removal.

Structural Inspections | HDR provided structural and foundation inspections for fish passage features, including debris walls, transition structures, a fish passage ladder, and fish passage channel. HDR inspected roller-type vertical lift gates sized at approximately 16 feet wide with gate leafs ranging from 10 to 14 feet in height.

Structural design supported performance under flood conditions and integration with levee tie-ins and channel geometry.

Geotechnical Inspections | HDR provided geotechnical foundation inspections for the debris wall, transition structure, fish passage ladder, and fish passage channel using 20-inch diameter concrete-filled steel pipe piles driven to end bearing in dense sand, designed to resist high lateral loads and seismic liquefaction-induced drag forces.

Geotechnical evaluations included slope stability and settlement analysis of the central embankment and fish passage channel slopes, with phased construction incorporated into the construction documents to limit post-construction settlement.

Civil Inspections | HDR provided civil inspections for the project, working closely with USACE Design Leads to implement plan and specification packages covering utility relocations, transportation, drainage, levee, erosion control, an 8,500-foot-long bypass transport channel, and additional elements.

The team provided construction sequencing, scheduling, a materials handling plan, and utility relocation support, and participated in Risk Cadres with USACE to evaluate risks associated with the proposed improvements.

HDR’s team is providing USACE with submittal and RFI support, O&M Manual support, and geotechnical, civil, and structural site inspections/observations. The team is providing data management services in support of USACE’s national construction data management initiative, including development of a GIS-based database schema that geospatially references soil lab tests, pipe piles, load testing, concrete, asphalt, and mass soil mixing data. These integrated sources configure dashboards, 2D and 3D web maps, field reports, and other elements as part of a comprehensive DMS for construction and engineering staff.



PROJECT DETAILS

CLIENT
USACE - Sacramento District

TOTAL PROJECT COST
\$320M

HDR CM FEE
\$6.7M (ongoing)

REFERENCE
William Hall
P: 916.557.6646
E: William.Hall@usace.army.mil

CONTROL OF COSTS

Cost control was supported through proactive risk evaluation, construction sequencing, utility coordination, data-driven decision-making, and early resolution of design and construction issues.

QUALITY OF WORK

Quality assurance was delivered through structural, geotechnical, and civil inspections covering foundations, fish passage facilities, levees, utility improvements, and critical flood-control infrastructure.

ABILITY TO MEET SCHEDULE

By providing submittal support, RFI management, scheduling assistance, and integrated construction data management tools, HDR helps maintain efficient project execution across multiple concurrent construction elements.



RELEVANT SCOPE ELEMENTS			
Delivery & Coordination	Heavy Civil & Structures	Dam & Site Complexity	Risk & Constraints
✓ Utility relocation coordination ✓ Submittal/RFI support ✓ GIS-based DMS tools	✓ Fish passage structures ✓ Levee and bridge work ✓ Pipe pile inspections ✓ Bypass channel construction	✓ \$320M flood-risk component ✓ Massive earthwork operation ✓ Phased settlement control ✓ Flood-condition performance	✓ Managed work-zone safety major excavations and haul routes ✓ USACE Risk Cadres ✓ Seismic foundation risk ✓ Utility conflicts ✓ High fire risk area relevance

Lower Baker Dam Seepage Reduction Project

Puget Sound Energy (PSE) | Concrete, WA



Lower Baker Dam is a 285-foot-tall arch dam located on the Baker River near Concrete, Washington, impounding Lake Shannon. Over time, foundation leakage progressively removed joint filling from the rock in both abutments, resulting in approximately 180 to 200 cubic feet per second of seepage through the foundation and creating a significant dam safety concern. To address these conditions, PSE implemented the Lower Baker Dam Seepage Reduction Project and retained HDR as the Owner’s Agent to provide comprehensive construction management support for this technically complex dam remediation effort. The project involved constructing a specialized work platform along the dam face and installing approximately 300 grout holes across three grout lines to reduce seepage and improve foundation performance.

HDR provided construction management and quality assurance services throughout construction, including contract administration, schedule oversight, change management, quantity verification, field observation, submittal coordination, pay estimate review, and monitoring compliance with contract requirements.

Our team maintained continuous coordination between PSE and the contractor team, reviewed work plans and test results, monitored as-built documentation, investigated safety incidents, and supported safe execution of work in challenging field conditions. Construction activities required innovative access solutions, including movable drilling platforms, mixed-gas diving operations, underwater surveys, and 3D modeling to support fabrication and installation planning while minimizing impacts to dam operations.

The project successfully eliminated nearly all visible downstream seepage, reducing flow from approximately 180 to 200 cfs before construction to 0 to 2 cfs following completion. Through proactive construction oversight, coordination of complex contractor operations, rigorous quality assurance, and careful management of dam safety risks, HDR helped deliver a successful seepage remediation program while maintaining ongoing facility operations. This experience directly translates to Santiago Dam, where disciplined construction management, contractor coordination, safety leadership, and comprehensive quality oversight will be critical to executing complex dam improvement work safely and efficiently.



PROJECT DETAILS

- CLIENT**
Puget Sound Energy
- TOTAL PROJECT COST**
\$250M
- HDR CM FEE**
\$8.8M
- REFERENCE**
John Bickford
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E: john.bickford@pse.com

CONTROL OF COSTS

Costs were controlled by verifying quantities for approximately 300 grout holes across three grout lines, reviewing pay estimates and change requests, and actively managing contractor work plans to reduce change exposure during complex construction phases.

QUALITY OF WORK

Quality was maintained by providing continuous CM and QA oversight of the seepage reduction program, including review of grout work plans, test results, as-built documentation, field observations, and compliance with contract requirements.

ABILITY TO MEET SCHEDULE

HDR supported schedule performance by coordinating PSE and FERC, the contractor, and specialty operations including movable drilling platforms, underwater surveys, mixed-gas diving, and 3D modeling to ongoing dam operations.

RELEVANT SCOPE ELEMENTS

Delivery & Coordination	Heavy Civil & Structures	Dam & Site Complexity	Risk & Constraints
✓ Served as Owner’s Agent / CM Lead ✓ Performed contract administration, schedule oversight, change management, pay estimate review, quantity verification, and compliance monitoring ✓ Reviewed contractor work plans, test results, submittals, and as-built documentation ✓ Coordinated owner, contractor, drilling, diving, underwater survey, specialty access, and field teams	✓ Oversaw approximately 300 grout holes across three grout lines for dam foundation seepage reduction ✓ Provided CM/QA oversight for foundation grouting to address leakage through both abutments ✓ Supported specialized dam-face work platforms, movable drilling platforms, underwater surveys, mixed-gas diving operations, and 3D-model-supported fabrication and installation planning ✓ Verified quality-critical construction involving dam-face drilling, foundation grouting, underwater support, and as-built documentation	✓ Managed CM/QA on a 285-foot-tall operating arch dam, needing to maintain dam and spillway functionality through phased construction and wet-season transitions. ✓ Addressed significant foundation leakage through both abutments, a high-consequence dam safety condition ✓ Managed difficult-access work requiring dam-face platforms, movable drilling platforms, underwater surveys, and mixed-gas diving ✓ Integrated access, safety, QA, contractor operations, and dam operations	✓ Managed dam safety risk associated with foundation seepage of approximately 180–200 cfs ✓ Provided work plan review, schedule oversight, quantity verification, change management, field observation, and monitoring for FERC compliance ✓ Supported high-risk work involving dam-face access, drilling platforms, underwater surveys, mixed-gas diving, and difficult field conditions ✓ Helped reduce visible downstream seepage from approximately 180–200 cfs to 0–2 cfs



B-66

6 | Schedule



Project Schedule

HDR developed the following conceptual schedule to estimate level of effort for our CMT. Development of the schedule required an understanding of project phasing, constraints around wet and dry season, constraints related to the project site and potential opportunities to reduce or eliminate roadblocks.

Approach to Level of Effort

The HDR team's proposed staffing levels are provided by phase in the following section. Our Resident Engineer, Jim Lorenzen, has created a conceptual construction schedule identifying the major construction activities, and this was used to detail the quantity and type of inspectors needed for each construction season. The proposed staffing levels are based on the overall project schedule and seasonal constraints shown in the RFP with assumptions made on the contractor's work activities. HDR's approach to effectively managing the staffing levels for each phase of the project is described below.

The percentage allocation by staff and phase is provided in the Budget Summary section and is aligned with the corresponding level of effort for each phase.

Leverage Final Design Phase Services to Strengthen Project Delivery

The success of the Santiago Creek Dam Improvement Project requires the contractor to deliver a quality project on time and on budget. We value the opportunity during the pre-construction phase to actively participate in the Dam Safety Risk Workshop and to work with the designer and IRWD to improve the quality of the construction documents and provide measures to effectively address anticipated construction changes. Our proposed Dam Safety Risk Workshop will be led by our CM, Brian Hollis. The HDR team participants are experienced with developing Dam Safety Risks as well as direct experience with the California DSOD.

The staffing plan for constructability review includes team members with significant skill in dam design and construction. Brian Hollis' experience as the owner and construction manager on multiple dam projects brings a thorough understanding of what issues are expected and how to effectively address them. An example of this would be to include unit prices bid items and/or allowances on the contractor bid sheet to facilitate changes where likely.

HDR will use this period before construction to prepare for the contractor notice to proceed. Critical project documents like the CMP and Health and Safety Plan will be prepared prior to contractor mobilization. The onsite materials testing lab will also be mobilized and prepared during the month before contractor start, allowing for a contractor quick start. Conformed documents will be reviewed and uploaded to the Procore system in preparation for effective contract management.

Identify and Respond to Project Issues

Not all unforeseen issues can be addressed in the contract documents, and changes must be anticipated. Resolving

issues quickly will keep the project on schedule and reduce the potential for claims. A key partnering tool is the establishment of an issue resolution ladder. The HDR team will actively use this tool to resolve project issues quickly. The structure of our construction management team includes Nate Gavzy, whose focus will emphasize resolving issues through formal contract changes. Senior Advisors will be available as-needed to address potential construction or dam risk issues. Our staffing plan includes time for tracking and seasonal reviews of Construction Dam Safety Risks to evaluate the contractor's ability to meet the critical milestones and to further address changes as the construction progresses. Early identification

Emphasize Construction Schedule Development and Use It to Adjust Staffing Plans

The cost of construction management services is directly tied to the contractor's schedule. Matt White will work with the contractor immediately after award to focus on getting a quality Baseline Construction Schedule. A well-established critical path allows for the identification and priority processing of critical submittals and RFIs, keeping the contractor moving forward. Our team will enforce the contract requirements for baseline and monthly schedule updates, which will be critical to keeping the contractor on schedule. A quality schedule will allow for effective staff planning. Brian Hollis and Chief Inspector Bob Frazer will use the schedules to plan inspector staffing levels to efficiently staff the project and maintain quality assurance oversight.

