Board Meeting Agenda

Russ Baggerly, Director
Angelo Spandrio, Director
Brian Brennan, Director
Pete Kaiser, Director
James Word, Director

CASITAS MUNICIPAL WATER DISTRICT
Meeting to be held at the
Casitas Board Room
1055 Ventura Ave.
Oak View, CA 93022
April 24, 2019 @ 3:00 P.M.

Right to be heard: Members of the public have a right to address the Board directly on any item of interest to the public which is within the subject matter jurisdiction of the Board. The request to be heard should be made immediately before the Board's consideration of the item. No action shall be taken on any item not appearing on the agenda unless the action is otherwise authorized by subdivision (b) of ¶54954.2 of the Government Code and except that members of a legislative body or its staff may briefly respond to statements made or questions posed by persons exercising their public testimony rights under section 54954.3 of the Government Code.

1. Call to Order
2. Roll Call
3. Pledge of Allegiance to the Flag of the United States of America
4. Agenda Confirmation - Consider and approve, by majority vote, minor revisions to Board items and/or attachments and any item added to, or removed/continued from, the Agenda.
5. Public comments – presentations on District related items that are not appearing on the agenda – three minute limit).
6. General Manager comments. Brief announcements and report on GM and District workforce activities.
7. Board of Director comments.
8. Board of Director Verbal Reports on Meetings Attended.
9. Consent Agenda
   a. Minutes from the April 10, 2019 meeting.

   RECOMMENDED ACTION: Adopt Consent Agenda.

10. Review of District Accounts Payable Report for the Period of 4/04/19 - 4/17/19.

    RECOMMENDED ACTION: Motion approving report.

11. Discussion of Clean Power Alliance power alternatives for Casitas.

    a. Presentation by Karen Schmidt of Clean Power Alliance (CPA).
    b. Staff Recommendations to General Manager

12. Consideration of Proposed Four Job Classification Adjustments, Two New Positions in One Department and Related Six New Job Descriptions:

    a. Job Classification Adjustments
        a1. Distribution Foreman to Distribution Supervisor
        a2. Utility Foreman to Utility Supervisor
        a3. District Maintenance Foreman to District Maintenance Supervisor.
        a4. Lake Casitas Recreation Area (LCRA) Maintenance Foreman to LCRA Maintenance Supervisor.

    b. Two Additional Positions in the Administration Department:
        b1. Chief Financial Officer
        b2. Customer Service and Accounting Supervisor

    RECOMMENDED ACTION: Motion approving staff recommendation

13. Conservation Penalty Appeals.

    a. Consideration of modification of Sections 5.6 and 5.7 of the CMWD Water Allocation and Efficiency Program (WEAP) as related to Conservation Penalty Appeals.

    b. Appointment of individuals to the appeals panel

    RECOMMENDED ACTION: Motion approving recommendation

14. Review of the 2019 Casitas MWD Water Supply Assessment and approval of the General Manager recommendations contained therein.

    a. Consideration of a Resolution continuing with a Stage 3 Water Condition and other drought related actions for FY 2020.

    RECOMMENDED ACTION: Adopt Resolution

15. Resolution to Adopt the CEQA Initial Study and Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program for Ojai Water System Improvements Project.

    file:///U:/Management/Agendas/Board%20meetings/2019/04-24-19/CMWD%20OWSI%20Project%20Final%20IS-MND%20protected.pdf

    RECOMMENDED ACTION: Adopt Resolution

16. Resolution awarding a contract to Oilfield Electric & Motor in the amount of $1,105,800 for the Rincon Pump Plant Electrical Upgrade, Specification No. 17-397 and adopting the CEQA Notice of Exemption.

    RECOMMENDED ACTION: Adopt Resolution

17. Recommend authorization of the General Manager to issue a Task Order to MKN & Associates in the not to exceed amount of $158,506 for the Robles Diversion Fish Screen Implementation Prototype Test Plan.

    RECOMMENDED ACTION: Motion approving staff recommendation

18. Recommend authorization of the General Manager to enter into a professional consulting services agreement with Pueblo Water Resources, Inc. for the not to exceed amount of $25,712 for the Matilija Formation Groundwater Supply Project Technical Advisory Committee.

    RECOMMENDED ACTION: Motion approving staff recommendation

19. Information Items:

    a. Executive Committee Minutes.
    b. Personnel Committee Minutes
    c. Water Resources Committee Minutes.
    d. Response letter from Secretary of Agriculture, Sonny Perdue.
    e. CFD No. 2013-1 (Ojai) Monthly Cost Analysis.
    f. Investment Report.

20. Future Agenda Item Requests.

21. Closed Session

    a. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION (Government Code §54956.9(a)
    Santa Barbara Channelkeeper v. State Water Resources Control Board; City of San Buenaventura, San Francisco County Superior Court, Case No. CPF-14-513875.

22. Adjournment.

If you require special accommodations for attendance at or participation in this meeting, please notify our office 24 hours in advance at (805) 649-2251, ext. 113. (Govt. Code Section 54954.1 and 54954.2(a)).

Minutes of the Casitas Municipal Water District
Board Meeting Held
April 10, 2019

A meeting of the Board of Directors was held April 10, 2019 at the Casitas Municipal Water District located at 1055 Ventura Ave. in Oak View, California. The meeting was called to order at 3:00 p.m. President Kaiser led the group in the flag salute.

1. Roll Call

Directors Word, Spandrio, Baggerly, and Kaiser were present. Director Brennan was not present at the beginning of the meeting. Also present were Mike Flood, General Manager, Rebekah Vieira, Clerk of the Board, and Attorney John Mathews. There were two staff members and six members of the public in attendance.

2. Public comments (Items not on the agenda – three minute limit).

None

3. General Manager comments.

General Manager Mike Flood handed out the Engineering Progress Report for the month and mentioned that much of the work is in the planning and design phase. Sunset Place and Ventura Street main line work is going out to bid and we anticipate in going into construction in June or July. This reflects a lot of hard work from the engineering department.

A meeting was held with the Forrest Service regarding the FS299 and the expectation is that placing the monitoring devices above Matilija Dam is eminent. The consultant is ready to start installing those to monitor data on a continuous basis. We will keep you updated on that.

We continue to flow. There is about 25 cfs in the canal and Santa Ana is running with good water quality. More than 34,000 AF has gone in and it will continue to rise for the next several days. I am working on 2019 Water Supply Assessment and hope to get that to Water Resources next Tuesday and then to the Board at the end of the month.

The mutual well installed June of 2018 is showing a lot of corrosion. A consultant is looking at it.

Director Brennan arrives at 3:05 p.m.

Mr. Flood provided an update on the website design and explained that we are on track to have that wrapped up in about 3 weeks and have some training going on and bring something back for the board to look at the end of May if the board desires. Po has done a great job leading that effort and it is coming in a few weeks ahead of schedule at this point.

4. Board of Director comments.

Director Baggerly reminded staff that the television broadcasting segment on the website is still advertising a January meeting instead of the current one.

President Kaiser passed a brochure to the General Manager on a training opportunity titled Spark Innovation and Think Strategically.

Director Brennen explained that there is a weak signal in Pierpont and he can't pull up the archived meetings. Mr. Flood showed him where they are on the website.

President Kaiser asked about the questions posed at State of the District. Mr. Flood explained that they are complete and are being posted.

5. Board of Director Verbal Reports on Meetings Attended.

Director Word responded to a request from Foothill Technical High School in Ventura. A small group asked to interview and find out some information. I was impressed on the information they had already obtained and I was more impressed with the questions they asked. The asked about the effects of the Thomas fire on the district and what was happening with the water.

Director Spandrio attended the UVRGA and will submit the long range budget to that board tomorrow. We anticipate approval and are on the verge of presenting the extraction fees for the next five years. The first year will be around $80 per AF and subsequent years will average around $60 per AF.

Director Brennan reported his attendance at the AWA board meeting and reminded the board of the annual symposium on the 18th. Director Brennan also attended Kids Fishing Day on Saturday. It was a spectacular event with good sized fish. I was very impressed with staff and the turnout was great.

President Kaiser attended the Ojai Valley Chamber. Ag people were impressed on how much water we diverted and they said don't forget about us. A couple of hotel managers approached me and said there are some issues about anti tourism efforts.

6. Consent Agenda ADOPTED

a. Minutes from the March 27, 2019 meeting.
b. Minutes from the March 26, 2019 special meeting.
c. Recommend approval of professional services agreements with Rincon Consultants Inc. and Padre Associates Inc. for on-call environmental consulting services.
d. Recommend approval of professional services agreements with Oakridge Geoscience, Inc. and Yeh and Associates for on-call geotechnical services.

The Consent Agenda was offered by Director Baggerly, seconded by Director Brennan, and adopted by the following roll call vote:

AYES:	Directors:	Word, Spandrio, Brennan, Baggerly, Kaiser
NOES:	Directors:	None
ABSENT:	Directors:	None

7. Review of District Accounts Payable Report for the Period of 3/21/19 - 4/03/19. APPROVED

On the motion of Director Brennan, seconded by Director Baggerly, the Accounts Payable Report was approved by the following roll call vote:

AYES:	Directors:	Word, Spandrio, Brennan, Baggerly, Kaiser
NOES:	Directors:	None
ABSENT:	Directors:	None

8. Recommend approval of a Purchase Order to ERS Industrial Services, Inc. in the amount of $62,717.02 for the removal, cleaning and reinstallation of media in pressure filter #7. APPROVED

On the motion of Director Baggerly, seconded by Director Brennan the above recommendation was approved by the following roll call vote:

AYES:	Directors:	Word, Spandrio, Brennan, Baggerly, Kaiser
NOES:	Directors:	None
ABSENT:	Directors:	None

9. Recommend authorizing the General Manager to sign a professional services contract with True North Research, Inc. in the amount of $26,850.00 for services related to public surveys related to water resources issues. APPROVED

The board had a discussion via Skype with Dr. Tim McLarney of True North Research.

On the motion of Director Word, seconded by Director Brennan the above recommendation was approved by the following roll call vote:

AYES:	Directors:	Word, Spandrio, Brennan, Baggerly, Kaiser
NOES:	Directors:	None
ABSENT:	Directors:	None

10. Information Items:

a. Hydrology Report for March, 2019.
b. Lake Casitas Recreation Area reports for January and February, 2019.
c. Recreation Committee Minutes.
d. HR Manager Recruitment Status Memo.
e. Consumption Report.
f. Investment Report.

On the motion of Director Baggerly, seconded by Director Brennan, the Information items were approved by the following roll call vote:

AYES:	Directors:	Word, Spandrio, Brennan, Baggerly, Kaiser
NOES:	Directors:	None
ABSENT:	Directors:	None

11. Future Agenda Item Requests.

Director Brennan asked for information, perhaps in the next 90 days regarding how our system back up the fire department. How prepared are we? Director Brennan added if the board concurs it could be an informational item.

Director Brennan also requested a presentation by the Clean Energy Alliance and potential action item for the April 24th meeting.

Director Baggerly reminded board members that we went through a process of four pages of things for the staff to do. We don't want to get them too burdened with new and future agenda items but yours are ok.

President Kaiser said if there is no opposition we will put the Clean Energy Alliance item on the next agenda and will also have staff analysis.

President Kaiser moved the meeting to closed session at 4:16 p.m.

12. Closed Session

a. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION (Government Code §54956.9(a)
Santa Barbara Channelkeeper v. State Water Resources Control Board; City of San Buenaventura, San Francisco County Superior Court, Case No. CPF-14-513875.

President Kaiser moved the meeting back into open session at 4:46 p.m. with Mr. Mathews stating the board met with counsel to discuss status of the existing litigation and there was no action taken.

13. Adjournment.

President Kaiser adjourned the meeting at 4:46 p.m.

_____
Brian Brennan, Secretary

CASITAS MUNICIPAL WATER DISTRICT
Payable Fund Check Authorization
Checks Dated 04/04/19-04/17/19
Presented to the Board of Directors For Approval April 24, 2019

Check	Payee			Description	Amount
000877	Payables Fund Account	#	9759651478	Accounts Payable Batch 041019	$328,340.09
000878	Payables Fund Account	#	9759651478	Accounts Payable Batch 041719	$382,269.98
					$710,610.07
000879	Payroll Fund Account	#	9469730919	Estimated Payroll 05/09/19	$200,000.00
				Total	$910,610.07

Publication of check register is in compliance with Section 53065.6 of the Government Code which requires the District to disclose reimbursements to employees and/or directors.

The above numbered checks,
000877-000879
have been duly audited is hereby certified as correct.

Denise Collin 4/17/19

Denise Collin, Accounting Manager/Treasurer

Signature

Signature

Signature

A/P Fund

Publication of check register is in compliance with Section 53065.6 of the Government Code which requires the District to disclose reimbursements to employees and/or directors.

000877	A/P Checks:	033504-033542
	A/P Draft to P.E.R.S.	000000
	A/P Draft to State of CA	000000
	A/P Draft to I.R.S.	000000
	Voids:	
000878	A/P Checks:	033543-033669
	A/P Draft to P.E.R.S.	000000
	A/P Draft to State of CA	000000
	A/P Draft to I.R.S.	000000
	Voids:	033578, 033607, 033613, 033614, 033615, 033662

Denise Collin 4/17/19

Denise Collin, Accounting Manager/Treasurer

_____

Signature

_____

Signature

_____

Signature

CERTIFICATION

Payroll disbursements for the pay period ending 04/06/19
Pay Date of 04/11/19
have been duly audited and are
hereby certified as correct.