Plan for Seasonal Staffing Level Changes

The existing dam and spillway must remain functional throughout each wet season. This will limit the contractor's activities during the wet seasons from November 15 to April 15 each year, with the expectation that the contractor will be working 20-hour workdays, 6 days a week, during the dry seasons. The HDR team will reduce staffing hours during the wet season on both the inspection and construction management efforts. This will keep the construction management staffing commensurate with the contractor's level of effort and save IRWD construction management costs.

Keep IRWD Informed

The detailed staffing plan allows for the monthly review of the CM team's actual costs against expected costs. Monthly, Randy Lovan will provide an updated staffing plan worksheet and communicate with IRWD on recommended adjustments in future staffing levels based on the actual construction schedule. This variance analysis, along with the actual contractor schedule, will allow for a clear understanding of the HDR team's anticipated cost to complete the project. IRWD will be well informed with no surprises on project status.

Staffing Summary

The HDR team developed a conceptual schedule based on the sequencing shown on the 90% documents with significant activities added. The schedule was developed using rough quantity takeoffs and estimated contractor production, given those quantities and the project constraints around dam

safety, dry and wet seasons, and site access to the various features of work. This conceptual schedule was utilized to develop the proposed inspection level of effort.

QA Level of Effort by Season

Phase 0 Dry

This work, primarily setting up staging, access, and dewatering, is assumed to be single shift operations, 6 days/ week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

- **Lead Inspector:** Inspection and Testing Coordination, Main Staging Area, Borrow Sites, SWPPP/MMRP
- **Civil Inspector:** Primary Access/Haul Road, Temporary Diversion Berm, Lakeside Gravity Pipelines, Lakeside Dewatering (dead pool and wells/sumps), Outlet Tower Demolition to top of Sediment
- **Civil Inspector:** Secondary Staging Area, RCC Batch Plant, 42” Isolation Valve, Stilling Basin Dewatering, Downstream Gravity Outfall, Hazmat Abatement/Demo
- **Civil/Geotechnical Inspector:** OCWR Access Road, Rock Anchor Wall
- **Mechanical/Electrical Inspector (Part Time):** Barge Pumps, Filters, Outfalls

During this phase the work areas are isolated from each other until the main access road can be fully established, with different access points. This assumes limited access through Irvine Regional Park to begin the work downstream of the dam to set up for follow-on work. There is opportunity to begin excavation of the Stilling Basin and lower Spillway in this phase, if access is approved for the equipment needed for that work.

Phase 0 Wet

This work is focused on the Stilling Basin and the Rock Anchor Wall and is assumed to be single shift operations, 6 days/ week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP
- **Civil/Geotechnical Inspector:** Stilling Basin Excavation, Foundation Preparation and Anchors
- **Civil/Concrete Inspector:** Stilling Basin Invert Form, Pour, Strip & Finish
- **Civil/Concrete Inspector:** Stilling Basin Pump Out Vault, Emergency Outlet Structure, Form, Pour, Strip & Finish
- **Civil/Geotechnical Inspector:** Rock Anchor Wall
- **Mechanical/Electrical Inspector (Part Time):** ILP Pipeline, Emergency Outlet Structure, Stilling Basin Pump Out Vault

During this phase the rock anchor wall is isolated from the stilling basin area. The Stilling Basin Invert pours are expected to be early morning pours to reduce risk of traffic impacts between the batch plant and site, and will be fairly regular.

The vault and outfall will require deep excavations, possibly shoring, and have significant blockouts and embeds; therefore, two inspectors were utilized for the concrete operations. The contractor may propose extending the excavation further into the spillway above the stilling basin. It would be good to understand the excavation limits in advance as related to dam/ spillway risk.

Phase 1 Dry

This work continues to be focused on the Stilling Basin and is assumed to be double shift operations, 6 days/week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

SHIFT 1

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP, Temp Gravity Outfall
- **RCC Inspector:** Stilling Basin Walls
- **Civil/Geotechnical Inspector:** I/O Structure Excavation, Foundation Preparation and Anchors
- **Civil/Concrete Inspector:** I/O Structure Form, Pour, Strip & Finish
- **Mechanical/Electrical Inspector (Part Time):** I/O Structure

SHIFT 2

- **Lead Inspector:** Inspection and Testing Coordination
- **RCC Inspector:** Stilling Basin Walls

During this phase the I/O structure is away from the stilling basin area. The majority of the work is expected to be single shift, with RCC being double shift. If the contractor has gained approval to excavate the spillway above the stilling basin, additional effort would be needed for anchors, foundation prep, drainage, and left tieback wall/invert.

Phase 1 Wet

This work continues to be focused on the Stilling Basin and I/O Structure and is assumed to be single shift operations, 6 days/ week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP, Access Paths, RSP Aprons, Lake Levels and Drawdown Operations
- **Civil/Concrete Inspector:** Stilling Basin Invert, Baffle Blocks Form, Pour, Strip & Finish
- **Civil/Concrete Inspector:** I/O Structure Form, Pour, Strip & Finish
- **Mechanical/Electrical Inspector (Part Time):** I/O Pipeline

During this phase the I/O structure is isolated from the stilling basin area. If the contractor has gained approval to excavate the spillway above the stilling basin, additional effort would be needed for anchors, foundation prep, drainage, and left tieback wall/invert/cantilever walls.

Phase 2 Dry

This work is focused on the Spillway above the Stilling Basin and is assumed to be double shift operations, 6 days/week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

SHIFT 1

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP
- **RCC Inspector:** Spillway Right Wall
- **Civil/Geotechnical Inspector:** Spillway Structure Excavation, Foundation Preparation and Anchors, Left Tieback Wall
- **Concrete Inspector:** Spillway Invert, Left Cantilever Wall, Left Tieback Wall Form, Pour, Strip & Finish

SHIFT 2

- **Lead Inspector:** Inspection and Testing Coordination
- **RCC Inspector:** Spillway Right Wall
- **Concrete Inspector:** Spillway Invert Form, Pour, Strip & Finish

During this phase, completing the RCC Support Block lakeside of the existing spillway would reduce the amount of work required in Phase 3 Dry.

Phase 2 Wet

This work continues to be focused on the Spillway and is assumed to be single shift operations, 6 days/week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP, Lake Levels and Drawdown Operations
- **Concrete Inspector:** Spillway Invert, Chute Blocks Form, Pour, Strip & Finish
- **Civil/Concrete Inspector:** I/O Structure Form, Pour, Strip & Finish

Phase 3 Dry

This work is focused on the Spillway and the Ogee and is assumed to be double shift operations, 6 days/week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

SHIFT 1

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP, Bridge and Spillway Demolition
- **RCC Inspector:** Spillway Right Wall
- **Civil/Geotechnical Inspector:** Left Tieback Wall, Spillway Excavation, Spillway Foundation Treatment
- **Civil/Geotechnical Inspector:** Spillway Anchors
- **Concrete Inspector:** Spillway Invert, Left Tieback Wall, Ogee Form, Pour, Strip & Finish
- **RCC Inspector:** RCC Support Block, Ogee

SHIFT 2

- **Lead Inspector:** Inspection and Testing Coordination
- **RCC Inspector:** RCC Support Block, Ogee
- **Concrete Inspector:** Spillway Invert, Ogee Form, Pour, Strip & Finish

Phase 3 Wet

This work is focused on the Access Bridge substructure, completing the I/O structure fish screens, gates, and connections, and is assumed to be single shift operations, 6 days/week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP, Lake Levels and Drawdown Operations
- **Concrete Inspector:** Vehicle Access Bridge Form, Pour, Strip & Finish
- **Mechanical Inspector:** I/O Structure
- **Electrical Inspector:** Site Electrical and Controls

Phase 4 Dry

This work is focused on the Dam Buttress and is assumed to be double shift operations, 6 days/week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

SHIFT 1

- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP, Borrow Site
- **2 Civil/Geotechnical Inspectors:** Dam Lakeside Liner Demo, Dam Excavation, Dam Embankment, Temporary Works Removal
- **Civil/Mechanical Inspector:** Aeration System, Irrigation System
- **Concrete Inspector:** Dam Face Panel Replacement

SHIFT 2

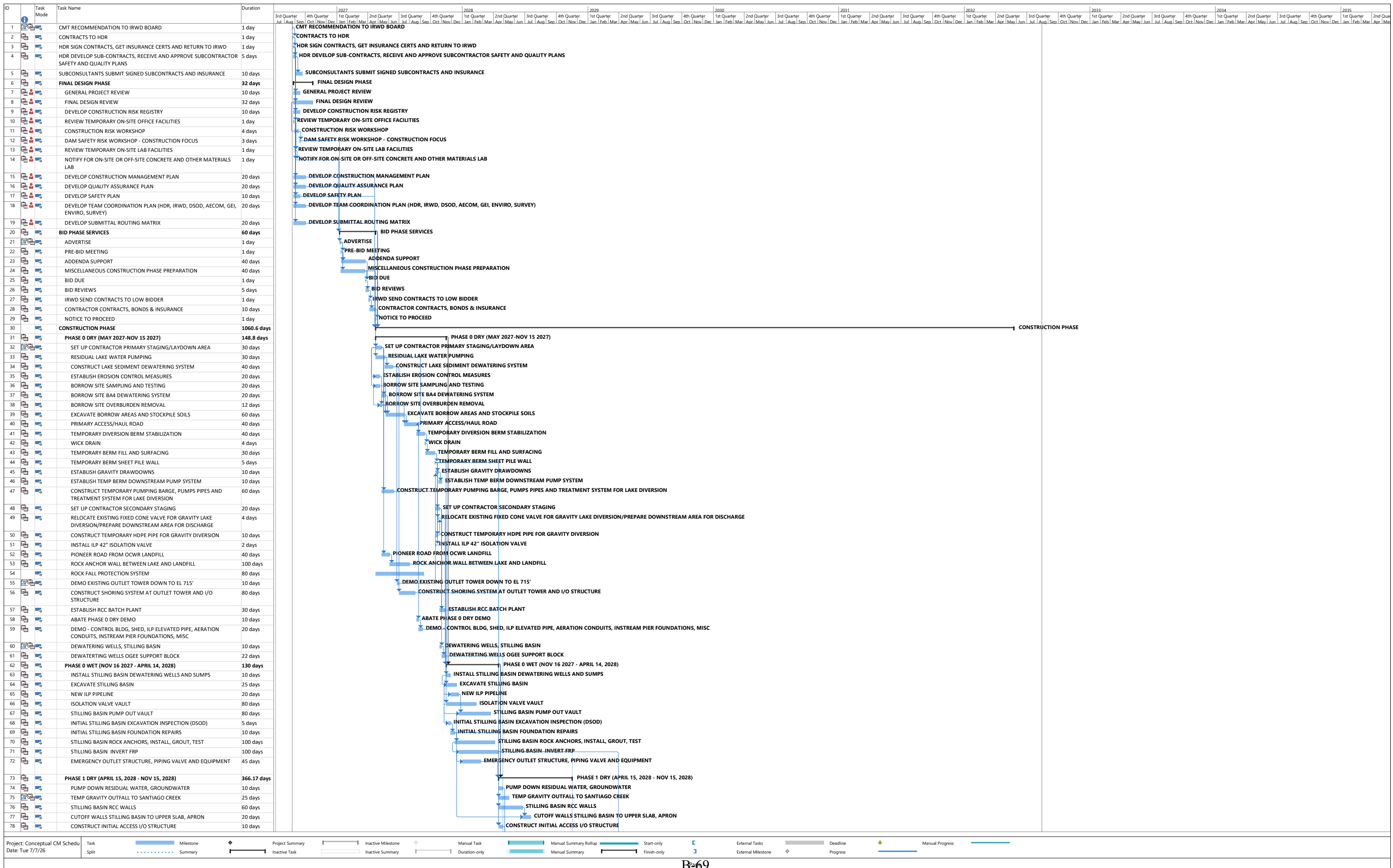
- **Lead Inspector:** Inspection and Testing Coordination, SWPPP/MMRP, Borrow Site
- **2 Civil/Geotechnical Inspectors:** Dam Excavation, Dam Embankment

Phase 4 Wet

This work is focused on remaining work and connections and is assumed to be single shift operations, 6 days/week. This phase is estimated to include inspectors as follows:

RESPONSIBILITIES

- **Structural Inspector:** Dam Control Building
- **Civil Inspector:** MSE Wall, Dam Crest Road, Vehicle Access Bridge Superstructure
- **Mechanical Inspector (Part Time):** Dam Control Building
- **Electrical Inspector (Part Time):** Site Electrical and Controls



7 | Budget



HDR has prepared the budget proposal in accordance with the requirements of the RFP and our understanding of the Santiago Creek Dam Improvement Project. The budget reflects the anticipated level of effort, staffing by project phase, subconsultant services, direct costs, billing rates, and not-to-exceed amounts necessary to provide comprehensive construction management services throughout design completion, construction, startup, and closeout. Consistent with the RFP requirements, the detailed fee proposal has been provided as a separate PDF and Excel attachments.



8 | Joint Venture

HDR Engineering, Inc. is not proposing as a joint venture for the Santiago Creek Dam Improvement Project. HDR will serve as the prime consultant and will be responsible for managing the full Construction Management Team, including all proposed subconsultants utilized to provide specialized services during the Project.



9 | Conflict of Interest



HDR confirms that, to the best of our knowledge, neither HDR nor its proposed team members and subconsultants have any personal or organizational conflicts of interest prohibited by law that would impair our ability to provide independent and objective Construction Management services for the Santiago Creek Dam Improvement Project.

HDR will comply with all applicable conflict-of-interest requirements and will promptly disclose to IRWD any actual, potential, or perceived conflict that may arise during procurement, negotiation, or performance of the work.

10 | Insurance



HDR Engineering, Inc. carries the insurance coverages required for the Santiago Creek Dam Improvement Project and has named IRWD, including its directors, officers, employees, and agents, as an additional insured. Coverage is provided on a primary and non-contributory basis, with a waiver of subrogation in favor of IRWD across all applicable policies. HDR will provide 30 days' notice to IRWD in the event of cancellation or material reduction in coverage.

Current coverage includes:

- **Commercial General Liability:** \$2,000,000 per occurrence/\$4,000,000 aggregate, with a Designated Construction Project aggregate limit
- **Automobile Liability:** \$2,000,000 combined single limit, covering any auto
- **Umbrella/Excess Liability:** \$5,000,000 per occurrence/\$5,000,000 aggregate, follow-form over General Liability, Auto Liability, and Employers Liability
- **Workers Compensation:** Statutory limits
- **Employers Liability:** \$1,000,000 per accident/\$1,000,000 per employee/\$1,000,000 policy limit

A Certificate of Liability Insurance evidencing these coverages is included on the following pages.



ACORD

CERTIFICATE OF LIABILITY INSURANCE

Page 1 of 4
DATE (MM/DD/YYYY)
06/26/2026

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

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

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

COVERAGES CERTIFICATE NUMBER: W46899208 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. LIMITS SHOWN ARE INCLUSIVE OF AMOUNTS REQUESTED BY THE CERTIFICATE HOLDER AND MAY NOT REFLECT POLICY LIMIT AMOUNTS IN EXCESS OF THOSE REQUESTED. *Not Applicable in WY

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WYD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR ☒ Contractual Liability GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☒ LOC OTHER:	Y	Y	TB2-641-444950-036	06/01/2026	06/01/2027	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	☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY	Y	Y	AS2-641-444950-046	06/01/2026	06/01/2027	COMBINED SINGLE LIMIT (Ea accident) \$ 2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
B	☒ UMBRELLA LIAB ☒ EXCESS LIAB DED ☒ RETENTION \$ 0	Y	Y	ED0(27)57919363	06/01/2026	06/01/2027	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N No	N/A	WA7-64D-444950-016	06/01/2026	06/01/2027	☒ PER STATUTE ☐ OTH-ER 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)
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 and as permitted by law. Umbrella/Excess policy is follow form over General Liability, Auto Liability and Employers Liability.

CERTIFICATE HOLDER Irvine Ranch Water District 15600 Sand Canyon Ave Irvine, CA 92618	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
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ACORD 25 (2025/12)

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BR ID: 30190981

BATCH: 4505479

HDR



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
6/1/2027 6/26/2026

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

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

PRODUCER Lockton Companies, LLC DBA Lockton Insurance Brokers, LLC in CA CA license #0F15767 444 W. 47th St., Ste. 900 Kansas City MO 64112-1906 (816) 960-9000 kcaru@lockton.com	CONTACT NAME: PHONE (A/C No. Ext): FAX (A/C No.): E-MAIL ADDRESS: INSURER(S) AFFORDING COVERAGE INSURER A: Lloyds of London INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:
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COVERAGES CERTIFICATE NUMBER: 23691497 REVISION NUMBER: XXXXXXXX

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 WYD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC OTHER:			NOT APPLICABLE			EACH OCCURRENCE \$ XXXXXXXX DAMAGE TO RENTED PREMISES (Ea occurrence) \$ XXXXXXXX MED EXP (Any one person) \$ XXXXXXXX PERSONAL & ADV INJURY \$ XXXXXXXX GENERAL AGGREGATE \$ XXXXXXXX PRODUCTS - COMP/OP AGG \$ XXXXXXXX
	☒ AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY			NOT APPLICABLE			COMBINED SINGLE LIMIT (Ea accident) \$ XXXXXXXX BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX
	☒ UMBRELLA LIAB ☒ EXCESS LIAB DED ☐ RETENTION \$			NOT APPLICABLE			EACH OCCURRENCE \$ XXXXXXXX AGGREGATE \$ XXXXXXXX
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N No	N/A	NOT APPLICABLE			PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$ XXXXXXXX E.L. DISEASE - EA EMPLOYEE \$ XXXXXXXX E.L. DISEASE - POLICY LIMIT \$ XXXXXXXX
A	ARCH & ENG PROFESSIONAL LIABILITY	N	N	P001412600	6/1/2026	6/1/2027	PER CLAIM: \$2,000,000 AGGREGATE: \$4,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
RE: CONSTRUCTION MANAGEMENT SERVICES FOR THE SANTIAGO CREEK DAM IMPROVEMENT PROJECT

CERTIFICATE HOLDER 23691497 IRVINE RANCH WATER DISTRICT 15600 SAND CANYON AVE IRVINE, CA 92618	CANCELLATION See Attachment 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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ACORD 25 (2016/03)

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11 | Contract

HDR takes no exceptions to the Sample Professional Services Agreement. If selected, HDR respectfully requests the opportunity to discuss certain contractual provisions during final contract negotiations.





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Irvine, CA 92602-1377

hdrinc.com

We practice increased use of sustainable materials
and reduction of material use.

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7 | Budget



7 | HDR's CMT Fee

CONSTRUCTION MANAGEMENT SERVICES - Level of Effort Estimate

Irvine Ranch Water District

Santiago Creek Dam Improvement Project - Construction Management

Fee Estimate Summary

BASIC SERVICES	Hours	Expenses	Total Fee
Final Design Phase	836	\$18,900	\$231,406
Bid Phase Services	2,056	\$70,700	\$576,078
Construction Phase	138,497	\$2,259,266	\$37,150,156
Training, Commissioning and Startup	992	\$0	\$242,412
Post Construction Services	616	\$13,850	\$170,400
	142,997	\$2,362,716	\$38,370,451
			Total \$38,371,000

Inspection and Commissioning Hours

The hours are estimates based on the information provided in the Request for Proposals. These hours are negotiable and will be refined after NTP and contractor provides project baseline schedule, and the contractor/CM support team requirements are further defined.

Expenses/Other Direct Costs/Markups

Reimbursable Expenses include: No markup on expenses. Expenses include housing costs for temporary relocated staff. HDR special service, short term travel expenses may include transportation, temporary housing or lodging, and meals. Inspectors and CM staff may use HDR vehicles with a \$1,450/month maximum per vehicle. CM Staff with vehicles include CM, PM, RE, QA, Asst. RE, Asst. RE Night, Safety Lead. All Inspectors have a vehicle.

All subconsultant costs will be multiplied by a factor of 1.05.

Expenses include estimated fee for Procore CMIS system. Actual costs will be determined by modules are selected. HDR is open to alternative procurement of Procore or change to other CMIS package if desired.

Expenses for Training, Commissioning, and Startup included in Construction Phase expenses.

Expenses for Rope Access inspection is included in rate for inspector and/or technical advisor.

Rate Escalation

Fee Estimate includes rate increases of 2.5% effective each year in January starting in 2028.

Annual escalation of Prevailing Wage rates is mandated by California DIR and may exceed 2.5% annually. It is assumed that IRWD will support mandated escalation of Prevailing wage Rates.

Not Included Costs

The budget does not include providing field office space, office equipment, or laboratory space for CM staff.

Starlink internet connection and/or project radios for project communications will be added to specifications for contractor to provide.