Signed: Denise Collin 4/8/19
Denise Collin

Signed: _____
Signature

Signed: _____
Signature

Signed: _____
Signature

^

VENDOR SET: 01 Casitas Municipal Water D
BANK: * ALL BANKS
DATE RANGE: 4/04/2019 THRU 4/17/2019

VENDOR I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
C-CHECK	VOID CHECK	V	4/17/2019			033578		
C-CHECK	VOID CHECK	V	4/17/2019			033607		
C-CHECK	VOID CHECK	V	4/17/2019			033613		
C-CHECK	VOID CHECK	V	4/17/2019			033614		
C-CHECK	VOID CHECK	V	4/17/2019			033615		
3864	County of Ventura Resource Man							
C-CHECK	County of Ventura ResourVOIDED	V	4/17/2019			033662		3,108.52CR

* * T O T A L S * *	NO			INVOICE AMOUNT	DISCOUNTS	CHECK AMOUNT
REGULAR CHECKS:	0			0.00	0.00	0.00
HAND CHECKS:	0			0.00	0.00	0.00
DRAFTS:	0			0.00	0.00	0.00
EFT:	0			0.00	0.00	0.00
NON CHECKS:	0			0.00	0.00	0.00
VOID CHECKS:	6	VOID DEBITS	0.00			
		VOID CREDITS	3,108.52CR	3,108.52CR	0.00	

TOTAL ERRORS: 0

		NO	INVOICE AMOUNT	DISCOUNTS	CHECK AMOUNT
VENDOR SET: 01 BANK:	TOTALS:	6	3,108.52CR	0.00	0.00
BANK:	TOTALS:	6	3,108.52CR	0.00	0.00

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
0049		STATE OF CALIFORNIA							
	I-T2 201904081499	State Withholding	D	4/10/2019	12,196.37		000000		12,196.37
0128		INTERNAL REVENUE SERVICE							
	I-T1 201904081499	Federal Withholding	D	4/10/2019	32,452.26		000000		
	I-T3 201904081499	FICA Withholding	D	4/10/2019	36,400.06		000000		
	I-T4 201904081499	Medicare Withholding	D	4/10/2019	8,512.88		000000		77,365.20
0187		CALPERS							
	I-PBB201904081499	PERS BUY BACK	D	4/10/2019	150.08		000000		
	I-PBP201904081499	PERS BUY BACK	D	4/10/2019	161.96		000000		
	I-PEB201904081499	PEPRA EMPLOYEES PORTION	D	4/10/2019	7,121.41		000000		
	I-PEM201904081499	PERS EMPLOYEE PORTION MGMT	D	4/10/2019	2,238.90		000000		
	I-PER201904081499	PERS EMPLOYEE PORTION	D	4/10/2019	6,571.32		000000		
	I-PRB201904081499	PEBRA EMPLOYER PORTION	D	4/10/2019	7,795.87		000000		
	I-PRR201904081499	PERS EMPLOYER PORTION	D	4/10/2019	10,346.55		000000		34,386.09
0004		ACWA JOINT POWERS INSURANCE AU							
	I-0601496	Health Insurance 4/19	R	4/10/2019	167,353.03		033504		167,353.03
4043		Armen Amiraganiam							
	I-780628	Camping Reduction - LCRA	R	4/10/2019	120.00		033505		120.00
1666		AT & T							
	C-000012827086	Acct#8310001729783 Adjustment	R	4/10/2019	9.00CR		033506		
	C-000012828860	Acct#8310002969306 Adjustment	R	4/10/2019	36.00CR		033506		
	I-000012839152	Acct#9391064882	R	4/10/2019	1,035.42		033506		990.42
1153		RUSS BAGGERLY							
	I-Feb 19	Reimburse Mileage 2/19	R	4/10/2019	21.46		033507		
	I-Mar 19	Reimburse Mileage 3/19	R	4/10/2019	31.32		033507		52.78
4044		David Barajas							
	I-772419	Camping Cancellation - LCRA	R	4/10/2019	130.00		033508		
	I-772426	Camping Cancellation - LCRA	R	4/10/2019	130.00		033508		260.00
4045		Carolyn Barstow							
	I-780236	Camping Cancellation - LCRA	R	4/10/2019	127.00		033509		127.00
4052		Brett Banducci							
	I-777920	Camping Cancellation - LCRA	R	4/10/2019	71.00		033510		71.00
0208		CareIQ							
	I-6/13438244-1	1102WC190000002 DOS 12/13/18	R	4/10/2019	197.80		033511		
	I-6/13460733-1	1102WC180000001 DOS 2/13/19	R	4/10/2019	32.00		033511		
	I-6/13461104-1	1102WC170500002 DOS 1/28/19	R	4/10/2019	948.94		033511		
	I-6/13463447-1	1102WC190000002 DOS 1/8/19	R	4/10/2019	131.67		033511		
	I-6/13464044-1	Bill Review	R	4/10/2019	73.65		033511		

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
	I-6/13464053-1	1102WC190000002 DOS 1/29/19	R	4/10/2019	102.09		033511		
	I-6/13464068-1	1102WC190000002 DOS 1/24/19	R	4/10/2019	102.09		033511		1,588.24
4033		Alan Chang LAC							
	I-6/13459954-1	CLaim1102WC190000002 DOS 3/14	R	4/10/2019	109.07		033512		109.07
4053		Luciana Cordero-Hastings							
	I-781060	Camping Cancellation - LCRA	R	4/10/2019	147.00		033513		147.00
1483		CORVEL CORPORATION							
	I-6/13438244-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13459954-1	Bill Review	R	4/10/2019	12.58		033514		
	I-6/13459955-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13460733-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13460913-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13461104-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13463447-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13464044-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13464053-1	Bill Review	R	4/10/2019	9.50		033514		
	I-6/13464068-1	Bill Review	R	4/10/2019	9.50		033514		
	I-C00205838103	Claim 1102WC180000001	R	4/10/2019	120.00		033514		
	I-M134007583352	Claim 1102WC180000001	R	4/10/2019	137.39		033514		355.47
4054		Daniel Deges							
	I-772053	Camping Cancellation - LCRA	R	4/10/2019	12.00		033515		12.00
3983		Shelly Dutcher							
	I-766303	Camping Cancellation - LCRA	R	4/10/2019	55.00		033516		55.00
1270		SCOTT LEWIS							
	I-Mar 19	Reimburse Expenses 3/19	R	4/10/2019	5,120.14		033517		5,120.14
4046		Cynthia Luna							
	I-780047	Camping Cancellation - LCRA	R	4/10/2019	60.00		033518		60.00
4047		Erik Mayer							
	I-774950	Erik Mayer	R	4/10/2019	110.00		033519		110.00
2129		Tracy Medeiros							
	I-040919	Claim1102WC0000001 3/26-4/8	R	4/10/2019	2,129.42		033520		2,129.42
4048		Eric Milon							
	I-777100	Camping Cancellation - LCRA	R	4/10/2019	109.00		033521		109.00

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
4016		Wayne Nasby							
	I-778585	Camping Cancellation - LCRA	R	4/10/2019	71.00		033522		71.00
0812		KEVIN NGUYEN							
	I-Mar 19	Reimburse Mileage 3/19	R	4/10/2019	70.76		033523		70.76
0625		OfficeTeam							
	I-53145169	Admin Temp	R	4/10/2019	1,030.40		033524		
	I-53151365	Admin Temp	R	4/10/2019	1,000.00		033524		2,030.40
1882		OJAI BASIN GROUNDWATER							
	I-033119	Quarterly Pumping Fee	R	4/10/2019	6,330.00		033525		6,330.00
3590		Traci Ozuna							
	I-Apr 19	Reimburse Expenses 4/19	R	4/10/2019	209.54		033526		209.54
0188		PETTY CASH							
	I-040119	Increase Petty Cash - LCRA	R	4/10/2019	3,000.00		033527		3,000.00
4049		April & Jared Poppert							
	I-775239	Camping Cancellation - LCRA	R	4/10/2019	175.00		033528		175.00
2216		Purchase Power							
	I-032019	Refill Postage Meter	R	4/10/2019	2,545.13		033529		2,545.13
4055		Addison Sargent							
	I-777883	Camping Cancellation - LCRA	R	4/10/2019	127.00		033530		127.00
3586		Jeff Savard							
	I-778022	Camping Cancellation - LCRA	R	4/10/2019	105.00		033531		105.00
0216		Southern California Gas Co.							
	I-032819a	Acct#00801443003	R	4/10/2019	434.12		033532		
	I-032819b	Acct#18231433006	R	4/10/2019	173.21		033532		607.33
2352		Jennifer Wayne							
	I-772981	Camping Reduction - LCRA	R	4/10/2019	484.00		033533		484.00
4050		Richard Webster							
	I-775245	Camping Cancellation - LCRA	R	4/10/2019	175.00		033534		175.00
0274		JAMES WORD							
	I-Feb 19	Reimburse Mileage 2/19	R	4/10/2019	52.20		033535		
	I-Jan 19	Reimburse Mileage 1/19	R	4/10/2019	104.40		033535		
	I-Mar 19	Reimburse Mileage 3/19	R	4/10/2019	100.92		033535		257.52

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
1203		DENISE COLLIN							
	I-040319	Reimburse Mileage 2/19 & 4/19	R	4/10/2019	17.98		033536		17.98
4010		CALIFORNIA STATE DISBURSEMENT							
	I-CS5201904081499	200000001181291	R	4/10/2019	386.30		033537		386.30
0102		FRANCHISE TAX BOARD							
	I-G03201904081499	Payroll Deduction	R	4/10/2019	50.00		033538		50.00
0124		ICMA RETIREMENT TRUST - 457							
	I-DCI201904081499	DEFERRED COMP FLAT	R	4/10/2019	1,438.64		033539		
	I-DI%201904081499	DEFERRED COMP PERCENT	R	4/10/2019	141.44		033539		1,580.08
0985		NATIONWIDE RETIREMENT SOLUTION							
	I-CUN201904081499	457 CATCH UP	R	4/10/2019	230.77		033540		
	I-DCN201904081499	DEFERRED COMP FLAT	R	4/10/2019	5,135.39		033540		
	I-DN%201904081499	DEFERRED COMP PERCENT	R	4/10/2019	692.37		033540		6,058.53
0180		S.E.I.U. - LOCAL 721							
	I-COP201904081499	SEIU 721 COPE	R	4/10/2019	45.00		033541		
	I-UND201904081499	UNION DUES	R	4/10/2019	841.50		033541		886.50
		CORNELL, SEAN & DIAN							
	I-000201904081498	UB REFUND	R	4/10/2019	455.79		033542		455.79
2587		A&M LAWNMOWER SHOP							
	I-47697	Cables - LCRA	R	4/17/2019	31.55		033543		31.55
2333		A-1 Truck & Equipment							
	I-31681	Body Repair - Unit 51	R	4/17/2019	2,814.87		033544		2,814.87
2297		AAA AWNINGS INC.							
	I-040419	Awnings for Pump Plants - EM	R	4/17/2019	34,420.00		033545		34,420.00
1325		Aflac Worldwide Headquarters							
	I-210979	Supplemental Insurance 4/19	R	4/17/2019	3,435.78		033546		3,435.78
3955		Al's Roofing & Gutters							
	I-246	Rain Gutters - ENG	R	4/17/2019	12,404.40		033547		12,404.40
0012		ALL-PHASE ELECTRIC SUPPLY CO.							
	I-5665-650346	Fuse for Pump - TP	R	4/17/2019	75.64		033548		75.64

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
9569		ALLCABLE							
	I-4009935	Cable for Telemetry - EM	R	4/17/2019	118.53		033549		118.53
3954		Allen Instruments & Supplies,							
	I-10503	Ball & Socket Link - ENG	R	4/17/2019	32.13		033550		32.13
3044		Amazon Capital Services							
	C-1FNJ-GNHR-6KXFb	Accrue Use Tax	R	4/17/2019	39.03CR		033551		
	D-1FNJ-GNHR-6KXFa	Accrue Use Tax	R	4/17/2019	39.03		033551		
	I-11QP-4MQQ-4TQL	Showerheads & Handle - LCRA	R	4/17/2019	961.18		033551		
	I-1FNJ-GNHR-6KXF	Push Button Lock Key - MAINT	R	4/17/2019	538.39		033551		1,499.57
0029		AMERICAN TOWER CORP							
	I-2996717	Tower Rent-Red Mtn.Rincon Peak	R	4/17/2019	2,013.15		033552		2,013.15
1602		ANGELUS BLOCK CO., INC.							
	I-VT00213936	Caps - LCRA	R	4/17/2019	44.53		033553		44.53
0014		AQUA-FLO SUPPLY							
	I-SI1338152	Fittings, Pipe, & Cement - UT	R	4/17/2019	116.21		033554		
	I-SI1340902	Repair Clamps - UT	R	4/17/2019	56.34		033554		
	I-SI1340907	Repair Clamps - PL	R	4/17/2019	56.34		033554		
	I-SI1344061	PVC Caps - LCRA	R	4/17/2019	2.37		033554		231.26
1666		AT & T							
	I-000012873373	Acct#9391051740	R	4/17/2019	1,044.66		033555		1,044.66
0018		AT & T MOBILITY							
	I-287290467941X04102	Acct#287290467941	R	4/17/2019	62.69		033556		62.69
0021		AWA OF VENTURA COUNTY							
	I-040719	Operators Tech Workshop 4/18	R	4/17/2019	950.00		033557		
	I-06-11606a	WaterWise Breakfast 3/21/19	R	4/17/2019	50.00		033557		
	I-06-11606b	WaterWise Breakfast 3/21/19	R	4/17/2019	100.00		033557		
	I-06-11659	CCWUC Luncheon 3/27/19	R	4/17/2019	35.00		033557		1,135.00
0030		B&R TOOL AND SUPPLY CO							
	I-1900928591	Roll Pin - EM	R	4/17/2019	47.45		033558		
	I-1900928697	Terry Cloth Rags - WHS	R	4/17/2019	415.51		033558		
	I-1900928889	Sledge Hammer & Paint - ENG	R	4/17/2019	56.27		033558		
	I-1900929008	Wrench, Tubing, Screwdriver-PL	R	4/17/2019	622.92		033558		
	I-1900929012	Gloves - PL	R	4/17/2019	56.25		033558		1,198.40

ENDOR SET: 01 Casitas Municipal Water D
ANK: AP ACCOUNTS PAYABLE
ATE RANGE: 4/04/2019 THRU 4/17/2019