7 | HDR's CMT Fee by Firm

CONSTRUCTION MANAGEMENT SERVICES - Level of Effort Estimate

Irvine Ranch Water District

Santiago Creek Dam Improvement Project - Construction Management

Fees and Expenses By Firm

BASIC SERVICES	Labor	Expenses	Total Fee
HDR	\$18,492,835	\$1,856,866	\$20,349,701
Kleinfelder	\$13,064,137	\$320,000	\$13,384,137
MCK	\$3,901,133	\$0	\$3,901,133
Verdantas	\$363,995	\$0	\$363,995
Next Level	\$185,636	\$0	\$185,636
Guida Surveying (see note below)	\$0	\$185,850	\$185,850
	\$36,007,736	\$2,362,716	\$38,370,451
			Total \$38,371,000

Sub Expenses for vehicles and travel, if any, are included in the HDR expenses.

Guida Surveying will typically bill by a two-man crew without assigned staff. Cost worksheet includes estimated surveying costs in the the project expenses area.

7 | HDR's CMT Level of Effort by Phase:

Hours/Person

% of Time/Person

CONSTRUCTION MANAGEMENT SERVICES - Level of Effort Estimate
Irvine Ranch Water District
Santiago Creek Dam Improvement Project - Construction Management
Detailed Level of Effort

[illegible][illegible]

Detailed Level of Effort

Package/Schedule	Start	End	9/1/22	9/15/22	9/29/22	10/13/22	10/27/22	11/10/22	11/24/22	12/8/22	12/22/22	1/5/23	1/19/23	2/2/23	2/16/23	2/28/23	3/13/23	3/27/23	3/31/23	4/10/23	4/24/23	5/8/23	5/22/23	6/5/23	6/19/23	7/3/23	7/17/23	7/31/23	8/14/23	8/28/23	9/11/23	9/25/23	10/9/23	10/23/23	11/6/23	11/20/23	12/4/23	12/18/23	1/1/24	1/15/24	1/29/24	2/12/24	2/26/24	3/12/24	3/26/24	4/9/24	4/23/24	5/7/24	5/21/24	6/4/24	6/18/24	7/2/24	7/16/24	7/30/24	8/13/24	8/27/24	9/10/24	9/24/24	10/8/24	10/22/24	11/5/24	11/19/24	12/3/24	12/17/24	1/7/25	1/21/25	2/4/25	2/18/25	3/4/25	3/18/25	4/1/25	4/15/25	4/29/25	5/13/25	5/27/25	6/10/25	6/24/25	7/8/25	7/22/25	7/30/25	8/13/25	8/27/25	9/10/25	9/24/25	10/8/25	10/22/25	11/5/25	11/19/25	12/3/25	12/17/25	1/7/26	1/21/26	2/4/26	2/18/26	3/4/26	3/18/26	4/1/26	4/15/26	4/29/26	5/13/26	5/27/26	6/10/26	6/24/26	7/8/26	7/22/26	7/30/26	8/13/26	8/27/26	9/10/26	9/24/26	10/8/26	10/22/26	11/5/26	11/19/26	12/3/26	12/17/26	1/7/27	1/21/27	2/4/27	2/18/27	3/4/27	3/18/27	4/1/27	4/15/27	4/29/27	5/13/27	5/27/27	6/10/27	6/24/27	7/8/27	7/22/27	7/30/27	8/13/27	8/27/27	9/10/27	9/24/27	10/8/27	10/22/27	11/5/27	11/19/27	12/3/27	12/17/27	1/7/28	1/21/28	2/4/28	2/18/28	3/4/28	3/18/28	4/1/28	4/15/28	4/29/28	5/13/28	5/27/28	6/10/28	6/24/28	7/8/28	7/22/28	7/30/28	8/13/28	8/27/28	9/10/28	9/24/28	10/8/28	10/22/28	11/5/28	11/19/28	12/3/28	12/17/28	1/7/29	1/21/29	2/4/29	2/18/29	3/4/29	3/18/29	4/1/29	4/15/29	4/29/29	5/13/29	5/27/29	6/10/29	6/24/29	7/8/29	7/22/29	7/30/29	8/13/29	8/27/29	9/10/29	9/24/29	10/8/29	10/22/29	11/5/29	11/19/29	12/3/29	12/17/29	1/7/30	1/21/30	2/4/30	2/18/30	3/4/30	3/18/30	4/1/30	4/15/30	4/29/30	5/13/30	5/27/30	6/10/30	6/24/30	7/8/30	7/22/30	7/30/30	8/13/30	8/27/30	9/10/30	9/24/30	10/8/30	10/22/30	11/5/30	11/19/30	12/3/30	12/17/30	1/7/31	1/21/31	2/4/31	2/18/31	3/4/31	3/18/31	4/1/31	4/15/31	4/29/31	5/13/31	5/27/31	6/10/31	6/24/31	7/8/31	7/22/31	7/30/31	8/13/31	8/27/31	9/10/31	9/24/31	10/8/31	10/22/31	11/5/31	11/19/31	12/3/31	12/17/31	1/7/32	1/21/32	2/4/32	2/18/32	3/4/32	3/18/32	4/1/32	4/15/32	4/29/32	5/13/32	5/27/32	6/10/32	6/24/32	7/8/32	7/22/32	7/30/32	8/13/32	8/27/32	9/10/32	9/24/32	10/8/32	10/22/32	11/5/32	11/19/32	12/3/32	12/17/32	1/7/33	1/21/33	2/4/33	2/18/33	3/4/33	3/18/33	4/1/33	4/15/33	4/29/33	5/13/33	5/27/33	6/10/33	6/24/33	7/8/33	7/22/33	7/30/33	8/13/33	8/27/33	9/10/33	9/24/33	10/8/33	10/22/33	11/5/33	11/19/33	12/3/33	12/17/33	1/7/34	1/21/34	2/4/34	2/18/34	3/4/34	3/18/34	4/1/34	4/15/34	4/29/34	5/13/34	5/27/34	6/10/34	6/24/34	7/8/34	7/22/34	7/30/34	8/13/34	8/27/34	9/10/34	9/24/34	10/8/34	10/22/34	11/5/34	11/19/34	12/3/34	12/17/34	1/7/35	1/21/35	2/4/35	2/18/35	3/4/35	3/18/35	4/1/35	4/15/35	4/29/35	5/13/35	5/27/35	6/10/35	6/24/35	7/8/35	7/22/35	7/30/35	8/13/35	8/27/35	9/10/35	9/24/35	10/8/35	10/22/35	11/5/35	11/19/35	12/3/35	12/17/35	1/7/36	1/21/36	2/4/36	2/18/36	3/4/36	3/18/36	4/1/36	4/15/36	4/29/36	5/13/36	5/27/36	6/10/36	6/24/36	7/8/36	7/22/36	7/30/36	8/13/36	8/27/36	9/10/36	9/24/36	10/8/36	10/22/36	11/5/36	11/19/36	12/3/36	12/17/36	1/7/37	1/21/37	2/4/37	2/18/37	3/4/37	3/18/37	4/1/37	4/15/37	4/29/37	5/13/37	5/27/37	6/10/37	6/24/37	7/8/37	7/22/37	7/30/37	8/13/37	8/27/37	9/10/37	9/24/37	10/8/37	10/22/37	11/5/37	11/19/37	12/3/37	12/17/37	1/7/38	1/21/38	2/4/38	2/18/38	3/4/38	3/18/38	4/1/38	4/15/38	4/29/38	5/13/38	5/27/38	6/10/38	6/24/38	7/8/38	7/22/38	7/30/38	8/13/38	8/27/38	9/10/38	9/24/38	10/8/38	10/22/38	11/5/38	11/19/38	12/3/38	12/17/38	1/7/39	1/21/39	2/4/39	2/18/39	3/4/39	3/18/39	4/1/39	4/15/39	4/29/39	5/13/39	5/27/39	6/10/39	6/24/39	7/8/39	7/22/39	7/30/39	8/13/39	8/27/39	9/10/39	9/24/39	10/8/39	10/22/39	11/5/39	11/19/39	12/3/39	12/17/39	1/7/40	1/21/40	2/4/40	2/18/40	3/4/40	3/18/40	4/1/40	4/15/40	4/29/40	5/13/40	5/27/40	6/10/40	6/24/40	7/8/40	7/22/40	7/30/40	8/13/40	8/27/40	9/10/40	9/24/40	10/8/40	10/22/40	11/5/40	11/19/40	12/3/40	12/17/40	1/7/41	1/21/41	2/4/41	2/18/41	3/4/41	3/18/41	4/1/41	4/15/41	4/29/41	5/13/41	5/27/41	6/10/41	6/24/41	7/8/41	7/22/41	7/30/41	8/13/41	8/27/41	9/10/41	9/24/41	10/8/41	10/22/41	11/5/41	11/19/41	12/3/41	12/17/41	1/7/42	1/21/42	2/4/42	2/18/42	3/4/42	3/18/42	4/1/42	4/15/42	4/29/42	5/13/42	5/27/42	6/10/42	6/24/42	7/8/42	7/22/42	7/30/42	8/13/42	8/27/42	9/10/42	9/24/42	10/8/42	10/22/42	11/5/42	11/19/42	12/3/42	12/17/42	1/7/43	1/21/43	2/4/43	2/18/43	3/4/43	3/18/43	4/1/43	4/15/43	4/29/43	5/13/43	5/27/43	6/10/43	6/24/43	7/8/43	7/22/43	7/30/43	8/13/43	8/27/43	9/10/43	9/24/43	10/8/43	10/22/43	11/5/43	11/19/43	12/3/43	12/17/43	1/7/44	1/21/44	2/4/44	2/18/44	3/4/44	3/18/44	4/1/44	4/15/44	4/29/44	5/13/44	5/27/44	6/10/44	6/24/44	7/8/44	7/22/44	7/30/44	8/13/44	8/27/44	9/10/44	9/24/44	10/8/44	10/22/44	11/5/44	11/19/44	12/3/44	12/17/44	1/7/45	1/21/45	2/4/45	2/18/45	3/4/45	3/18/45	4/1/45	4/15/45	4/29/45	5/13/45	5/27/45	6/10/45	6/24/45	7/8/45	7/22/45	7/30/45	8/13/45	8/27/45	9/10/45	9/24/45	10/8/45	10/22/45	11/5/45	11/19/45	12/3/45	12/17/45	1/7/46	1/21/46	2/4/46	2/18/46	3/4/46	3/18/46	4/1/46	4/15/46	4/29/46	5/13/46	5/27/46	6/10/46	6/24/46	7/8/46	7/22/46	7/30/46	8/13/46	8/27/46	9/10/46	9/24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[illegible]