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
0679		BAKERSFIELD PIPE & SUPPLY INC							
	I-S2577560.001	Coupling - EM	R	4/17/2019	13.88		033559		
	I-S2578905.001	Clamp - EM	R	4/17/2019	43.71		033559		57.59
2922		Bartel Associates, LLC							
	I-19-170	Actuarial Consutling Services	R	4/17/2019	3,170.00		033560		3,170.00
0032		BIOVIR LABORATORIES, INC							
	I-190381	Giardia/Crypto Test 3/14/19	R	4/17/2019	357.86		033561		357.86
3207		BMI PacWest Inc.							
	I-012171	AC Service DO 4/19	R	4/17/2019	559.00		033562		559.00
3059		Brenntag Pacific Inc.							
	I-BPI933237	Chlorine for Ojai Sys. - TP	R	4/17/2019	710.99		033563		710.99
0463		Cal-Coast Machinery							
	I-533393	Tractor Rental 3/11-4/10	R	4/17/2019	2,268.14		033564		
	I-538730	Mower Deck - WP	R	4/17/2019	741.11		033564		3,009.25
0208		CareIQ							
	I-6/13316441-1	1102WC190000002 DOS 12/6/18	R	4/17/2019	130.64		033565		
	I-6/13353878-1	1102WC190000002 DOS 1/17/19	R	4/17/2019	131.67		033565		
	I-6/13353879-1	1102WC190000002 DOS 1/22/19	R	4/17/2019	131.67		033565		393.98
0055		CASITAS BOAT RENTALS							
	I-Mar 19	Gas for Boats - LCRA	R	4/17/2019	1,067.96		033566		1,067.96
4051		Catalyst Environmental Solutio							
	I-Casitas-1	Red Frog Survey - FISH	R	4/17/2019	9,764.51		033567		
	I-Casitas-2	Red Frog Survey - FISH	R	4/17/2019	1,711.25		033567		11,475.76
0511		Centers for Family Health							
	I-6/13314123-1	1102WC190000002 DOS 1/17/19	R	4/17/2019	71.87		033568		
	I-85460	Drug Screening - DO	R	4/17/2019	45.00		033568		116.87
2322		Coast Cart, Inc.							
	I-15579	Brake Shoe Package - Unit EZ4	R	4/17/2019	42.85		033569		42.85
1843		COASTAL COPY							
	I-845213	Copier Usage - ADM/OM	R	4/17/2019	670.29		033570		670.29
0061		COMPUWAVE							
	I-SB02092299	Cable - LCRA	R	4/17/2019	9.65		033571		
	I-SB02092348	Toner - ADM	R	4/17/2019	58.45		033571		68.10

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
0062		CONSOLIDATED ELECTRICAL							
	C-9009-788883	Coil Return - EM	R	4/17/2019	227.79CR		033572		
	I-9009-787187	Relay & Coils - TP	R	4/17/2019	419.32		033572		
	I-9009-788867	Clarifier Filter Parts - EM	R	4/17/2019	413.47		033572		605.00
2115		Consumers Pipe Supply Co.							
	I-S1416141.003	Stonel Limit Switch - MAINT	R	4/17/2019	421.93		033573		421.93
0331		COORDINATED WIRE ROPE							
	I-83639	300 Foot Cable - PL	R	4/17/2019	598.01		033574		
	I-83665	300 Foot Wire & Cables - PL	R	4/17/2019	634.28		033574		1,232.29
0719		CORELOGIC INFORMATION SOLUTION							
	I-81954968	Realquest Subscription	R	4/17/2019	137.50		033575		137.50
0770		CORRPRO COMPANIES, INC.							
	I-547530	Resevoir Cathodic Services -EM	R	4/17/2019	6,250.00		033576		6,250.00
1483		CORVEL CORPORATION							
	I-6/13293142-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13296142-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13314123-1	Bill Review	R	4/17/2019	11.55		033577		
	I-6/13316441-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13323096-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13324827-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13325493-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13342448-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13342961-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13353878-1	Bill Review	R	4/17/2019	9.50		033577		
	I-6/13353879-1	Bill Review	R	4/17/2019	9.50		033577		
	I-C00205783577	Claim 1102WC180000001	R	4/17/2019	120.00		033577		
	I-M134007539840	Claim 1102WC180000001	R	4/17/2019	169.54		033577		
	I-M134007543182	Claim 1102WC180000001	R	4/17/2019	137.39		033577		533.48
0250		COUNTY OF VENTURA							
	I-IN0187052	HMBP & CUPA Fees - TP	R	4/17/2019	4,069.45		033579		4,069.45
2041		Custom Mailing Solutions, Inc							
	I-8379	Spring Newsletter - CONS	R	4/17/2019	5,960.00		033580		5,960.00
1001		CUSTOM PRINTING							
	I-152093	Winter/Spring Newsletter -CONS	R	4/17/2019	2,997.64		033581		2,997.64

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
2722		D&H Water Systems							
	C-10	PVC Notch Return - TP	R	4/17/2019	87.67CR		033582		
	I-I2019-0319	Chlorination Parts - TP	R	4/17/2019	5,357.61		033582		5,269.94
1764		DataProse, LLC							
	I-DP1900800	UB Mailing 2/19	R	4/17/2019	3,337.67		033583		3,337.67
0081		DELTA LIQUID ENERGY							
	I-074791	Propane - LCRA	R	4/17/2019	343.23		033584		
	I-074792	Propane - LCRA	R	4/17/2019	268.92		033584		
	I-075340	Propane - LCRA	R	4/17/2019	300.26		033584		912.41
2544		Department of Justice							
	I-368357	Finger Printing - LCRA	R	4/17/2019	32.00		033585		32.00
0662		Diamond A Equipment							
	I-P28068	Mower Deck Parts - Unit 277	R	4/17/2019	312.58		033586		
	I-P28247	Bearings & Oils Seals-Unit 284	R	4/17/2019	204.01		033586		
	I-P28294	Locking Bolts - Unit 277	R	4/17/2019	67.87		033586		
	I-P28295	Gear Box Assembly - Unit 277	R	4/17/2019	1,218.71		033586		
	I-P28444	Engine Starter - Unit 281	R	4/17/2019	297.44		033586		
	I-P28529	Mower Deck - Unit 284	R	4/17/2019	168.99		033586		2,269.60
3910		DoiT International USA, INC							
	I-EI198000076	G-Suite Business 3/19	R	4/17/2019	1,110.00		033587		1,110.00
0086		E.J. Harrison & Sons Inc							
	I-1428	Acct#500546088	R	4/17/2019	544.77		033588		544.77
0099		FGL ENVIRONMENTAL							
	I-902983A	TOC Monitoring 3/5/19	R	4/17/2019	104.00		033589		104.00
0101		FISHER SCIENTIFIC							
	I-9574764	Autoclave Thermometer - LAB	R	4/17/2019	114.91		033590		114.91
2710		Ford of Ventura Inc							
	I-5061055	Fuse Panel - Unit 14	R	4/17/2019	30.63		033591		30.63
0088		FRED PRYOR SEMINARS							
	I-221564	Annual Renewal Fee - CONS	R	4/17/2019	11,151.00		033592		11,151.00
0104		FRED'S TIRE MAN							
	I-114975	Tires & Balance - Unit 29	R	4/17/2019	348.42		033593		
	I-115085	Oil Service - Unit 58	R	4/17/2019	47.83		033593		396.25

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
0106		FRONTIER PAINT							
	I-F0245476	Paint Base - WP	R	4/17/2019	141.58		033594		141.58
1280		FRY'S ELECTRONICS, INC.							
	I-7412873	Cables & Adapters - IT	R	4/17/2019	54.92		033595		54.92
2720		Garda CL West, Inc.							
	I-10473847	Armored Truck Service	R	4/17/2019	731.40		033596		731.40
2417		GardenSoft							
	I-5500	Gardening Website Update -CONS	R	4/17/2019	268.75		033597		268.75
0115		GRAINGER, INC							
	I-9142784181	Strobe Tube - TP	R	4/17/2019	61.55		033598		61.55
4022		Hamner, Jewell & Associates							
	I-10052	Camp Chafee Easement - ENG	R	4/17/2019	2,062.50		033599		
	I-10121	Champ Chafee Easement - ENG	R	4/17/2019	412.50		033599		2,475.00
3700		HDR Engineering, Inc.							
	I-1200184514	Camp Chafee Pipeline Phase 2	R	4/17/2019	3,301.84		033600		3,301.84
0596		HOME DEPOT							
	I-189963	Industrial Door - LCRA	R	4/17/2019	319.04		033601		
	I-8155020	Jigsaw & Saw - MAINT	R	4/17/2019	330.33		033601		
	I-860898	Industrial Door - LCRA	R	4/17/2019	347.24		033601		996.61
0125		IDEXX DISTRIBUTION CORP							
	I-3045705325	Disposable Vessels - LAB	R	4/17/2019	171.15		033602		171.15
0127		INDUSTRIAL BOLT & SUPPLY							
	I-198721-1	Wedges - EM	R	4/17/2019	18.66		033603		18.66
0872		Irrisoft, Inc.							
	I-6514	Weather Station Signal	R	4/17/2019	79.00		033604		79.00
0493		J & H ENGINEERING GENERAL							
	I-3361	Patch Paving - LCRA	R	4/17/2019	17,110.00		033605		17,110.00
9910		J.W. ENTERPRISES							
	I-308485	CT Pumping - AVE 1 PP	R	4/17/2019	78.75		033606		
	I-308486	CT Pumping - VILLANOVA RES	R	4/17/2019	78.75		033606		
	I-308487	CT Pumping - FAIRWAY LN	R	4/17/2019	78.75		033606		
	I-308488	CT Pumping - 4M PP	R	4/17/2019	78.75		033606		
	I-308489	CT Pumping - GRAND AVE	R	4/17/2019	78.75		033606		
	I-308490	CT Pumping - 40 RES	R	4/17/2019	78.75		033606		
	I-308491	CT Pumping - GRAND AVE	R	4/17/2019	157.50		033606		
	I-308492	CT Pumping - UPPER OJAI RES	R	4/17/2019	78.75		033606		

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	I-308493	CT Pumping - 3M PUMP	R	4/17/2019	78.75		033606		
	I-308494	CT Pumping - SIGNAL RES	R	4/17/2019	78.75		033606		
	I-308495	CT Pumping - FAIRVIEW RES.	R	4/17/2019	78.75		033606		
	I-308496	CT Pumping - CASITAS DAM	R	4/17/2019	78.75		033606		
	I-308497	CT Pumping - RINCON TANK	R	4/17/2019	78.75		033606		
	I-308498	CT Pumping - BATES RD.	R	4/17/2019	78.75		033606		1,181.25
2808		Jess Ranch Fish Hatchery							
	I-1930	Trout for Fishing Day - LCRA	R	4/17/2019	10,128.00		033608		10,128.00
1022		KELLY CLEANING & SUPPLIES, INC							
	I-45290492	Janitorial Services - LCRA	R	4/17/2019	280.00		033609		280.00
0328		LIGHTNING RIDGE							
	I-3271905	Workwear - ENG	R	4/17/2019	972.65		033610		
	I-3281908	Uniform Shirts - UT	R	4/17/2019	130.08		033610		1,102.73
1829		MAC'S AUTO UPHOLSTERY							
	I-24957	Seat Cushion - Unit 51	R	4/17/2019	351.93		033611		351.93
0151		MEINERS OAKS ACE HARDWARE							
	C-871524	Toilet Seat Refund - LCRA	R	4/17/2019	15.62CR		033612		
	C-K71987	Primer - LCRA	R	4/17/2019	41.12CR		033612		
	I-868139	Gloves,Cable Ties,Swivel- FISH	R	4/17/2019	102.68		033612		
	I-868294	Clamps & Sump Pump - PL	R	4/17/2019	95.29		033612		
	I-868377	Tote, Shelf, Tape, Blades-FISH	R	4/17/2019	171.08		033612		
	I-868957	Pole, Gloves, Wheel - FISH	R	4/17/2019	165.84		033612		
	I-869506	Blades, Tape, Shovels - PL	R	4/17/2019	119.05		033612		
	I-870617	Storage Box,Blades,Joint-MAINT	R	4/17/2019	33.44		033612		
	I-870643	Gloves - MAINT	R	4/17/2019	14.63		033612		
	I-870940	Tape, Clamp, Gloves - TP	R	4/17/2019	39.59		033612		
	I-870994	Paint - TP	R	4/17/2019	84.72		033612		
	I-871297	Self Drill - LCRA	R	4/17/2019	8.03		033612		
	I-871478	Bucket, Gloves, & Bushings -TP	R	4/17/2019	12.66		033612		
	I-871483	Batteries,Blades,Silicone - PL	R	4/17/2019	58.88		033612		
	I-871506	Spade Drain - PL	R	4/17/2019	23.91		033612		
	I-871517	Toilet Seat - LCRA	R	4/17/2019	52.68		033612		
	I-871529	Tape, Gloves, Saw Hole - UT	R	4/17/2019	60.32		033612		
	I-871611	Drill, Bolts,Screws,Nuts-MAINT	R	4/17/2019	71.84		033612		
	I-871633	Valves - LCRA	R	4/17/2019	61.23		033612		
	I-871650	Rope, Gloves, Buckets - PL	R	4/17/2019	20.79		033612		
	I-871680	Line Trimmer - LCRA	R	4/17/2019	8.03		033612		
	I-871712	Gloves, Broom, Cable Ties - TP	R	4/17/2019	45.69		033612		
	I-872676	Steel - TP	R	4/17/2019	23.41		033612		
	I-872762	Gloves, Hat, Blades - UT	R	4/17/2019	62.69		033612		
	I-K71801	Trash Can - PL	R	4/17/2019	21.46		033612		
	I-K71812	Spraypaint & Sanitizer - LCRA	R	4/17/2019	34.34		033612		
	I-K71831	PVC Cavble & Concrete - WP	R	4/17/2019	50.48		033612		

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
	I-K71865	Door Seal & Paint - TP	R	4/17/2019	7.11		033612		
	I-K71902	Pails & Hat - MAINT	R	4/17/2019	21.62		033612		
	I-K71905	Plywood & Siding - LCRA	R	4/17/2019	191.55		033612		
	I-K71941	Measure Wheel - ENG	R	4/17/2019	107.35		033612		
	I-K71990	Pine, Plywood, Line - LCRA	R	4/17/2019	82.23		033612		
	I-K72013	Cable Ties & Screws - LCRA	R	4/17/2019	38.41		033612		
	I-K72110	Goggles & Lattice - LCRA	R	4/17/2019	15.68		033612		
	I-K72261	Paint, Flanges, Elbows - LCRA	R	4/17/2019	59.98		033612		
	I-K72267	Tube Vinyl - TP	R	4/17/2019	14.48		033612		
	I-K72299	Fan & Bug Spray - WHS	R	4/17/2019	6.81		033612		
	I-K72491	Trash Bags & Tape - LCRA	R	4/17/2019	31.84		033612		1,963.08
3724		Michael K. Nunley & Associates							
	I-5346	Engineering Serv.-Proj 421/422	R	4/17/2019	32,405.00		033616		
	I-5353	OVPP Performance Eval - EM	R	4/17/2019	170.00		033616		
	I-5413	Running Ridge Zone Improvement	R	4/17/2019	1,522.76		033616		34,097.76
0980		MISCOWATER							
	I-CF13601	Ejector Body & Parts - TP	R	4/17/2019	2,115.65		033617		2,115.65
3444		Mission Linen Supply							
	I-509576458	Uniform Pants - TP	R	4/17/2019	28.76		033618		
	I-509623216	Uniform Pants - TP	R	4/17/2019	28.76		033618		
	I-509672315	Uniform Pants - TP	R	4/17/2019	28.76		033618		86.28
3701		MNS Engineers, Inc.							
	I-72158	Arc Flash Hazard Analysis-ENG	R	4/17/2019	742.50		033619		
	I-72162	Grand Ave. Optimization - ENG	R	4/17/2019	1,922.11		033619		2,664.61
0812		KEVIN NGUYEN							
	I-Apr 19	Reimburse Expenses 4/19	R	4/17/2019	108.81		033620		108.81
1570		Ojai Auto Supply							
	I-458840	Solenoid & Oil - Unit 130	R	4/17/2019	39.54		033621		
	I-459536	Lamp & Battery - Unit 39	R	4/17/2019	1.17		033621		
	I-460095	Red Tacky Grease - PL	R	4/17/2019	18.69		033621		
	I-460442	Battery - EM	R	4/17/2019	97.97		033621		
	I-460468	Anit Freeze - Unit 284	R	4/17/2019	21.88		033621		179.25
0912		OJAI BUSINESS CENTER, INC							
	I-14246	Laminating,Binding,Shipping-OM	R	4/17/2019	310.29		033622		310.29
0165		OJAI LUMBER CO, INC							
	I-1903-915404	Lumber & Nails - TP	R	4/17/2019	62.49		033623		
	I-1903-916399	Lumber - MAINT	R	4/17/2019	56.25		033623		
	I-1903-916508	Nails, Bolts, Sealant - TP	R	4/17/2019	56.90		033623		
	I-1904-917254	Treated Lumber - WP	R	4/17/2019	562.03		033623		
	I-1904-917548	Stakes - ENG	R	4/17/2019	49.86		033623		787.53

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
0602		OJAI TRUE VALUE							
	I-52222	Bleach - LAB	R	4/17/2019	5.89		033624		5.89
0168		OJAI VALLEY NEWS							
	I-300028704	Drought Ad - CONS	R	4/17/2019	350.00		033625		350.00
0169		OJAI VALLEY SANITARY DISTRICT							
	I-21071	Cust # 20594	R	4/17/2019	168.42		033626		168.42
0169		OJAI VALLEY SANITARY DISTRICT							
	I-21146	Cust # 52921	R	4/17/2019	56.14		033627		56.14
0169		OJAI VALLEY SANITARY DISTRICT							
	I-21150	Cust # 99991	R	4/17/2019	7,613.34		033628		7,613.34
0169		OJAI VALLEY SANITARY DISTRICT							
	I-21151	Cust # 99991	R	4/17/2019	45,547.48		033629		45,547.48
0169		OJAI VALLEY SANITARY DISTRICT							
	I-21152	Cust # 99991	R	4/17/2019	25,824.18		033630		25,824.18
0383		ON DUTY UNIFORMS & EQUIPMENT							
	I-2102	Ballistic Vests - LCRA	R	4/17/2019	1,670.13		033631		
	I-2105	Name Badges - LCRA	R	4/17/2019	25.86		033631		1,695.99
1627		OSCAR'S TREE SERVICE							
	I-14367	Camp E Tree Trimming - LCRA	R	4/17/2019	12,350.00		033632		12,350.00
2906		Craig R. Oswald							
	I-1318	Ceiling Framing & Sheeting-ENG	R	4/17/2019	7,872.00		033633		7,872.00
1189		OXNARD CAMARILLO ANESTHESIA GR							
	I-6/13325493-1	1102WC180000002 DOS 1/21/19	R	4/17/2019	270.01		033634		270.01
0178		PARADISE CHEVROLET							
	I-PQ18468	Seat Repair Parts - Unit 51	R	4/17/2019	657.65		033635		657.65
2187		Pitney Bowes Inc							
	I-1011872360	Maintenance Agreement	R	4/17/2019	401.04		033636		
	I-1011917638	Maintenance Agreement	R	4/17/2019	127.62		033636		528.66
3287		Porta-Stor							
	I-292012	Storage Container 3/8-4/7	R	4/17/2019	110.00		033637		110.00

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
0184		POWERSTRIDE BATTERY CO, INC							
	I-V599436	Battery - FISH	R	4/17/2019	95.58		033638		
	I-V599458	Battery - Unit 80	R	4/17/2019	257.38		033638		352.96
2833		Praxair, Inc							
	I-88667626	Liquid Oxygen - TP	R	4/17/2019	2,322.54		033639		
	I-88757379	Liquid Oxygen - TP	R	4/17/2019	2,411.80		033639		4,734.34
1439		PRECISION POWER EQUIPMENT							
	I-2391	Filters - MAINT	R	4/17/2019	63.14		033640		63.14
0042		PSR ENVIRONMENTAL SERVICE, INC							
	I-9224	Gas Tank Inspetion - DO	R	4/17/2019	220.00		033641		
	I-9225	Gas Tank Inspecton - LCRA	R	4/17/2019	220.00		033641		440.00
3611		Quality Muffler Complete Auto							
	I-2785	Muffler - Unit 72	R	4/17/2019	133.85		033642		133.85
0306		Rincon Consultants, Inc.							
	I-10084	Permit Support - ENG	R	4/17/2019	13,493.00		033643		13,493.00
0313		ROCK LONG'S AUTOMOTIVE							
	I-26306	Coolant Leak Repair - Unit 44	R	4/17/2019	52.50		033644		52.50
2756		SC Fuels							
	C-1132168-IN	Drum Return - GAR	R	4/17/2019	45.00CR		033645		
	I-1393174-In	Gas & Diesel - LCRA	R	4/17/2019	3,017.96		033645		2,972.96
0608		SMITH PIPE & SUPPLY INC.							
	I-3416459	Roundup - LCRA	R	4/17/2019	528.05		033646		528.05
0215		SOUTHERN CALIFORNIA EDISON							
	I-041219	Acct#2397969643	R	4/17/2019	4,876.66		033647		4,876.66
1147		SUPERIOR GATE SYSTEMS							
	I-4125	Detector for Gate - LCRA	R	4/17/2019	270.00		033648		270.00
1964		Surface Pump Inc.							
	I-0133629-IN	Pump Rebuild - TP	R	4/17/2019	1,508.70		033649		1,508.70
2643		Take Care by WageWorks							
	I-8878706	Reimburse Med/Dep Care	R	4/17/2019	61.77		033650		61.77

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
1959		The Wharf							
	I-040119	Jeans for Spraying - MAINT	R	4/17/2019	103.33		033651		103.33
9465		TRAVIS AGRICULTURAL CONSTRUCTI							
	I-19158F	Potholing - PL	R	4/17/2019	8,625.00		033652		8,625.00
9465		TRAVIS AGRICULTURAL CONSTRUCTI							
	I-19159F	Meter Service Relocation - PL	R	4/17/2019	8,380.00		033653		8,380.00
9465		TRAVIS AGRICULTURAL CONSTRUCTI							
	I-19160F	Culvert Installation - PL	R	4/17/2019	7,750.00		033654		7,750.00
0364		TRI-COUNTY OFFICE FURNITURE							
	I-139473	Office Furniture Adm Mgr. - DO	R	4/17/2019	802.23		033655		802.23
0225		UNDERGROUND SERVICE ALERT							
	I-18dsbfee1285	Regulatory Costs - ENG	R	4/17/2019	146.66		033656		
	I-320190090	113 New Ticket Charges	R	4/17/2019	196.45		033656		343.11
9775		VENTURA ORTHOPEDICS MEDICAL GR							
	I-6/13296142-1	1102WC180000002 DOS 1/14/19	R	4/17/2019	215.37		033657		
	I-6/13323096-1	1102WC180000002 DOS 1/21/19	R	4/17/2019	759.19		033657		
	I-6/13324827-1	1102WC190000002 DOS 1/14/19	R	4/17/2019	423.76		033657		
	I-6/13342448-1	1102WC180000002 DOS 1/28/19	R	4/17/2019	12.65		033657		1,410.97
0257		VENTURA RIVER WATER DISTRICT							
	I-033119a	Acct#03-50100A	R	4/17/2019	10.00		033658		
	I-033119b	Acct#05-37500A	R	4/17/2019	32.40		033658		42.40
0258		VENTURA STEEL, INC							
	I-221651	Steel Plates - EM	R	4/17/2019	30.73		033659		30.73
9955		VENTURA WHOLESALE ELECTRIC							
	I-247407	Whs Electrical Parts - ENG	R	4/17/2019	466.99		033660		
	I-247647	Connectors - EM	R	4/17/2019	72.73		033660		
	I-247744	Wallplate & Switch Ring - ENG	R	4/17/2019	14.98		033660		554.70
0247		County of Ventura							
	I-040119	Encroachment Permits	R	4/17/2019	455.00		033661		455.00
1283		Verizon Wireless							
	I-9827456211	Monthly Cell Charges - DO	R	4/17/2019	3,717.53		033663		
	I-9827456707	Monthly Cell Charges - LCRA	R	4/17/2019	700.09		033663		4,417.62

ENDOR SET: 01 Casitas Municipal Water D
ANK: AP ACCOUNTS PAYABLE
ATE RANGE: 4/04/2019 THRU 4/17/2019

ENDOR	I.D.	NAME	STATUS	CHECK DATE	INVOICE AMOUNT	DISCOUNT	CHECK NO	CHECK STATUS	CHECK AMOUNT
1396		VULCAN CONSTRUCTION MATERIALS							
	I-72128700	Asphalt Pickup - PL	R	4/17/2019	200.00		033664		
	I-72128701	Asphalt Pickup - PL	R	4/17/2019	545.34		033664		
	I-72137061	Asphalt Pickup - PL	R	4/17/2019	200.00		033664		
	I-72137062	Asphalt Pickup - PL	R	4/17/2019	696.61		033664		1,641.95
2583		WageWorks							
	I-INV1349687	FSA Monthly Admin Fee	R	4/17/2019	175.00		033665		175.00
0663		WAXIE SANITARY SUPPLY							
	I-78174786	Janitorial Supplies - DO	R	4/17/2019	643.07		033666		643.07
0330		WHITE CAP CONSTRUCTION SUPPLY							
	I-10010347454	Half Mask with Latch - WP	R	4/17/2019	37.15		033667		
	I-50009940965	Valve, Earplugs, Broom - PL	R	4/17/2019	475.52		033667		
	I-50010095357	Eurethane Sealant - WP	R	4/17/2019	225.23		033667		737.90
0250		COUNTY OF VENTURA							
	I-FA0004931	HMBP Fees - GAR	R	4/17/2019	3,076.15		033668		3,076.15
3864		County of Ventura Resource Man							
	I-044657a	Code Compliance Staff Time	R	4/17/2019	32.37		033669		32.37

* * T O T A L S * *	NO			INVOICE AMOUNT	DISCOUNTS	CHECK AMOUNT
REGULAR CHECKS:	160			586,662.41	0.00	586,662.41
HAND CHECKS:	0			0.00	0.00	0.00
DRAFTS:	3			123,947.66	0.00	123,947.66
EFT:	0			0.00	0.00	0.00
NON CHECKS:	0			0.00	0.00	0.00
VOID CHECKS:	0	VOID DEBITS	0.00			
		VOID CREDITS	0.00	0.00	0.00	

OTAL ERRORS: 0

	NO	INVOICE AMOUNT	DISCOUNTS	CHECK AMOUNT
VENDOR SET: 01 BANK: AP TOTALS:	163	710,610.07	0.00	710,610.07
BANK: AP TOTALS:	163	710,610.07	0.00	710,610.07
REPORT TOTALS:	163	710,610.07	0.00	710,610.07

CASITAS MUNICIPAL WATER DISTRICT
MEMORANDUM

TO: MICHAEL FLOOD, GENERAL MANAGER

FROM: MICHAEL SHIELDS, OPERATIONS & MAINTENANCE MANAGER

SUBJECT: DISTRICT PARTICIPATION IN THE CLEAN POWER ALLIANCE (CPA)

DATE: APRIL 16, 2019

BACKGROUND:

California state legislation (AB-117) was passed in 2002 which authorized community choice aggregation. Community choice aggregation (CCA), also known as municipal aggregation, is a program that allows local government to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider. The Clean Power Alliance (CPA) of Southern California is community choice aggregate established in 2017 to provide cost competitive renewable "clean" electricity to communities in Ventura and Los Angeles counties. Starting May 1, 2019 the district will now have a choice on selecting who their service account energy provider is; either SCE or CPA. Over the past few months CMWD staff have investigated the integration of CPA in order to understand both the financial and operational implications to the district, which has included background research along with seminar presentations by both SCE and CPA.

AVAILABLE OPTIONS:

The following power procurement options are available to the district:

- ✓ Do nothing, which will result in default enrollment under the CPA's green power rate (100% renewable energy) for all of CMWD's electrical service accounts starting on May 1, 2019.
- ✓ Opt out of CPA and retain SCE as the district's sole energy provider.
- ✓ Enroll under one CPA's alternate renewable energy portfolios; either the clean power rate (50% renewable energy) or lean power rate (36% renewable energy)
- ✓ Select a customized mixed portfolio of the above options.

DISCUSSION:

The district currently has seventy two active SCE service accounts; a significant portion of the district's operating budget is allocated towards funding these accounts. In order to place these expenses in perspective, a breakdown on expenditures since July 2015 is provided below:

- ✓ FY 2015/2016 = $1,773,613
- ✓ FY 2016/2017 = $1,710,434
- ✓ FY 2017/2018 = $1,766,983
- ✓ FY 2018/2019 = $1,058,674 (through 2-28-19)

In order to analyze the potential budgetary implications of the CPA rate plan choices a brief summary of the associated costs are provided below.

- ✓ CPA "Lean Power" contains a 36% renewable energy content and is 1% to 2% cheaper than the default SCE rate.
- ✓ CPA "Clean Power" contains a 50% renewable energy content and is roughly equivalent to the default SCE rate.
- ✓ CPA "Green Power" contains a 100% renewable energy content and is 7% to 9% more expensive than the default SCE rate.