CONSTRUCTION MANAGEMENT SERVICES - Level of Effort Estimate
Irvine Ranch Water District
Santiago Creek Dam Improvement Project - Construction Management
Detailed Level of Effort

Package/Schedule	Start	End	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000
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| Final Design Phase | 9/1/2026 | 11/19/2026 | |
[illegible]

7 | HDR's CMT Rate Schedule 2026-2032

HDR Engineering Rate Schedule

Irvine Ranch Water District - Santiago Creek Dam Improvement Project

Role	2026 Bill Rate	2027 Bill Rate	2028 Bill Rate	2029 Bill Rate	2030 Bill Rate	2031 Bill Rate	2032 Bill Rate
Technical Advisor Construction & Claims	300.00	307.50	315.19	323.07	331.14	339.42	347.91
Spillway Technical Advisor	300.00	307.50	315.19	323.07	331.14	339.42	347.91
Principal	300.00	307.50	315.19	323.07	331.14	339.42	347.91
Project Manager	280.00	287.00	294.18	301.53	309.07	316.79	324.71
Quality Assurance Manager	290.00	297.25	304.68	312.30	320.11	328.11	336.31
Senior Dam Engineer	288.91	296.13	303.54	311.12	318.90	326.88	335.05
Resident Engineer	280.00	287.00	294.18	301.53	309.07	316.79	324.71
Specifications Management	278.74	285.71	292.85	300.17	307.68	315.37	323.25
Resident Engineer - Nights	210.00	215.25	220.63	226.15	231.80	237.60	243.54
Pipeline/Outlet Technical Advisor	286.25	293.41	300.74	308.26	315.97	323.87	331.96
Risk Management Lead	282.48	289.54	296.78	304.20	311.81	319.60	327.59
Electrical Technical Advisor	259.80	266.30	272.95	279.78	286.77	293.94	301.29
Startup and Commissioning Lead	235.00	240.88	246.90	253.07	259.40	265.88	272.53
Change Management Lead	231.36	237.14	243.07	249.15	255.38	261.76	268.31
Scheduler	228.95	234.67	240.54	246.55	252.72	259.04	265.51
Concrete/RCC Technical Advisor	226.80	232.47	238.28	244.24	250.34	256.60	263.02
Construction Manager	225.00	230.63	236.39	242.30	248.36	254.57	260.93
Estimator	216.90	222.32	227.88	233.58	239.42	245.40	251.54
Assistant Resident Engineer	205.00	210.13	215.38	220.76	226.28	231.94	237.74
CADD/BIM Technician/Junior Engineer	197.95	202.90	207.97	213.17	218.50	223.96	229.56
Safety Manager	190.00	194.75	199.62	204.61	209.72	214.97	220.34
SCADA Coordinator	180.86	185.38	190.02	194.77	199.64	204.63	209.74
Claim Avoidance Specialist	179.35	183.83	188.43	193.14	197.97	202.92	207.99
Labor Compliance	140.00	143.50	147.09	150.76	154.53	158.40	162.36
Project Controller	175.00	179.38	183.86	188.46	193.17	198.00	202.95
Document Controls Lead	144.00	147.60	151.29	155.07	158.95	162.92	167.00
FIRST SHIFT							
Chief Inspector - (Prev. Wage)	204.00	209.10	214.33	219.69	225.18	230.81	236.58
Chief Inspector - (Prev. Wage) Overtime	275.00	281.88	288.92	296.14	303.55	311.14	318.92
Chief Inspector - (Prev. Wage) Saturday	367.00	376.18	385.58	395.22	405.10	415.23	425.61
Civil/Struct Inspector - (Prev. Wage) Earthwork	195.00	199.88	204.87	209.99	215.24	220.62	226.14
Civil/Struct Inspector - (Prev. Wage) Earthwork Overtime	257.40	263.84	270.43	277.19	284.12	291.22	298.51
Civil/Struct Inspector - (Prev. Wage) Earthwork Saturday	319.80	327.80	335.99	344.39	353.00	361.82	370.87
Civil/Struct Inspector - (Prev. Wage) Earthwork	204.00	209.10	214.33	219.69	225.18	230.81	236.58
Civil/Struct Inspector - (Prev. Wage) Earthwork Overtime	297.00	304.43	312.04	319.84	327.83	336.03	344.43
Civil/Struct Inspector - (Prev. Wage) Earthwork Saturday	396.00	405.90	416.05	426.45	437.11	448.04	459.24
Civil/Struct Inspector - (Prev. Wage) RCC	204.00	209.10	214.33	219.69	225.18	230.81	236.58
Civil/Struct Inspector - (Prev. Wage) RCC Overtime	297.00	304.43	312.04	319.84	327.83	336.03	344.43
Civil/Struct Inspector - (Prev. Wage) RCC Saturday	396.00	405.90	416.05	426.45	437.11	448.04	459.24
Civil/Struct Inspector - (Prev. Wage) Soil Nails/Anchors	210.00	215.25	220.63	226.15	231.80	237.60	243.54
Civil/Struct Inspector - (Prev. Wage) Soil Nails/Anchors Overtime	283.50	290.59	297.85	305.30	312.93	320.75	328.77
Civil/Struct Inspector - (Prev. Wage) Soil Nails/Anchors Saturday	378.00	387.45	397.14	407.06	417.24	427.67	438.36
Geologist Inspector - Subgrade Mapping	200.00	205.00	210.13	215.38	220.76	226.28	231.94
Construction Materials Testing / On-Site Laboratory Technician	290.00	297.25	304.68	312.30	320.11	328.11	336.31
SECOND SHIFT							
Civil/Struct Inspector - (Prev. Wage) Earthwork Second Shift	165.00	169.13	173.35	177.69	182.13	186.68	191.35
Civil/Struct Inspector - (Prev. Wage) Earthwork Second Shift Overtime	217.80	223.25	228.83	234.55	240.41	246.42	252.58
Civil/Struct Inspector - (Prev. Wage) Earthwork Second Shift Saturday	270.60	277.37	284.30	291.41	298.69	306.16	313.81
Civil/Struct Inspector - (Prev. Wage) Concrete Second Shift	204.00	209.10	214.33	219.69	225.18	230.81	236.58
Civil/Struct Inspector - (Prev. Wage) Concrete Second Shift Overtime	297.00	304.43	312.04	319.84	327.83	336.03	344.43
Civil/Struct Inspector - (Prev. Wage) Concrete Second Shift Saturday	396.00	405.90	416.05	426.45	437.11	448.04	459.24
Civil/Struct Inspector - (Prev. Wage) RCC Second Shift	204.00	209.10	214.33	219.69	225.18	230.81	236.58
Civil/Struct Inspector - (Prev. Wage) RCC Second Shift Overtime	290.40	297.66	305.10	312.73	320.55	328.56	336.77
Civil/Struct Inspector - (Prev. Wage) RCC Second Shift Saturday	360.80	369.82	379.07	388.54	398.26	408.21	418.42
PART TIME AS NEEDED							
Welding Inspector - (Prev. Wage)	180.00	184.50	189.11	193.84	198.69	203.65	208.74
Mechanical Inspector - (Prev. Wage)	220.00	225.50	231.14	236.92	242.84	248.91	255.13
Electrical Inspector - (Prev. Wage)	204.85	209.97	215.22	220.60	226.12	231.77	237.56
Coatings Inspector - (Prev. Wage)	240.00	246.00	252.15	258.45	264.92	271.54	278.33

All positions are considered to be salary with the exception of Document Controls and Inspectors which are hourly.

Holidays are as noted by IRWD. Work on holidays and scheduled days off will be straight time for salaried employees and overtime rates for Prevailing Wage Employees.

Overtime will be requested for approval by IRWD in advance of work.

7 | HDR's CMT Subconsultant Expense Summary Backup

KLEINFELDER ROM ESTIMATE
On-Site Laboratory Hard Costs - Per Year
Irvine Ranch Water District
Santiago Creek Dam Improvement Project

	Estimated Total (Units)	Rate	Fee
On-Site Laboratory Hard Costs			
<u>Year 1</u>			
Month 1 - On-site Geotechnical Laboratory Equipment Purchase <i>(Billed as a lump sum)</i>	1	\$95,000	\$95,000
Month 1 - On-site Laboratory Mobilization <i>(Billed as a lump sum)</i>	1	\$10,000	\$10,000
Month 1 - On-site Laboratory Equipment Calibration <i>(Billed annually as a lump sum)</i>	1	\$10,000	\$10,000
Month 1 - On-site Laboratory Accreditation/Validation <i>(Outside services billed at cost + 5%)</i>	1	\$25,000	\$25,000
<u>Year 2</u>			
Month 13 - On-site Compressive Strength Testing Equipment, Supplies, and Tools <i>(Billed as a lump sum)</i>	1	\$50,000	\$50,000
Month 13 - On-site Laboratory Equipment Calibration <i>(Billed annually as a lump sum)</i>	1	\$10,000	\$10,000
<u>Year 3</u>			
Month 25 - On-site Laboratory Equipment Calibration <i>(Billed annually as a lump sum)</i>	1	\$10,000	\$10,000
Month 25 - On-site Laboratory Accreditation/Validation <i>(Outside services billed at cost + 5%)</i>	1	\$25,000	\$25,000
<u>Year 4</u>			
Month 37 - On-site Laboratory Equipment Calibration <i>(Billed annually as a lump sum)</i>	1	\$10,000	\$10,000
<u>Year 5</u>			
Month 49 - On-site Laboratory Equipment Calibration <i>(Billed annually as a lump sum)</i>	1	\$10,000	\$10,000
Month 49 - On-site Laboratory Accreditation/Validation <i>(Outside services billed at cost + 5%)</i>	1	\$25,000	\$25,000
Month 60 - On-site Laboratory Demobilization <i>(Billed as a lump sum)</i>	1	\$10,000	\$10,000
ESTIMATED TOTAL FEE (On-site Laboratory Hard Costs):			\$290,000
Allowance for Off-Site Laboratory Testing:			\$30,000

- Notes:
1. Rates shown for mobilization, demobilization, calibration, and accreditation/validation include labor and outside services
 2. Labor for on-site laboratory technician(s) are included in level of effort (LOE)
 3. Accreditation/validation occurs every other year
 4. Calibration occurs every year
 5. Geotechnical, asphalt, and concrete (including RCC) testing identified in the specifications will be performed in on-site lab with the exception of those tests identified below
 - R-Value (CT301)
 - LA Rattler (ASTM C131)
 - Linear Drying Shrinkage of Masonry Units (ASTM C426)
 - Flexural Toughness of Fiber-Reinforced Concrete (ASTM C1550)
 - Asphalt Content (CT382)

SCOPE OF WORK

TASK 1: QA CONSTRUCTION SURVEY SERVICES

Survey staff will be provided to the construction management team to perform the QA construction survey services for the duration of the construction phase of the project. This staff will include:

- A Field Crew Supervisor to perform computations of survey requests, assist with survey matters and instruct and oversee the QA construction survey operation, as needed, and requested by the engineer. The field crew supervisor will be a California-licensed Professional Land Surveyor.
- Two-person survey crew(s) to perform QA construction staking services, as needed, and requested by the engineer. Every effort will be made to ensure the same survey crew personnel will be assigned for the duration of the project.
- A survey project manager will be assigned to this project to oversee all survey work performed. The survey project manager will be a California-licensed Professional Land Surveyor.