Based on the above information, default enrollment under the CPA "Green Power" rate plan will have a sizable budgetary impact. Assuming a conservative estimate total of 35% on the delivery/procurement costs, an 8% increase in supply cost, and the average electrical district expenditures over the previous three budget years the net result is an additional $49,000.00 per budget year. Additionally, under this structure (and the alternate two CPA rate plans) the district will be unable to participate in certain cost incentive plans such as SCE's critical peak pricing (CPP) program that offer significant discounts on summer electricity rates; which will further add to annual budget expenditures.

RECOMMENDATION:

Recognizing both the inherent importance of supporting renewable energy resources and at the same time maintaining fiscal responsibility to our districts ratepayers my current recommendation is a customized portfolio made up of both CPA and SCE electricity procurement.

- ✓ Enrollment under the CPA "Clean Power" rate plan for the district's small to medium sized service accounts. (53 total accounts)
- ✓ Retain SCE as the district's energy provider for the larger service accounts such as pump plants or wellfields. (19 total accounts)

The above account choices will result in increased renewable content in the district's electrical consumption while also maintaining cost effective rates at our larger service accounts. Based on the present assessment, I believe this is a reasonable decision. In concluding I would like to emphasis that the power procurement options chosen are not closed end commitments; should the district decide to reevaluate the source and/or procurement at a future date the door is open to adjustment.

MEMORANDUM

TO: Board of Directors

From: Michael L. Flood, General Manager

RE: **Consideration of Four Job Classification Adjustments in Two Departments and Two Additional Positions in One Department**

Date: April 19, 2019

RECOMMENDATION:

The Board of Directors approve the job classification adjustments and two additional positions as presented.

BACKGROUND:

The Casitas Municipal Water District underwent changes in its organizational and staffing levels in response to the acquisition of the Ojai Water System eighteen months ago with staffing increases in the Operations and Maintenance Department as well as in the Engineering Department.

There is currently a need to review staffing levels to where the District is now in response to not only the staffing demands of the Ojai Water System but also issues of foreman job responsibilities, District finance, and drought-related customer service needs.

Staff presented information at the February 12, 2019, March 12, 2019, and April 9, 2019 Personnel Committee meetings regarding these proposed staffing changes, the associated six new job descriptions and answered questions.

The new job descriptions have been forwarded to the Service Employees International Union (SEIU) for review and comment.

DISCUSSSION:

The General Manager provided a PowerPoint presentation during April 9, 2019 Committee meeting that provided information on the proposed changes under consideration for this current agenda item (attached).

The presentation included specific information in regard to the four job classification adjustments and two additional positions that do not have job descriptions in place and also included a budgetary analysis.

The Personnel Committee recommended that these positions go to the Board of Directors at the April 24, 2019 meeting for approval.

Once comments are received from the SEIU, staff will review them and provide an update to the Board.

Proposed Staffing - Update

Personnel Committee Meeting

April 9, 2019

Agenda

- Job Classification Adjustments: O&M and Lake Casitas Recreation Area (LCRA)
- Additional Positions: Administration
- Future Steps & Timing

Job Classification Adjustments

- **Adjust Foreman to Supervisor – Four Positions**
  - Distribution
  - Utility
  - District Maintenance
  - Park Maintenance
- Reason:
  - Reflect current job duties that are supervisorial in nature (i.e. Unit Oriented rather than Task Oriented)

Job Classification Adjustments

Annual Budget Impacts - Job Reclassifications

Position	Salary	Other Costs/Benefits	Total
Distribution Supervisor	$ 6,045.52	$ 906.83	$ 6,952.35
Utility Supervisor	$ 4,878.64	$ 731.80	$ 5,610.44
District Maintenance Supervisor	$ 3,409.95	$ 511.49	$ 3,921.44
Park Maintenace Supervisor	$ 4,765.38	$ 714.81	$ 5,480.19
		Annual Budget Impact	**$ 21,964.42**

2019 O&M/Park Maint. Salaries (as of Feb 28th)	70%
2019 District Revenues (as of Feb 28th)	66%
2019 District Expenditures (as of Feb 28th)	68%

FY 2018-19 Operational Budgeted Surplus : $2,072,989.00

Additional Positions

Administration

- **Admin:**

  - Create Fulltime Accounting and Customer Service Supervisor

  - Create Fulltime Chief Financial Officer*

    (*Note: Current Accounting Manager position will be vacated)

Additional Positions

Administration

Annual Budget Impacts

Position	Salary	Other Costs/Benefits	Total
Customer Service & Accounting Supervisor	$ 81,621.28	$ 44,891.70	$ 126,512.98
Chief Financial Officer (CFO)	$ 8,985.60		$ 8,985.60
		Annual Budget Impact	**$ 135,498.58**

2019 Admin Salaries (as of Jan 31st)	63%
2019 District Revenues (as of Jan 31st)	66%
2019 District Expenditures (as of Jan 31st)	68%

FY 2018-19 Operational Budgeted Surplus $ 2,072,989.00

Future Steps & Timing

To the Board on April 24th:

- **Adjust Foreman to Supervisor – Four Positions**
  - Distribution
  - Utility
  - District Maintenance
  - Park Maintenance
- **Admin: New Positions**
  - Create Fulltime Accounting and Customer Service Supervisor
  - Create Fulltime Chief Financial Officer*

    (*Note: Current Accounting Manager position will be vacated)

CASITAS MUNICIPAL WATER DISTRICT

JOB TITLE: Distribution Supervisor
REPORTS TO: Operations & Maintenance Manager
FLSA STATUS: Non-Exempt
SALARY LEVEL: S-34
DATE: 3/29/2019

Definition

Under the general direction of the Operations and Maintenance Manager, supervises, plans and coordinates the operation and maintenance of the district's water distribution systems; including the installation, repair and maintenance of pipeline systems, service laterals and appurtenant facilities along with the routine operation of the distribution system. Acts as lead facility operator for the Robles diversion and fish passage facilities. Coordinates assigned activities with other district departments, outside agencies and the general public; and performs related work as required; ensures work quality and adherence to established policies and procedures. This position supervises all Distribution Tech Operators, I through V and the Distribution Foreperson.

Essential Functions

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this class.

Primary duties include but are not limited to the following:

- Serve as the district's principal "chief" distribution operator and assume responsibility for overseeing the day-to-day, hands on operation of the water distribution system; perform shift duties in addition to supervising the organization, staffing, and operational activities for water distribution facilities.
- Oversee and coordinate the repair, maintenance and installation of pipelines, valves, service lines; meters, pressure regulators, relief valves, and other distribution related assets.
- Respond to and direct emergencies related to the District's distribution system; plan and coordinate scheduled and unscheduled water system outages for installation and repairs; including temporary water main and service connections for affected areas; disinfect and flush as needed.
- Ensure that working conditions are safe and employees are trained in safe work practices and procedures.

- Prepare requisitions and other procurement methods for materials, supplies and equipment; maintain a working yard and vehicle inventory.
- Direct and set work routines, develop and follow through with work schedules to ensure smooth flow and timely completion of work assignments and projects.
- Initiate, attend, participate in, and contribute to staff meetings including safety, supervisory and sectional group meetings.
- Interview, select, train, motivate and evaluate distribution staff; perform employee evaluations; work with personnel to correct deficiencies; implement discipline procedures.
- Assist with and support Utility section preventative maintenance programs, such as valve, hydrant, vault, meter box, and other distribution system asset maintenance; assist other O&M sections with troubleshooting operational problems.
- Operate a variety of tools and heavy equipment such as welding and cutting tools, backhoe, excavator, forklift, dozer, dump truck, mobile crane, knuckle boom truck, front end loader, and street sweeper.
- Develop the annual operating budget for the distribution section; forecast funds needed for staffing, equipment, materials, supplies, maintenance, and capital improvements.
- Respond to customer reports of leaking pipes and service issues; work directly with the public and foster good public relations; provides direction and assistance to Distribution staff in maintaining and providing the 11 Commandments of good customer service.
- Monitor water quality by performing field tests for chlorine residual, turbidity, pH, hardness, odors and other tests as necessary to maintain water quality; investigates water quality complaints in the distribution system.
- Familiarity with monitoring and operating the district's SCADA system.
- Participate in the development of goals and procedures for distribution activities; assist with planning of any needed special projects; gather and analyze data; develop reports; recommend changes as necessary.
- Assist Engineering department with the review of plans, specifications, proposals, and bid packets; submit recommended changes as necessary; perform field verification checks on existing plans and prints.
- Facilitate operations of the Robles diversion facility and fish passage during river flow conditions; perform off-season maintenance and repair activities.
- Direct, supervise and train staff on Robles diversion facility and fish passage operations as needed.
- Perform a variety of housekeeping duties to ensure district facilities and worksites are maintained in a clean, orderly and safe condition.
- As needed, perform the full range of duties of the Distribution section series (Distribution Tech I-V and Foreperson)

- Perform special projects and assignments as requested.

Knowledge, Skills, and Abilities

Thorough knowledge in the operation and maintenance of distribution facilities; water science principles, methods and practices; safety regulations and OSHA requirements including principles and practices of work safety; knowledge of managerial skills, proper work safety standards and procedures, customer service standards and procedures; methods, equipment, materials and tools used in the construction, installation, operation and maintenance of the water distribution field. Knowledge of federal, state and local regulations pertinent to public water systems and the environment.

Ability to operate and instruct others in the safe operation of tools and heavy equipment used by the district; such as welding and cutting tools, forklift, backhoe, front-end loader, excavator, dozer, dump truck and crane operation. Ability to plan, schedule and coordinate field operation and preventive maintenance programs; read and draw prints and sketches. Communicate oral and written instruction clearly and effectivity, analyze situation effectively and adopt the effective course of action. Ability to prepare reports, budgets and contract documents. Read and interpret manuals, policies and procedures; operate and maintain a variety of hand and power tools required for day to day operations; ensure work is performed in a safe manner; comply with safety and health policies, procedures and practices.

Skilled in communication tactfully, professionally, effectively and efficiently with the public, governmental agencies, district management and co-workers. Skilled in handling customer complaints in an effective and efficient manner, establishing and maintaining effective relations with others; ability to provide oral safety direction and assists with maintaining the written safety programs of the District. Skilled in modern computer applications such as e-mail applications, word processing, spreadsheets calendar applications, geographical information systems (GIS) and computerized maintenance management systems (CMMS)

Education and Experience:

Any combination of education and experience that has led to the acquisition of the knowledge, skills, and abilities as indicated above including completion of twelfth grade, or its equivalent. A typical way to obtain the knowledge and skills and abilities would be:

- Experience: Eight years of progressive experience in the operation of potable water utility and distribution facilities, including five years of experience as a certified Grade V distribution shift operator and two years of supervisory responsibility.

- Training: A minimum of 12 units of college level course work in water science, construction technology or other a water-related field that includes at least one

course in supervision.

Certificates, Licenses, and Registrations:

Possession of the following:

- Grade V Water Distribution Operator's certificate issued by the California State Water Resources Control Board.
- Grade II Water Treatment Operator certificate issued by the California State Water Resources Control Board.
- California Class A driver's license.
- Mobile Crane Operator Certificate (NCCCO)
- Forklift Operator Certificate
- CPR/First Aid certificate.

Work Environment or Environmental Elements:

Employees work indoors and outdoors, and may be exposed to cold and hot temperatures, inclement weather conditions, loud noise levels, vibration, confining workspace, chemicals, mechanical and/or electrical hazards, and hazardous physical substances and fumes. Employees may interact with upset staff and/or public and private representatives, and contractors in interpreting and enforcing departmental policies and procedures.

Physical Requirements:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Must possess mobility to work in the field, in District buildings and facilities; strength, stamina and mobility to perform light to medium physical work, to work in confined spaces, around machines, to walk on uneven terrain, and to climb and descend ladders, and operate varied hand and power tools and construction equipment. Specific vision abilities required by this job include close vision, distance vision, depth perception and color vision. Ability to communicate in person and over the telephone or radio. The job involves fieldwork requiring frequent walking in operational areas to identify problems or hazards. The employee is required to have manual dexterity sufficient to operate a District vehicle, computers and standard office machines such as fax, calculator, telephone, copiers, etc. Positions in this classification bend, stoop, kneel, reach and climb to perform work and inspect work sites. Employees must possess the ability to lift, carry, push, and pull materials and objects weighing up to 60 pounds.

Other Requirements:

- United States citizenship or legal eligibility to work in the United States.
- Medical evaluation and pre-employment physical and drug screening to determine physical fitness for the job.
- Acceptable driving record consistent with the standards established by the District.
- Participation in job training or professional development programs.

Working Conditions:

Incumbents must be willing to work overtime as needed during emergency conditions, which may include nights, weekends and holidays in a continuous (24/7) operations environment; must be willing to participate in the customer service/distribution standby schedule for emergency callback response.

The specific statements shown in each section of this job description are not intended to be all-inclusive. They represent the essential functions and minimum qualifications necessary to successfully perform the assigned functions.

_____

Employee Signature Date

CASITAS MUNICIPAL WATER DISTRICT

JOB TITLE: Utility Supervisor
REPORTS TO: Operations & Maintenance Manager
FLSA STATUS: Non-Exempt
SALARY LEVEL: S-24
DATE: 4/19/2019

Definition

Under the general direction of the Operations and Maintenance Manager, supervises the activities related to the Utility section, meter reading, customer service work requests and preventive maintenance programs for District assets. Coordinate assigned activities with other district departments, outside agencies and the general public; perform related work as required; and ensure work quality and adherence to established policies and procedures. This position supervises all Utility Workers I-III.

Essential Functions

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this class.

Primary duties include but are not limited to the following:

- Supervise the work of others on an assigned basis including training of others.
- Direct and set work routines, develop and follow through with work schedules to ensure smooth flow and timely completion of work assignments and projects.
- Oversight and supervision of the meter, hydrant, valve and vault preventive maintenance programs.
- Full knowledge of automated meter reading/billing system.
- Perform the repair of water meters by disassembling, inspecting, replacing parts as needed, reassembling, and testing for accuracy.
- Perform preventative maintenance of valves, hydrants, vaults, meter boxes, and other distribution system assets.
- Respond to customer reports of leaking pipes and service issues; work directly with the public and foster good public relations; provides direction and assistance to Utility staff in maintaining and providing the 11 Commandments of good customer service.
- Monitor water quality by performing field tests for chlorine residual, turbidity, pH, hardness, odors, and other tests as necessary to maintain water quality; investigates

water quality complaints in the distribution system.