At the onset of construction, the QA survey team will verify the primary control, and improvement plans as they pertain to the project. Client-provided primary and project control will be field-verified, and the horizontal design alignments and vertical profiles will be reviewed.

QA Construction survey services will be performed in accordance with the Project Specifications per the engineers' written request for survey services. It is understood that the QA surveyor will monitor the contractor's surveyor for compliance with the project surveying requirements. The QA surveyor will verify the contractor's layout and controls, spot check reference points and finish work, and other related survey tasks as requested by the engineer.

The survey team will mobilize to the project site within 24 hours of written notification that a particular phase and stage is ready for survey. Up to forty (40) mobilizations may be required to complete the QA surveys.

Project control provided by the design team will be maintained where possible throughout the duration of construction. Secondary control will be set and tied to the project control as needed to support the QA construction survey services activities. Any newly established control will be tied to the client-provided primary and project control.

Topographic field and office surveys can be performed as requested by the engineer to address utility, drainage, or other special field studies during the construction phase of the project.

ASSUMPTIONS

The following assumptions have been made:

- 1) Client will provide access to the site during normal business hours (7a to 4p, Monday through Friday)
- 2) Client will notify the appropriate authorities of our work and arrange for access.
- 3) Client will notify owners and tenants of our work and arrange for access.
- 4) No permits of any kind will be required. If permits are required, they will be provided at no cost to the survey team.
- 5) No special training or safety orientation will be required. If special training is required, then the associated costs will be billed as a separate cost outside of this proposal per our hourly rate schedule attached.

- 6) Contractor and/or Owner to provide digital PDF of all Plans. If none are available additional charges may apply that have not been included within this estimate. Additional visits will be charged as an extra at the billing rates provided.

EXCLUSIONS

The following services, and all other services not specifically listed herein, are excluded:

- 1) Weekend work is excluded.
- 2) Night work is excluded.

DELIVERABLES

The following deliverables are included:

- 1) Survey Control Point Listings, Field Notes and Photos
- 2) QA Survey Field Notes in PDF format
- 3) QA Survey ASCII Point Files



EXHIBIT B

SCHEDULE AND FEE

SCHEDULE

Based on our current schedule and prior commitments, we will be able to begin work on the surveys within 24 hours after receiving a fully executed agreement and written survey request to perform a survey. The field notes can be delivered within 24-hours of the completion of the field surveys.

We estimate that the final exhibits and final deliverables can be completed and delivered within approximately five (5) business days from the last field survey visit.

This schedule assumes we have no access delays, no weather delays, no delays in receiving information, and are not impeded by other circumstances beyond our control.

FEE

The services defined herein will be completed for a **fixed fee of \$185,850.00**. This fee includes an estimated cost for prevailing wage labor, equipment, and other direct costs associated with the project. For convenience purposes this cost is broken out by Task as follows:

SERVICE	FEE
TASK 1: Quality Assurance-Survey Oversight Services	\$185,850.00
TOTAL LUMP SUM / NOT TO EXCEED FEE	\$185,850.00

X HOURLY RATE SHEET INCLUDED

Rates effective July 1, 2026, through June 30, 2027

HOURLY RATES

LABOR DESCRIPTION	HOURLY RATE
Principal	\$350.00
Senior Project Manager	\$315.00
Project Manager	\$290.00
Senior Project Surveyor/Field Supervisor	\$270.00
Project Surveyor	\$225.00
Senior Survey Analyst	\$205.00
Survey Analyst	\$185.00
Survey Technician	\$160.00
Project Coordinator	\$170.00
Survey Intern	\$115.00

Field Survey Rates by Prevailing Wage Classification*	DAY BASE RATE**	NIGHT BASE RATE***
1-Person Survey Crew	\$255.00	\$320.00
2-Person Survey Crew	\$430.00	\$540.00
3-Person Survey Crew	\$565.00	\$705.00
Utility Locate Manager	\$255.00	\$320.00
Utility Locate Technician	\$185.00	\$230.00

*1-, 2- and 3-person survey crews are inclusive of survey vehicles, conventional and GPS survey equipment, and associated survey tools, safety equipment, etc.

The **Daytime Base Rate will be charged for work beginning between 4am to 4pm Sunday through Saturday. Overtime will apply as applicable, see below.

***The **Night Base Rate** will be charged for work beginning between 4pm to 4am, Sunday through Saturday. Overtime will apply as applicable, see below.

ESCALATION

Non-prevailing wage classifications will escalate annually beginning July 1, 2027. All field rates will escalate in accordance with the International Union of Operating Engineers, Local 12.

OVERTIME

Straight time will be billed for all work performed on-site up to 8 hours each day, Monday through Friday. Overtime will begin after 8 hours, Monday through Friday and on Saturdays. Double time will begin after 12 hours Monday through Saturday and all day on Sundays and holidays.

Overtime (on-site over 8 hours Mon-Fri and Sat)	1.5 times the hourly base rate
Sundays and Holidays	2.0 times the hourly base rate

SOUTHERN CALIFORNIA LOCATIONS

ORANGE COUNTY 220 Commerce, Suite 150, Irvine, CA 92602

INLAND EMPIRE 3237 E. Guasti Road, Suite 260, Ontario, CA 91761 | SAN DIEGO 380 State Place, Escondido, CA 92029

WWW.GUIDAINC.COM

Rates effective July 1, 2026, through June 30, 2027

OTHER DIRECT COSTS

1. Reimbursable costs including but not limited to delivery or messenger fees, reproduction costs, agency fees, permits, title company fees, etc., shall be billed at cost plus 15%.
2. Travel costs such as per diem, mileage, and lodging will be billed at cost.
3. Subconsultant fees shall be billed at cost plus 15%.
4. Mobile LiDAR equipment shall be billed at \$1,457.00 per day.
5. UAS LiDAR equipment shall be billed at \$922.00 per day.
6. Utility Locating Sled (Truck Mounted) shall be billed at \$2,200.00 per day.
7. Costs related to specialty survey requirements, (i.e., traffic control, specialty equipment, etc.) will be billed at cost plus 15%.
8. Expenses for any special equipment and/or requests shall be at the approval of the client.

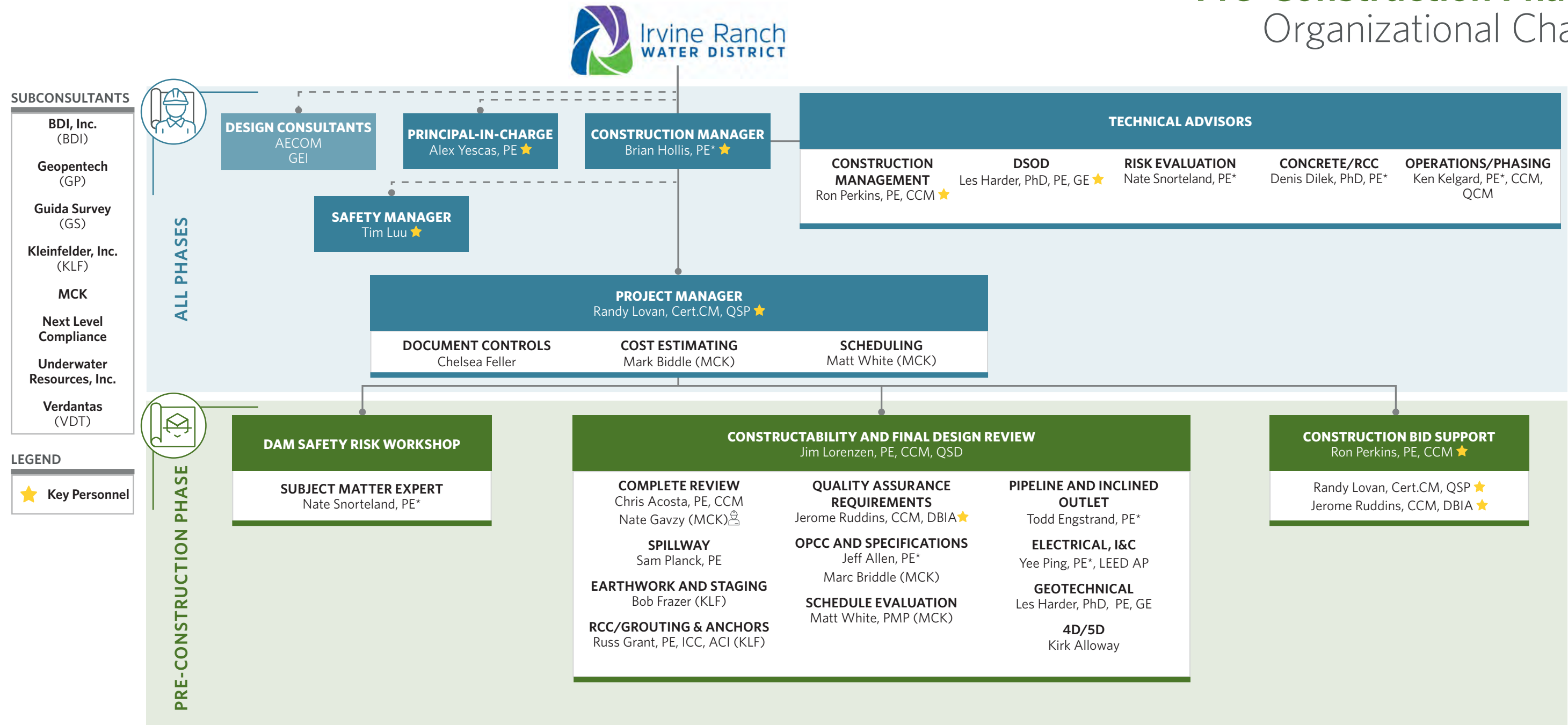
SOUTHERN CALIFORNIA LOCATIONS

ORANGE COUNTY 220 Commerce, Suite 150, Irvine, CA 92602
INLAND EMPIRE 3237 E. Guasti Road, Suite 260, Ontario, CA 91761 | SAN DIEGO 380 State Place, Escondido, CA 92029
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GUIDA 2026-2027 Southern California Rates