- Ensure working conditions are safe and employees are trained in safe work practices.
- Prepare requisitions and other procurement methods for materials, supplies and equipment; maintain a working yard and equipment inventory.
- Initiate, attend, participate in, and contribute to staff meetings including safety, supervisory and sectional group meetings.
- Interview, select, train, motivate and evaluate Utility staff; perform employee evaluations; work with personnel to correct deficiencies; implement discipline procedures.
- Develop the annual operating budget for the Utility section; forecasts funds needed for staffing, equipment, materials, supplies, maintenance, and capital improvements.
- Participate in the development of goals and procedures for utility activities; assist with the planning of any needed special projects; gather and analyze data; develop reports; recommend changes as necessary.
- Assist with operations, facility inspections, maintenance, and special projects at the treatment plant and all groundwater well treatment facilities.
- Provide journey level assistance to the distribution crew.
- Assist with operations of the Robles diversion facility and fish passage during river flow conditions.
- Perform a variety of housekeeping duties to ensure district facilities and worksites are maintained in a clean, orderly and safe condition.
- Perform all of the duties of Utility Workers I, II and III.
- Perform special projects and assignments as requested.
- Assists in emergencies and special circumstance events.

Knowledge, Skills, and Abilities

Knowledge in the practices of customer service, proper safety standards; methods, equipment, materials and tools used in the construction and installation of meter services and automated meter reading programs. Knowledge of safety regulations and OSHA requirements including principles and practices of work safety; knowledge of supervisory skills. Ability to instruct others in the safe operation of tools and equipment used by the District; such as cutting tools, valve turning machine, forklift, skid steer, and dump truck. Ability to plan, schedule and coordinate preventive maintenance programs. Communicate oral and written instructions clearly and effectively, analyze situation effectively and adopt an effective course of action. Ability to prepare reports, budgets and contract documents. Read and interpret manuals, policies and procedures; operate and maintain a variety of hand and power tools required for day to day operations; ensure work is performed in a safe manner; comply with safety and health policies, procedures and practices. Skilled in communicating tactfully, professionally, effectively and efficiently with the public, governmental agencies, district management and co-workers. Skilled in maintaining effective relations with others; ability to provide oral safety direction and assists with maintaining the written safety programs of the District. Skilled in modern computer applications such as email applications, word processing, spreadsheets, calendar applications,

geographical information systems (GIS) and computerized maintenance management systems (CMMS).

Education and Experience

Any combination of education and experience that has led to the acquisition of the knowledge, skills, and abilities as indicated above including completion of twelfth grade, or its equivalent. A typical way to obtain the knowledge and skills and abilities would be:

- Experience: Five years of progressive experience in the operation of potable water utility and distribution facilities, including three years of experience as a certified Grade 3 distribution shift operator and two years of supervisory responsibility.
- Training: A minimum of 12 units of college level coursework in water science, construction technology or other a water-related field that includes at least one course in supervision.

Certificates, Licenses, and Registrations

- Possession of a valid California Class C Driver's License.
- Grade 3 Water Distribution Operator's Certification issued by the California State Water Resources Control Board.
- Grade 2 Water Treatment Operator's Certification issued by the California State Water Resources Control Board.
- CPR/First Aid Certificate

Work Environment or Environmental Elements

Employees work indoors and outdoors, and may be exposed to cold and hot temperatures, inclement weather conditions, loud noise levels, vibration, confining workspace, chemicals, mechanical and/or electrical hazards, and hazardous physical substances and fumes. Employees may interact with upset staff and/or public and private representatives, and contractors in interpreting and enforcing departmental policies and procedures.

Physical Requirements

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Must possess mobility to work in the field, in District buildings and facilities; strength, stamina and mobility to perform light to medium physical work, to work in confined spaces, around machines, to walk on uneven terrain, and to climb and descend ladders, and operate varied hand and power tools and construction equipment. Specific vision abilities required by this job include close vision, distance vision, depth perception and color vision. Ability to

communicate in person and over the telephone or radio. The job involves fieldwork requiring frequent walking in operational areas to identify problems or hazards. The employee is required to have manual dexterity sufficient to operate a District vehicle, computers and standard office machines such as fax, calculator, telephone, copiers, etc. Positions in this classification bend, stoop, kneel, reach and climb to perform work and inspect work sites. Employees must possess the ability to lift, carry, push, and pull materials and objects weighing up to 60 pounds.

Other Requirements

- United States citizenship or legal eligibility to work in the United States.
- Medical evaluation and pre-employment physical and drug screening to determine physical fitness for the job.
- Acceptable driving record consistent with the standards established by the District.
- Participation in job training or professional development programs.

Working Conditions

Incumbents must be willing to work overtime as needed during emergency conditions, which may include nights, weekends and holidays in a continuous (24/7) operations environment; must be willing to participate in the customer service/distribution standby schedule for emergency callback response.

The specific statements shown in each section of this job description are not intended to be all-inclusive. They represent the essential functions and minimum qualifications necessary to successfully perform the assigned functions.

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Employee Signature Date

CASITAS MUNICIPAL WATER DISTRICT

JOB TITLE: Maintenance Supervisor
REPORTS TO: Operations & Maintenance Manager
FLSA STATUS: Non-Exempt
SALARY LEVEL: S-22
DATE: 3/29/2019

Definition

Under the general direction of the Operations and Maintenance Manager, supervises, plans and coordinates the maintenance of the district's facilities; including buildings, properties, grounds, and roads. Coordinates assigned activities with other district departments, outside agencies and the general public; performs skilled and semi-skilled maintenance and repairs on facilities and related work as required; and ensures work quality and adherence to established policies and procedures. This position supervises all employees in the Maintenance section including assigned part time employees.

Essential Functions:

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this class.

Primary duties include but are not limited to the following:

- Accept responsibility for the repair and maintenance of district facilities.
- Direct, supervise and train Maintenance staff on activities related to District facilities care and upkeep.
- Manage the district weed abatement program using Maintenance staff and outside services for both chemical and physical control methods.
- Operate heavy equipment, and other related machines (both District owned and rented) related to the maintenance and construction of facilities and roads.
- Supervise and perform skilled and semi-skilled work including; carpentry, cement work, torch cutting, plumbing and other related construction activities.
- Ensure working conditions are safe and employees are trained in safe work practices and procedures.
- Prepare requisitions and other procurement methods for materials, supplies and equipment; maintain a working yard and equipment inventory.

- Direct and set work routines, develop and follow through with work schedules to ensure smooth flow and timely completion of work assignments and projects.
- Initiate, attend, participate in, and contribute to staff meetings including safety, supervisory and sectional group meetings.
- Interview, select, train, motivate and evaluate maintenance staff; perform employee evaluations; work with personnel to correct deficiencies; implement discipline procedures.
- Develop the annual operating budget for the maintenance section; forecasts funds needed for staffing, equipment, materials, supplies, maintenance, and capital improvements.
- Participate in the development of goals and procedures for maintenance activities; assist with the planning of any needed special projects; gather and analyze data; develop reports; recommend changes as necessary.
- Assist with operations of the Robles diversion facility and fish passage during river flow conditions; perform off-season maintenance and repair activities.
- Perform a variety of housekeeping duties to ensure district facilities and worksites are maintained in a clean, orderly and safe condition.
- Performs special projects and assignments as requested.
- Assists in emergencies and special circumstance events.

Knowledge, Skills, and Abilities

Thorough knowledge in the practices of facilities maintenance; methods, equipment, materials and tools used in the construction and repair of district assets, safety regulations and OSHA requirements including principles and practices of work safety; knowledge of supervisory skills, proper work safety standards and procedures; installation and maintenance of buildings, grounds, roads, and other district property.

Ability to operate and instruct others in the safe operation of tools and heavy equipment used by the district; such as welding and cutting tools, forklift, backhoe, front-end loader, and dump truck. Ability to plan, schedule and coordinate preventive maintenance programs; read and draw prints and sketches. Communicate oral and written instructions clearly and effectively, analyze situation effectively and adopt an effective course of action. Ability to prepare reports, budgets and contract documents. Read and interpret manuals, policies and procedures; operate and maintain a variety of hand and power tools required for day to day operations; ensure work is performed in a safe manner; comply with safety and health policies, procedures and practices.

Skilled in communication tactfully, professionally, effectively and efficiently with the public, governmental agencies, district management and co-workers. Skilled in maintaining effective relations with others; ability to provide oral safety direction and

assists with maintaining the written safety programs of the District. Skilled in modern computer applications such as email applications, word processing, spreadsheets calendar applications, geographical information systems (GIS) and computerized maintenance management systems (CMMS)

Education and Experience:

Any combination of education and experience that has led to the acquisition of the knowledge, skills, and abilities as indicated above including completion of twelfth grade, or its equivalent. A typical way to obtain the knowledge and skills and abilities would be:

- Experience: Five years of progressive experience with the maintenance and repair of buildings, grounds, and roads; including two years of experience of supervisory experience.
- Training: Education and study courses related to the California Department of Pesticide Regulation (DPR); construction technology, and supervision.

Certificates, Licenses, and Registrations:

Possession of the following:

- Qualified Applicators Certificate from (DPR)
- California Class A driver's license
- CPR/First Aid certificate.

Work Environment or Environmental Elements:

Employees work indoors and outdoors, and may be exposed to cold and hot temperatures, inclement weather conditions, loud noise levels, vibration, confining workspace, chemicals, mechanical and/or electrical hazards, and hazardous physical substances and fumes. Employees may interact with upset staff and/or public and private representatives, and contractors in interpreting and enforcing departmental policies and procedures.

Physical Requirements:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Must possess mobility to work in the field, in District buildings and facilities; strength, stamina and mobility to perform light to medium physical work, to work in confined spaces, around machines, to walk on uneven terrain, and to climb and

descend ladders, and operate varied hand and power tools and construction equipment. Specific vision abilities required by this job include close vision, distance vision, depth perception and color vision. Ability to communicate in person and over the telephone or radio. The job involves fieldwork requiring frequent walking in operational areas to identify problems or hazards. The employee is required to have manual dexterity sufficient to operate a District vehicle, computers and standard office machines such as fax, calculator, telephone, copiers, etc. Positions in this classification bend, stoop, kneel, reach and climb to perform work and inspect work sites. Employees must possess the ability to lift, carry, push, and pull materials and objects weighing up to 60 pounds.

Other Requirements:

- United States citizenship or legal eligibility to work in the United States.
- Medical evaluation and pre-employment physical and drug screening to determine physical fitness for the job.
- Acceptable driving record consistent with the standards established by the District.
- Participation in job training or professional development programs.

Working Conditions:

Incumbents must be willing to work overtime as needed during emergency conditions, which may include nights, weekends and holidays in a continuous (24/7) operations environment.

The specific statements shown in each section of this job description are not intended to be all-inclusive. They represent the essential functions and minimum qualifications necessary to successfully perform the assigned functions.

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Employee Signature Date

CASITAS MUNICIPAL WATER DISTRICT

JOB TITLE: Park Maintenance Supervisor
REPORTS TO: Park Services Manager
SALARY LEVEL: S-24
FLSA STATUS: Non-exempt
DATE: 04/04/19

Definition
Under general direction, plans, organizes, directs, and controls maintenance operations for the Lake Casitas Recreation Area and related work as required.

Classification and Career Path
This class differs from classifications in the Maintenance Worker series in that the incumbent has the overall responsibility for the maintenance operations of the Lake Casitas Recreation Area.

Essential Functions
Supervises, trains, schedules and performs a full range of duties of Maintenance Workers related to Lake Casitas Recreation Area park maintenance and facility operation. Responsible for the operations and maintenance of public restrooms, public buildings, campgrounds; a public aquatic facility that includes a water playground and lazy river; developed and undeveloped roads and paths; trash and litter abatement; sewage removal and disposal to an off site location; grounds keeping including irrigation, mowing, trimming, and fertilizing; weed, pest and fire mitigation; perform boating/barge operation skills for the configurations of docks, booms, and buoys.

Duties may include, but are not limited to the following:

- Plans, organizes, directs, supervises and performs all phases of the park maintenance function and implementation of maintenance policies and procedures.
- Develop the annual operating budget for the park maintenance section; forecasts funds needed for staffing, equipment, materials, supplies, maintenance, and capital improvements.
- Interviews, recommends for hire and, provides direct supervision, evaluates personnel and coordinates staff work schedules, vacations and time off.
- Determines the most economic use of allocated resources.
- Works cooperatively with District staff, Bureau of Reclamation and customers of the park.
- Respond to concerns and complaints, investigate and resolve service problems.
- Recommend materials, supplies, and equipment for acquisition; determine type and quantity needed.
- Respond to reports of unsafe and hazardous conditions such as a sewage spill and/or illegal

activities in public areas such as illegal dumping.

- As needed, may be required to work after-hours including evenings, weekends and holidays and be assigned for stand-by duties and/or report to work on emergency callback.

- Enforce safety training schedules, policies and procedures.

- Conducts inspections of park facilities, ensures cleanliness of park area restrooms and campgrounds.

Knowledge of: Modern concepts of public administration and resource management; labor standards, capabilities and methods desirable for the maintenance of public facilities; the elements of supervision and basic training procedures; Cal/OSHA standards and practices, public laws, ordinances, rules and regulations pertaining to public land and facilities; trash and sewage removal.

Ability to: Plan and direct and perform the maintenance of facilities; operate heavy equipment such as dozer, front end loader, mower tractor, grader, sewage haul truck including manual transmissions; use an extensive assortment of hand tools; perform basic carpentry, perform basic welding and brazing, trouble shoot basic electrical issues; design, install and repair irrigation systems; provide assistance in a variety of maintenance activities; meet all safety regulations and requirements and comply with and maintain current records for Cal OSHA safety standards for MSDS; motivate employees and maintain professional interpersonal relationships; make arrangements with contractors and administer service contracts for jobs not performed by District staff, such as tree removal, pest control, electrical work, and capital projects; review blueprints for park construction and renovation; prepare budgetary estimates; effectively plan, coordinate, maintain records and reports; use computer programs such as Windows, Excel, Word and Gmail.

Education and Experience: Any combination equivalent to graduation from high school, some college level training, coursework in horticulture, park maintenance, or natural resources or related areas desired, and ten years of experience in facility and grounds maintenance operations with five in a supervisor role. Work experience as a general contractor is highly desirable.

Certificates, Licenses, and Registrations:

Possession of the following:

- Qualified Applicators Certificate from (DPR)
- California Class A driver's license
- California Pool Operator's Certification
- California pesticide applicators certificate.
- CPR/First Aid certificate.

Working Conditions:

Environment: works outdoors in seasonal climate and weather conditions on surfaces that may be wet and slippery, where dirt, dust, and odors are frequently encountered. Required to drive motorized vehicles to various locations.

Physical Abilities: hearing and speaking sufficient to exchange information in person or on the telephone; vision within normal range with or without correction; sitting, standing, walking on uneven and slippery surfaces, pushing, pulling, climbing, balancing, reaching/stretching. Twisting, turning, kneeling, bending, and stooping in the performance of daily activities; ability to lift/carry/push/pull up to 100 pounds. Use hands repetitively to handle, feel, grasp, and operate tools and equipment. Use power tools and equipment. Wear ear and eye protections and steel-toed safety boots.

Hazards: exposure to heavy dust, dirt, and pollen, odors, fumes, air contaminants, chemicals, herbicides, pesticides and noise.

_____ Date:_____

Employee Signature

Rev. 04/19

CASITAS MUNICIPAL WATER DISTRICT

JOB TITLE: Chief Financial Officer – Exempt-Administrative Employee – At Will
REPORTS TO: General Manager
SALARY LEVEL: M 31
FLSA STATUS: Exempt
DATE: April 8, 2019

Definition

Under general direction of the General Manager, supervises, directs, plans, and assumes responsibility for accounting, accounts payable, accounts receivable, data processing, purchasing; acts as District's Treasurer. The position is an exempt-administrative position because the incumbent primarily performs non-manual work directly related to management policies and the general business operations, exercises discretion and independent judgment in the account section, regularly assists the General Manager and supervises the work of the Accounting & Customer Service Supervisor. The position is at will in that the appointment and continued employment is at the discretion of the General Manager.

Essential Functions

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this class.

Primary duties include but are not limited to the following:

- Certifies voucher authorization documents;
- Responsible for the investment of the District funds in accordance with Casitas' policies and the laws of the State of California;
- Prepares and analyzes financial reports and statements;
- Responsible for the completion of the audit in a successful manner;
- Responsible for obtaining the GFOA Award;
- Responsible for the posting, reconciliation, and balancing of the general ledger consisting of journal entries, labor cost reports, cash reports and month-end reports;
- Responsible for payment and reconciliation of the State Water Plan;
- Compiles and prepares preliminary and final budget data, and prepares and submits regular monthly Financial Statement reports within 15 days of the month end;
- Prepares and maintains various work papers, and submits technical reports;
- Maintains records on invested inactive funds and recommends investments after analyzing funds available versus fund requirements;
- Provides expertise in maintaining the computerized accounting program;
- Acts as District Treasurer, attends the Finance Committee;
- Set the tax rates for State Water Plan payment;
- Provide notification of the Mira Monte charges;

- Develop internal control policies, guidelines, and procedures for activities such as budget administration, cash and credit management, and accounting;
- Provide leadership and coordination in the administrative, business planning, accounting and budgeting efforts of the company.

Knowledge Skills, and Abilities

Thorough knowledge of accounting and auditing principles, practices and procedures; governmental accounting and budgeting; fund accounting; data processing practices and procedures. Computer skills required including advanced skill in Excel, understanding of system design and general knowledge of MS Office products. Experience with Incode desired. Excellent management skills including staff management and customer service.

Ability to establish and maintain fiscal records and procedures; prepare verbal and written reports of a complex nature; exercise prudent and objective judgment regarding financial information; establish systems and procedures for fiscal control, efficient and satisfactory office management. Ability to deal tactfully and effectively while maintaining effective relationships with a variety of governmental officials, fellow workers, Board of Directors and the general public; follow written and oral safety practices and policies of the District.

Education and Experience:

Any combination of education and experience that has led to the acquisition of the knowledge, skills and abilities as indicated above. Typical ways of acquiring the knowledge, skills and abilities are:

Bachelor's Degree required in Business Administration, Accounting, or Public Administration from an accredited university or college, plus a minimum of eight years of varied professional accounting experience with supervisory responsibilities. Four years of experience in utilizing data processing in an office environment for financial purposes is also required.

Or

A Master's degree in a related field and licensed as a Certified Public Accountant may substitute for some years of experience.

Certificates, Licenses and Registrations:

Possession of the following:

- California Class C Driver license

Work Environment or Environmental Elements:

Employees primarily work indoors in a typical office setting. Employee may interact with upset staff and/or public and private representatives in interpreting and enforcing departmental policies and

procedures.

Physical Requirements:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Must possess mobility to work in District buildings and facilities, strength, stamina and mobility to perform light physical work and work around typical office machines. Specific vision abilities required by this job include close vision, distance vision, depth perception and color vision. Ability to effectively communicate in person in face-to-face, one-to-one and group settings and regularly communicate over the telephone. The employee is required to have manual dexterity sufficient to operate a District vehicle, computers, and standard office machines such as fax, ten-key calculator by touch, telephone, copiers, etc. Positions in this classification may bend, stoop and reach and may sit for extended periods of time. Employees must possess the ability to lift, carry, push and pull materials and objects weighing up to 25 pounds.

Date:_____

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Employee Signature

Rev.4/19

CASITAS MUNICIPAL WATER DISTRICT

JOB TITLE: Accounting and Customer Service Supervisor
REPORTS TO: Chief Financial Officer
SALARY LEVEL: S 24
FLSA STATUS: Non-Exempt
DATE: April 19, 2019

Definition

Under general direction of the Chief Financial Officer, supervises the work and directs, plans, and assumes responsibility for; accounts payable, accounts receivable, data processing, purchasing, payroll, utility billing and customer service. Exercises discretion and independent judgment, regularly assists the Chief Financial Officer.

Essential Functions

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this class.

Primary duties include but are not limited to the following:

- Supervises employees of the Administrative Services Department including hiring, training and evaluation;
- Responsible for accounting, material procurement, record keeping, payroll, billing, accounts payable, cash receipts, and warehousing;
- Responsible for the operation of the business service office;
- Responsible for the posting, reconciliation, and balancing of the general ledger consisting of journal reports, labor cost reports, cash reports, meter reading reports and month-end reports;
- Responsible for the maintenance of various subsidiary systems, and their reconciliation to the general ledger;
- Responsible for the maintenance of the Projects as related to assigning, preparing, distributing of all projects, including completed projects;
- Prepares and maintains various work papers, and submits technical reports;
- Responsible for the follow-up on accounts receivable, bad debts, and collections and customer complaints concerning billings;
- Acts as bill hearing officer.
- Develops administration department budget.
- Oversees the production of other accounting personnel and arranges for substitutes during their absence or when required.
- Responsible for safety meetings for staff.
- Responsible to complete the bank reconciliations for General Fund, Accounts Payable Fund, Payroll Fund and Merchant Fund.
- Other duties as assigned.

Knowledge, Skills, and Abilities

Thorough knowledge of accounting and auditing principles, practices and procedures, governmental accounting and budgeting, fund accounting, data processing practices and procedures. Skilled in basic computer skills including the ability to utilize word processing, databases, email and the internet. Advanced skill in Excel and experience with Incode by Tyler Technology desired. Ability to deal tactfully and effectively with the public and fellow employees and maintain good working relationships. Excellent supervisory skills including staff selection, and development and excellent customer service skills.

Ability to Prepare verbal and written reports of a complex nature; exercise prudent and objective judgment regarding financial information; efficient and satisfactory office management; establish and maintain effective relations with fellow workers, and the general public; follow written and oral safety practices and policies of the District.

Education and Experience:

Any combination of education and experience that has led to the acquisition of the knowledge, skills and abilities as indicated above. Typical ways of acquiring the knowledge skills and abilities are:

Bachelor's Degree in Business Administration, Accounting, or Public Administration from an accredited university or college, plus a minimum of four years of varied professional accounting experience, and data processing in an office environment for financial purpose.

Or

Completion of two years of college resulting in graduation with major course work in accounting and business administration and a minimum of eight years of progressively responsible professional accounting experience. Previous work experience with a water utility in the areas of customer service, utility billing and accounting preferred.

Certificates, Licenses and Registrations:

Possession of the following:

- California Class C driver license.

Work Environment or Environmental Elements:

Employees primarily work indoors in a typical office setting. Employee may interact with upset staff and/or public and private representatives and contractors in interpreting and enforcing departmental policies and procedures.

Physical Requirements:

The physical demands described here are representative of those that must be met by an

employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Must possess mobility to work in District buildings and facilities, strength, stamina and mobility to perform light physical work, and work around typical office machines. Specific vision abilities required by this job included close vision, distance vision, depth perception and color vision. Ability to effectively communicate in person in face-to-face, one-to-one and group settings and regularly communicates over the telephone. The employee is required to have manual dexterity sufficient to operate a District vehicle, computers, and standard office machines such as fax, ten key calculators by touch, telephone, copiers, etc. Positions in this classification bend, stoop, and reach and may sit for extended periods of time. Employees must possess the ability to lift, carry, push and pull materials and objects weighing up to 25 pounds.

Date:_____

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Employee Signature

Rev. 4/19

MEMORANDUM

TO: Board of Directors

From: Michael L. Flood, General Manager

RE: **Consideration of Proposed Modifications of Sections 5.6 & 5.7 of the Casitas Municipal Water District (CMWD) Water Efficiency and Allocation Program (WEAP) as related to Conservation Penalty Appeals.**

Date: April 19, 2019

RECOMMENDATION:

Approve and Adopt proposed modifications to Sections 5.6 & 5.7 of the WEAP as presented.

BACKGROUND:

On May 9, 2018, the Board of Directors of the Casitas Municipal Water District declared that a Stage 3 water condition exists for Lake Casitas.

In relation to customer allocations and the associated conservation penalty, the Board of Directors directed:

1. All customer allocations be reduced to the Stage 3 level as per the CMWD WEAP.
2. The Conservation Penalty for a customer exceeding their Stage 3 allocation be set at $5.00 per unit.

Subsequently, numerous customers exceeded their Stage 3 allocations and incurred the Conservation Penalty as set forth in the WEAP. This resulted in a number of customers desiring to appeal their conservation penalties during the last twelve months. In response to these appeals, the Board of Directors directed District Counsel and District Staff to provide an appeals process specifically for Conservation Penalty appeals that could be incorporated into the WEAP.

DISCUSSSION:

District Counsel and District Staff considered and drafted an appeals process for those customers seeking to appeal their Conservation Penalty. The proposed WEAP language reflects the following basic tenets:

1. The Board of Directors will create an Appeals Panel made up of three of the current members of the CMWD Board of Directors to hear and decide Conservation Penalty appeals.
2. The General Manager will first review all customer appeals of the Conservation Penalty and provide a recommendation to the Appeals Panel.
3. The Appeals Panel will conduct open, publicly noticed, evidentiary hearings wherein the customer/appellant can provide testimony and evidence and state their case related to their appeal of a Conservation Penalty.
4. The Appeals Panel is required to make specifically-defined findings and will have the authority to dismiss, confirm or apportion Conservation Penalties in conformance of those findings.
5. The decision of the Appeals Panel in relation to a customer Conservation Penalty appeal is final.

WATER EFFICIENCY AND ALLOCATION PROGRAM

Casitas Municipal Water District

April 24, 2019

SECTION 1: INTRODUCTION

In 1992 the Casitas Municipal Water District (Casitas) adopted a series of ordinances, resolutions, and a Water Efficiency and Allocation Program (WEAP) in response to the increasing water demands and declining water storage in Lake Casitas experienced during the 1987-1991 drought period. The collective work in 1992 set the starting point for a system of water allocation assignments and demand response criteria that are based on the level of water storage in Lake Casitas. Since 1992, there has been a significant outreach by Casitas to raise the public's awareness on the importance to conserve local water supplies, changes in the water supply and demand, regulatory compliance directives pursuant to the Endangered Species Act (ESA), and system outage events that temporarily activated Casitas' emergency response plan. All of these factors, including the responses and experiences of the current drought, are considered in the update of the Water Efficiency and Allocation Program.

1.1 Purpose and Principles of the Plan.

The purpose of this update of the WEAP is to provide guidance on water supply and demand strategies that (1) conserve the water supply of the Ventura River Project, Lake Casitas and other water resources that are in the direct control of Casitas, for the greatest public benefit, (2) mitigate the effects of a water shortage on public health and safety and economic activity, (3) allocate water use so that a reliable and sustainable supply of water will be available for the most essential purposes under all water storage conditions of Lake Casitas, and (4) adapt to changing conditions of water supply demand and constraints.

The WEAP describes the water demand reduction strategies and measures to address future water shortage conditions, promote water conservation and the efficient use of water, and the application of a conservation penalty to customers who waste water.

1.2 Relationship between this Document, Water Codes, and Other Plans.

This WEAP shall be guided by State regulations and planning requirements as provided by the California Water Code that provides Casitas with broad powers to implement and enforce regulations and restrictions for managing a water shortage (§71640-71644), to implement water conservation programs (§375--378), to implement allocation-based conservation water pricing (§370-374), and to declare a water shortage emergency(§350-359).

As required by Water Code Section 10632, this WEAP shall be integrated as a part of the Casitas Urban Water Management Plan (UWMP), as amended or updated every five years. The Casitas 2010 UWMP has been accepted and approved by the State Department of Water Resources. The UWMP provides an in-depth description of the Casitas water system, water resources and demands, and water supply reliability. For the purposes of integration and lessening the conflicts due to the replication of information, the WEAP shall rely on the updates of the Water Code Sections provided in the attached Appendices and UWMP, as amended or updated every five years.

SECTION 2: WATER SUPPLY AND DEMAND CONDITIONS

2.1 Water Supply.

The water supply for Casitas is derived from (1) the watersheds that flow directly and indirectly by diversion from the Ventura River of water during wet years to carryover storage in Lake Casitas for use during dry years, and (2) groundwater to the extent that Casitas has its own groundwater supply. The watersheds of the Ventura River region are subject to an extreme variation in the weather patterns, ranging from multiple years of drought to sometimes significant wet year events that are associated with El Nino conditions that add to the uncertainty of available local water supplies.

2.1.1 Surface Water.

The primary goal of Casitas is to provide a safe and reliable water supply. Due to the uncertainty of weather conditions that provide water to the local watersheds, a safe yield modeling has been implemented to provide guidance on water supply availability. The safe yield modeling criteria for the Casitas surface water supply provides a theoretical rate of decline in available water supply during a critical drought period, that if given a specific annual extraction rate from storage, that would reduce Lake Casitas to an exhausted minimum pool.