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Pre-Construction Phase Organizational Chart

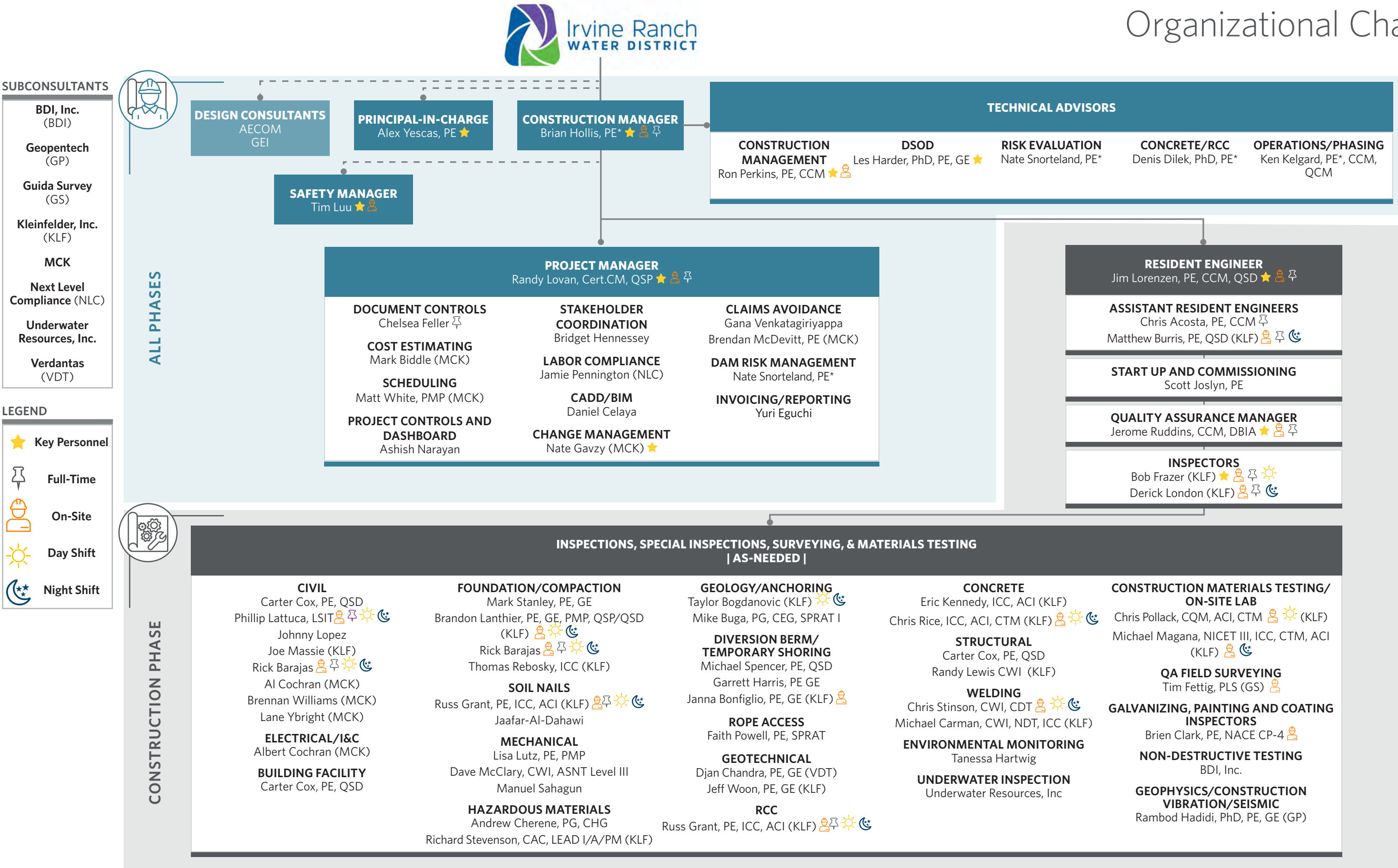


An asterisk (*) denotes non-California Registration.



Our team has already taken a proactive approach to construction risk management, evaluating phasing, sequencing, and dam safety considerations and developing targeted mitigation strategies aligned with the Construction Risk Registry and upcoming workshop process. As a result, we can begin work at NTP with a well-defined understanding of critical risks and mitigation measures. We will continue to refine these strategies in advance of the 100% Design Dam Safety Risk Workshop (September 14-17, 2026) while concurrently advancing the constructability review to maintain progress toward the October 22, 2026 milestone.

Construction Phase Organizational Chart





1

AGENDA

1. Overview of Major Construction Elements
2. Schedule
3. Proposed Construction Management Team
4. Staff Recommendation





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RECAP OF PAST BOARD ACTIONS

At its meeting on May 12, 2025, the IRWD Board approved a design variance to:

- Shift spillway alignment (value engineering);
- Design the embankment improvements; and
- Investigate borrow sites.

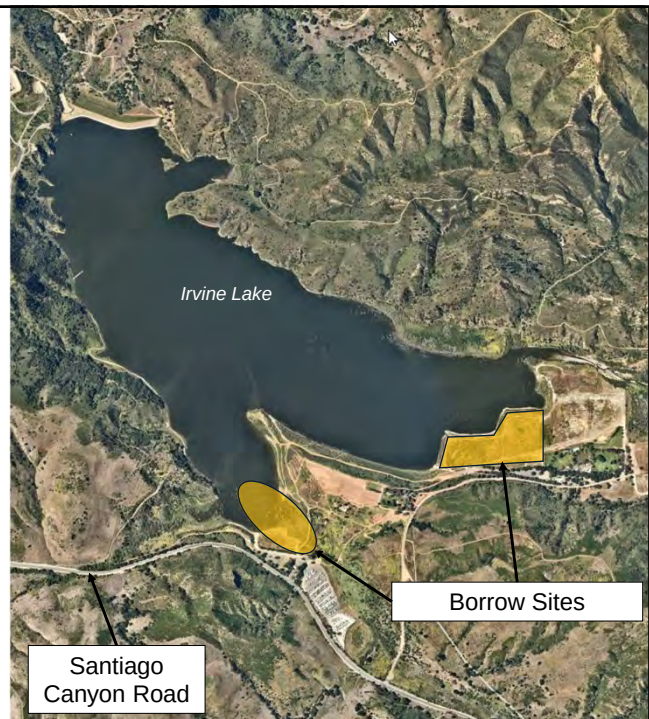


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ACCOMPLISHMENTS SINCE MAY 2025 BOARD MEETING

- ✓ Adopted EIR for the project
- ✓ Received and reviewed 60% design
- ✓ Completed geotechnical investigation of borrow sites
- ✓ Completed geotechnical investigations and reports for the project
- ✓ Received and reviewed 90% design
- ✓ Completed 60% and 90% risk analysis
- ✓ Started Site Preparation Phase Construction



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PROJECT OVERVIEW

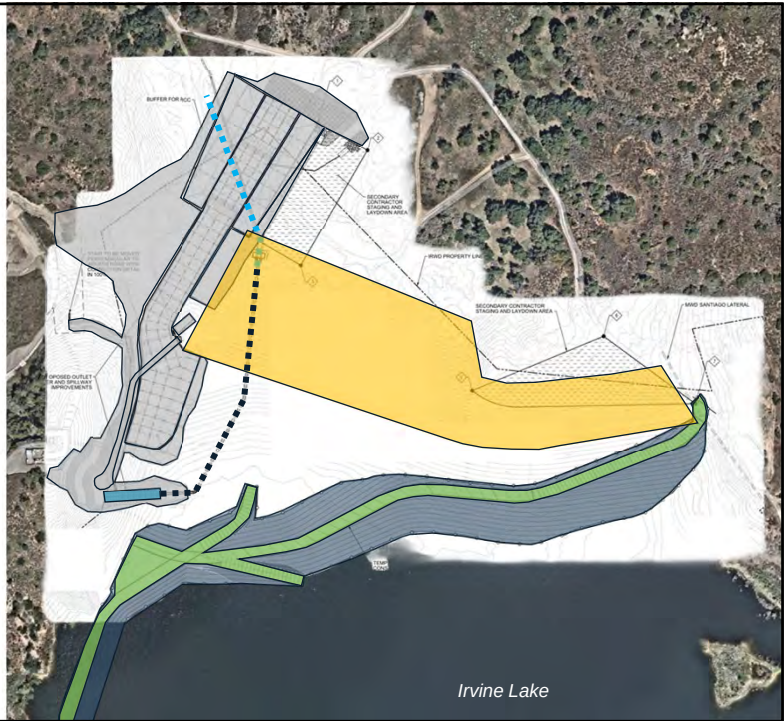
Spillway Improvements

Inclined Outlet Structure

Temporary Diversion Berm and Access Road

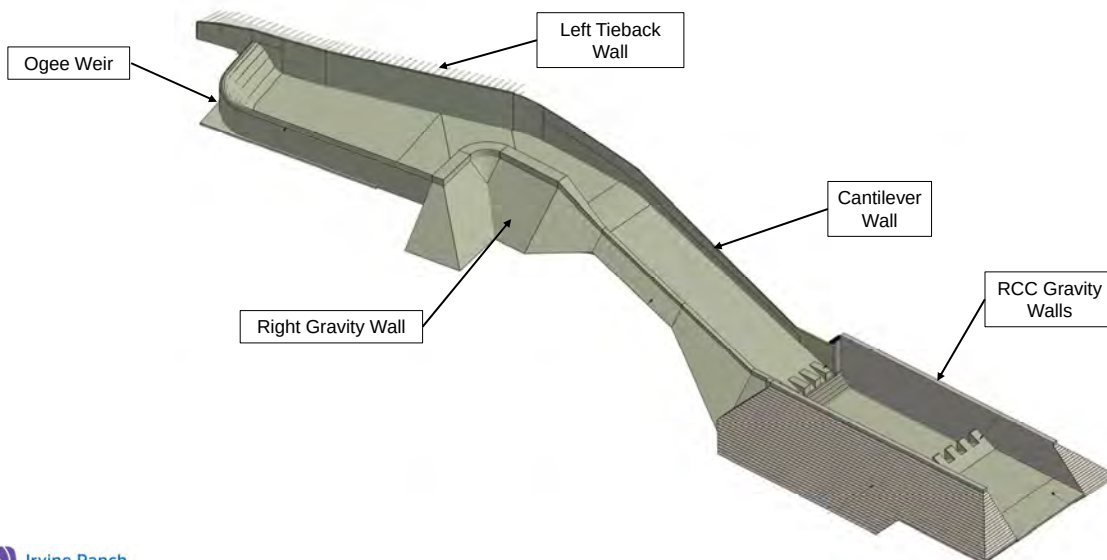
Irvine Lake Pipeline Realignment

Embankment Improvements



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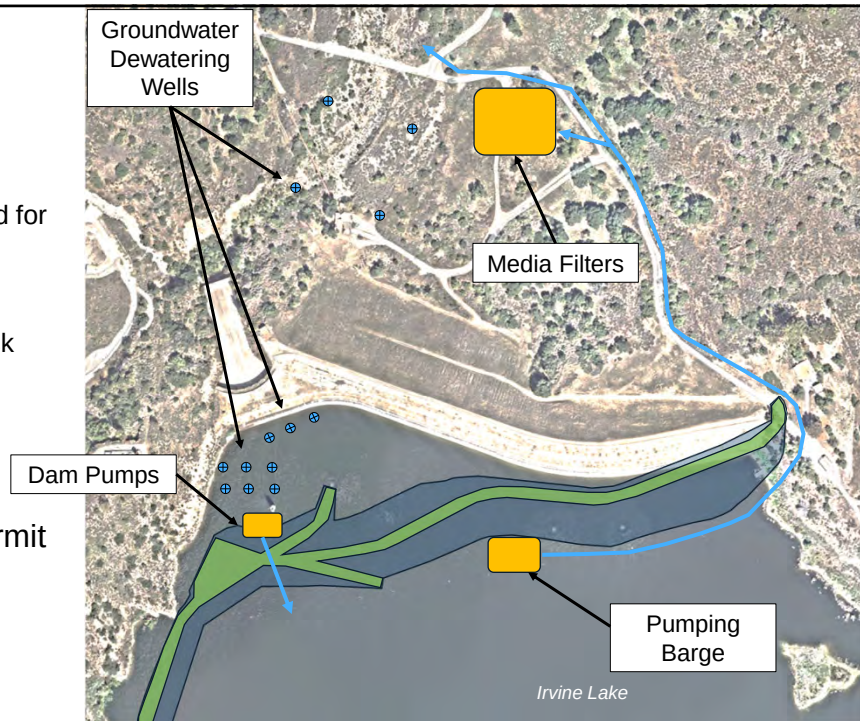
SANTIAGO CREEK DAM SPILLWAY



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LAKE DIVERSION SYSTEM

- Pump Diversion System
 - Floating Pump Barge rated for 27,000 gpm
 - Treatment System
 - Owner's / Contractor's Risk
 - Dewatering Wells
- ✓ Have obtained Orange County Public Works Permit for the Lake Diversion



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UPCOMING PROJECT ACTIVITIES

- Construction Sequence Dam Safety Risk Workshop
- 100% Design Review
- Bidders Briefing with Prequalified Contractors

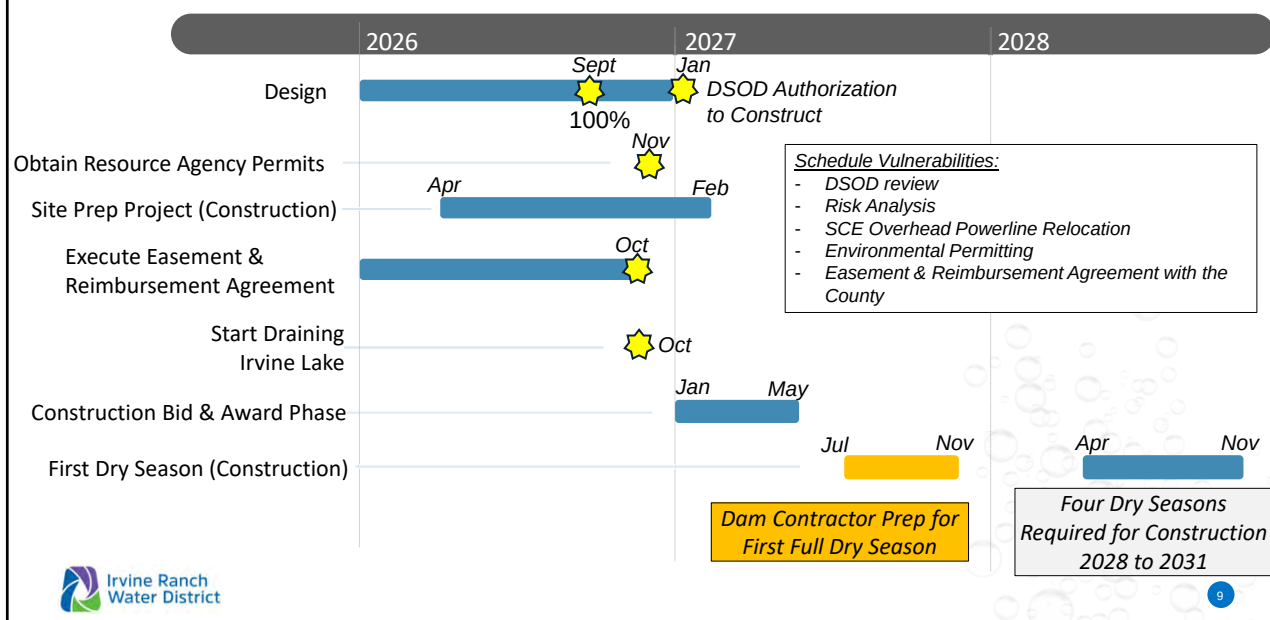
CMT Involvement

- Complete Easement & Reimbursement Agreement with the County
- Obtain Environmental Permits
- Receive DSOD Authorization to Construct



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SANTIAGO CREEK DAM IMPROVEMENT - SCHEDULE



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CMT PROCUREMENT PROCESS

- Scope development meetings with interested consultants over the past couple years.
- Issued Request for Qualifications; shortlisted four firms.
- Issued Request for Proposal to two firms (two declined to submit prior to issuing the RFP)
- An Evaluation Panel reviewed the proposals and interviewed the two teams: COWI/GFT and HDR.
- A five-member IRWD Evaluation Panel (two Executive Directors, one Director, one Engineering Manager, and one Engineer) evaluated the shortlisted proposals and interviews.
- The Evaluation Panel unanimously recommended HDR.

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KEY PROPOSAL DIFFERENCES

HDR's proposal offers:

- Higher level of team experience;
- Redundant staff in key roles;
- Higher level of commitment for key roles; and
- Additional optional services.

HDR proposed greater team value at a competitive fee of approximately \$38.4 million, compared to COWI/Gannett Fleming's fee of \$36.8 million



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CONSTRUCTION SCHEDULE

Dry Season: Mid-April to Mid-November

- 20-hour workdays up to 7-days per week



3 Teams, some with overtime

Wet Season: Mid-November to Mid-April

- Generally, normal working hours (5 days a week), with the option for 20-hour workdays up to 7-days per week



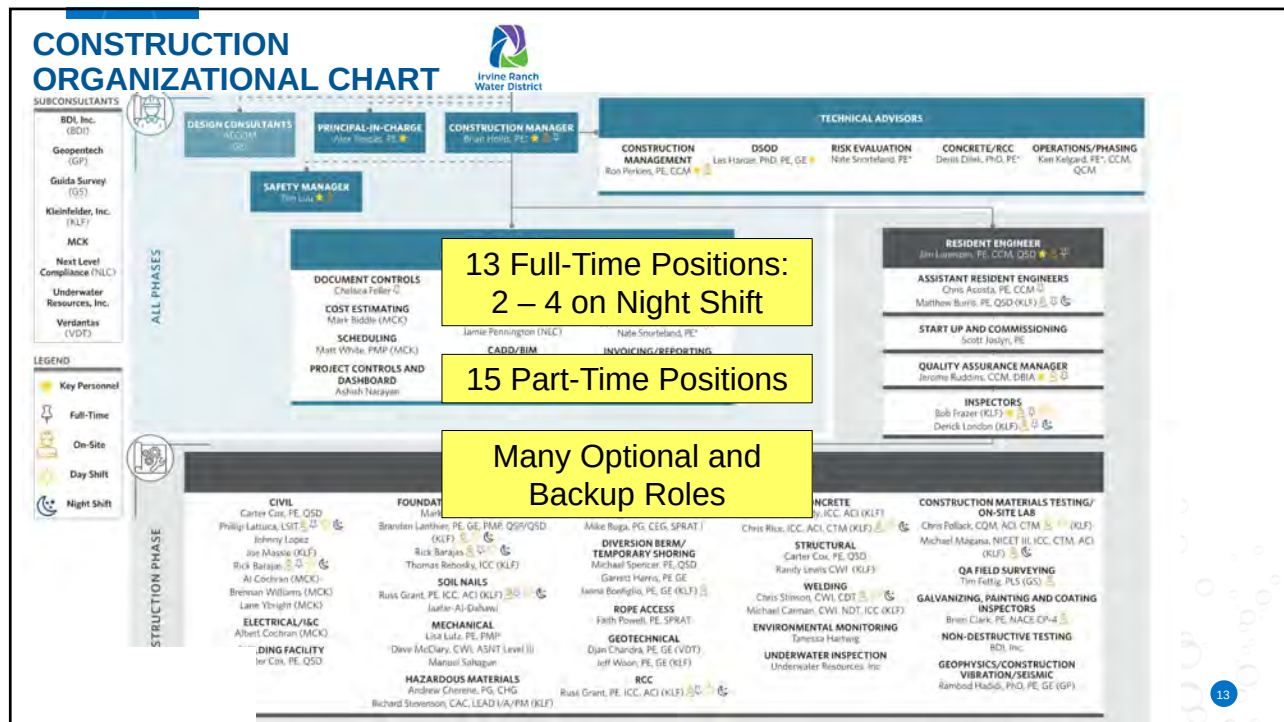
1 Team, minimal overtime

Based on the volume of testing and the around-the-clock nature of the work, both proposals included an on-site geotechnical lab, a conventional concrete lab, and a roller compacted concrete lab.



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PRE-CONSTRUCTION ACTIVITIES INITIAL NOTICE TO PROCEED

Pre-Construction Activities	Duration (Sept 2026 – May 2027)
Project Management	
CM Project and Contract Management	9 months
Final Design and Bid Phase Services	
Constructability Review	2 months
Develop CM Plans	2 months
Establish Document Control System	4 months
Bidding Support	3 months
Construction Risk Management	
Develop Risk Management Plan, conduct workshop and complete Initial Risk Register	2 months
Construction Sequence Dam Safety Risk	
Participate in risk workshop, integrate dam safety risk into Construction Risk Registry	2 months

Total Pre-Construction Activities Fee = \$807,484

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STAFF RECOMMENDATIONS

That the Board authorize the General Manager to execute a Professional Services Agreement with HDR in the amount of \$38,371,000 for construction management and inspections services.



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QUESTIONS



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