The sizing of Lake Casitas storage volume and the determination of the annual safe yield of water from Lake Casitas was originally determined by the Bureau of Reclamation in 1954, based on the hydrologic modeling for the critical drought period that started in 1919 and continued through 1936. The storage volume of the off stream reservoir, Lake Casitas, was set to be 254,000 acre-feet and the annual safe yield was determined to be 28,000 acre-feet. In 2004, Casitas recalculated the annual safe yield of Lake Casitas for the drought period of 1944 to 1965 based on newer knowledge of the diminished value of Matilija Reservoir and its impending removal, and the change in Robles Diversion operations resulting from the 2003 Biological Opinion established by the National Marine Fisheries Service pursuant to the federal Endangered Species Act. The recalculated annual safe yield of Lake Casitas was determined to be 20,840 acre-feet per year.

The safe yield trend for the 1944-1965 critical drought period is illustrated in Figure 1, with the assumption that the critical drought period begins with a full reservoir. The modeling applies the hydrology, river diversions operations, and lake evaporation for the period (1944-1965) that contribute to the Lake Casitas storage. The safe yield is a constant extraction rate from lake storage that contribute to the decline in Lake Casitas storage during the critical drought period, taking lake storage from full capacity to a minimum pool condition. Based on the safe yield model with a continuous and steady extraction rate, or safe yield, of water at 20,840 acre-feet each year, Lake Casitas would decline from full storage to minimum pool in approximately twenty years.

Also included in Figure 1 is the Recovery Period of Lake Casitas, which illustrates the actual filling rate experienced at Lake Casitas during the 1959 to 1978 period. The recovery of the Lake Casitas volume during the Recovery Period that is illustrated in Figure 1 cannot be assumed as the normal or common sequence given the variability of the rainfall amounts in the Ventura River watershed, constraints, and other influences to Lake Casitas inflow and storage. Casitas may experience elevated water supply risks that could be associated with a delay in the start of the recovery period while at minimum pool in Lake Casitas, or there could be a condition where the critical drought period begins with a partially recovered storage level in Lake Casitas.

The availability of the Lake Casitas supply can be influenced or impacted by long-term droughts, changes to lake water quality, and/or changes to diversion and storage conditions. The safe yield of Lake Casitas and annual water availability may need to be reconsidered in the future as a result of changing conditions or new information that differs from the present conditions.

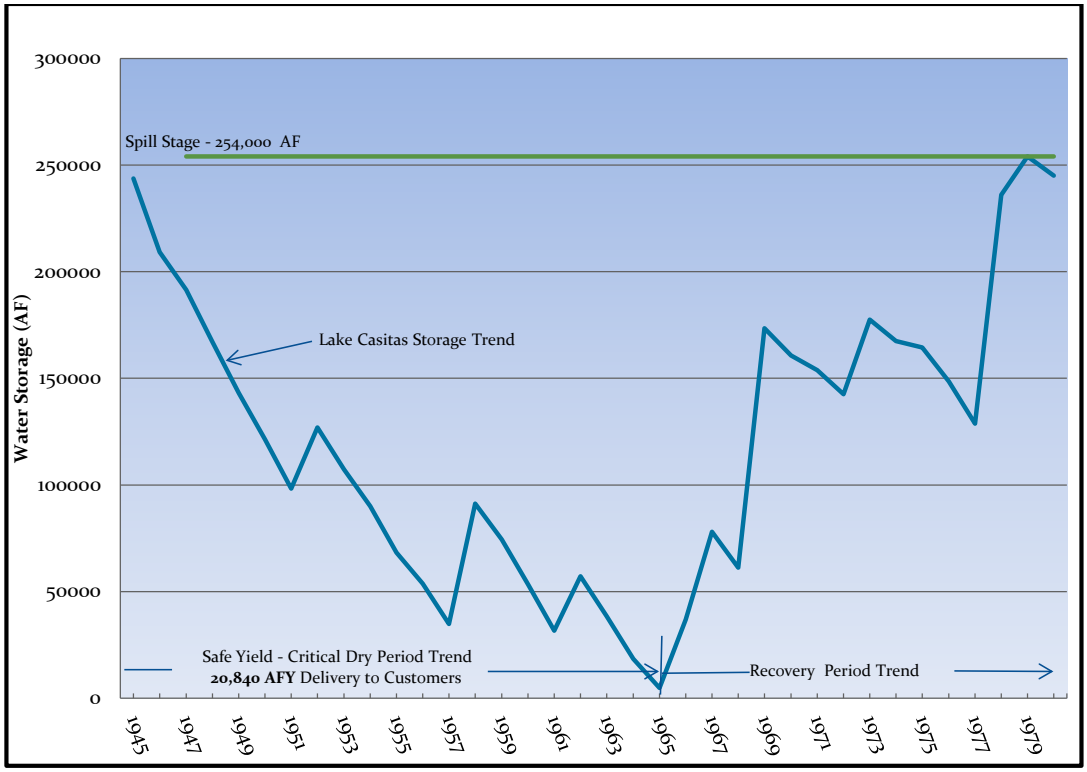

Figure 1 – Lake Casitas Safe Yield Storage and Recovery Period Trends

2.1.2 Groundwater.

Within Casitas' district boundaries, there are several local groundwater basins that are primary and critical sources of water supply for other local water purveyors (public, mutual and private), individual residential use and agriculture. During extended periods of drought with several years of less than average rainfall (20-inches) the local groundwater basins can become depleted due to pumping, natural drainage and evapotranspiration. The Lake Casitas surface water supply serves as a back-up water supply to the groundwater supply during times of extended drought.

Table 1 – Groundwater Basins of the Ventura River Watershed

Groundwater Basin	Acres	Max. Capacity (AF)	Approx. Safe Yield (AF/Yr.)
Upper Ojai	2,840	5,681	Unavailable
Ojai Valley	6,471	85,000	5,026

Upper Ventura River	9,360	35,118	9,482
Lower Ventura River	6,090	8,743	2,130

Source: Ventura River Watershed Council

The groundwater basins have demonstrated an ability to recharge rapidly in any one year with sufficient rainfall events, upon which time groundwater becomes the preferred source for those with well pumping access to the groundwater basins.

2.2 Water Demand.

The Casitas Board of Directors has established that the average long-term demand upon Lake Casitas must not exceed the annual safe yield of Lake Casitas supply. As a result of the 1987-1991, multi-year drought that resulted in water demands exceeding the annual safe yield, Casitas implemented specific actions in 1992 to limit water demands. The actions included the declaration of a voluntary twenty percent reduction in water demand, the assignment of water allocations based on 80 percent of FY1989-90 water usage that reflects a reduction in demand that comports more closely to safe yield of the Lake Casitas Supply, the implementation of water conservation measures to assist water users in adapting to less water consumption, and the limiting of new water service connections and expansions of agricultural plantings. Table 2 provides a comparison of classification water use, from prior to the action being taken by Casitas, to the level of water use during the recent drought. The FY 1989-90 water demand is recognized as being a high extreme water demand year at the end of the four year drought period.

Table 2 – Water Use Comparison by Customer Classification

Classification	No. of Service Connections			Water Demand – Lake Casitas (AF)		
	FY 1989-90	FY 2013-14		FY 1989-90	FY 2012-13	FY 2013-14
Residential	2424	2700		1603	1678	1738
Business	93	108		821	663	724
Industrial	12	9		155	23	22
Other	33	41		530	244	255
Resale Gravity	8	8		7724	4642	5614
Resale Pumped	15	15		1027	551	1182
Irrigation	253	251		11706	7978	9385
Interdepartmental	21	21		343	120	119
Temporary				11	13	55
Total	2,859	3,153		23,909	15,899	19,094

The local groundwater resources of the Ojai Valley and Ventura River provide on average 7,385 acre-feet per year (Daniel B. Stephens, 2010) to municipal, residential and agricultural pumpers. During multiple dry years, the groundwater basins become depleted and groundwater demands are met by supplementing groundwater supply from the Lake Casitas supply. In most cases, groundwater pumpers have a water service connection to Casitas as a backup supply of water. During any year or multiple dry year sequence of less than average rainfall, Casitas can anticipate that a portion of the 7,385 acre-feet of groundwater demand may be supplemented by the Lake Casitas supply. When groundwater basins are restored by rainfall events, groundwater pumpers convert back to the less expensive groundwater supply. The demand shifts are illustrated in Table 2 and Figure 2 for various classifications of water consumers. The FY 1989-90 and FY 2013-14 water demands occurred at the end of a three-year drought sequence.

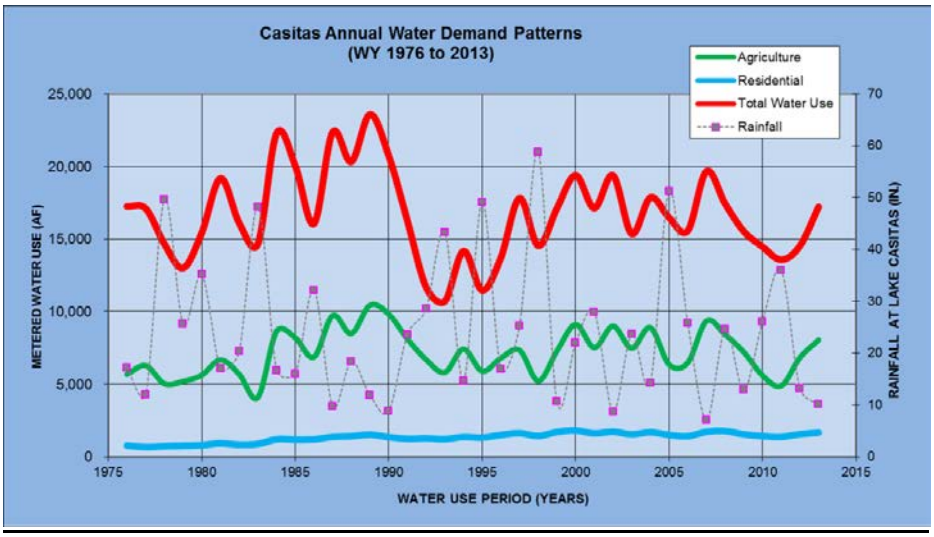

Figure 2 – Casitas Annual Demand Patterns

2.3 Priorities of Water Use.

Casitas recognizes the following priorities for potable water:

1) Public safety, health and sanitation;
2) Economic sustainability; and
3) Quality of life for the district's customers.

Within each of the customer classifications there may be water uses that are considered non-essential to public health and sanitation and may have no significant impact to the economic productivity of the western Ventura County. The non-essential water uses may be asked at any time to be curtailed during times of extreme water shortages.

Casitas recognizes that the agricultural crops in western Ventura County are primarily tree orchards that require a substantial period of time before becoming productive, and if fallowed will experience several years of non-production. To maintain water supplies into the future that will meet the local water demands, Casitas and the public may be faced with additional decisions on water use reductions that may impact the agricultural classification.

SECTION 3: WATER SHORTAGE EMERGENCY ACTIONS

3.1 Urban Water Contingency Analysis.

Water Code 10632 requires that the agency's Urban Water Management Plan provide an urban water shortage contingency analysis that includes specific elements that are within the authority of the urban water supplier. The required water shortage analysis is performed in the Casitas 2010 Urban Water Management Plan, and is further supported by this WEAP and the Casitas Emergency Response Plan, as amended.

3.2 Water Shortage Emergencies.

Water Code §350-359 provides that the governing body of a distributor of a public water supply may declare a water shortage emergency condition to prevail within the service area whenever it finds and determines that the ordinary demands cannot be satisfied without depleting water supplies to the extent that there would be insufficient water for human consumption. When deemed as a water shortage emergency in accordance with Water Code 350, Casitas shall follow the procedures provided by the Water Code in the implementation of the water shortage declaration and actions.

The State of California, through its authority under the Water Code and Government Code, may declare a water shortage emergency and require curtailment of water use that is above and beyond the requirements of the Casitas WEAP. Customers of Casitas must respond and comply with the orders of the State in a timely manner. A failure to comply may cause the State to impose fines and penalties that will be redistributed to the customers of Casitas in a manner determined by the Casitas Board of Directors.

3.3 Water Shortage Contingency Plan.

The District has prepared a Water Shortage Contingency Plan (Resolution 92-11), and further defined in the Casitas Urban Water Management Plan, that addresses emergencies under short-term, catastrophic events, and long-term water shortages that may occur as a result of a prolonged drought.

A water shortage emergency may be determined to exist in the event of a short-term interruption of water supply or as a result of long-term diminishment of the Lake Casitas water supply. A short-term interruption of water supply can be the result of earthquakes, regional power outages, landslides, or other major and minor events that impact Casitas water facilities or supply. These events are more often a short term interruption of water supplies until the water system can be restored to the customers. A long-term or district-wide condition may be the result of drought conditions or a reduction in local water supplies that will require long-term water supply-demand management.

The Casitas response to a short-term interruption of water supply may cause the implementation of the Casitas Emergency Action Plan that is structured under the State's Standardized Emergency Management System (SEMS), in coordination with federal, state and county emergency response planning that provides the framework for an organized response to catastrophic events.

3.4 Water Waste Prohibitions on Certain Uses.

Water Code § 71640 provides the District the authority to restrict the use of district water during any emergency caused by drought, or other threatened or existing water shortage, and the district may prohibit the wastage of district water or the use of district water during such periods for any purpose other than household uses or such other restricted uses as the district determines to be necessary. The District may also prohibit use of district water during such periods for specific uses which it finds to be nonessential.

SECTION 4: STRATEGY FOR MANAGED WATER SUPPLY AND DEMAND

4.1 Strategy Principles.

The communities and rural agricultural areas of western Ventura County recognize that there is a reliance on limited local groundwater and surface water supply to serve all of the beneficial uses within the District, and there is a local responsibility required to sustain those supplies during

extended drought periods. The continuous implementation of water conservation education and measures (Best Management Practices) has had a significant influence on the beneficial use and sustainability of local water supplies. Ongoing water conservation efforts can ease the impact on normal activities during drought periods, but may not completely eliminate the need for reductions in water use during periods when Lake Casitas water supplies are severely impacted by extended drought. The main mechanism to respond to water supply conditions is to rely on informed customers working in partnership with Casitas to limit water use to no more than the assigned water allocation and support the water use limitations with appropriate conservation penalties for water use in excess of the assigned, or adjusted, allocation.

To address the water shortage risk that may occur during an extended drought, the Casitas Board established in the Casitas Urban Water Management Plan of 1995 a series of five storage levels of Lake Casitas at which the Board could take actions to restrict the annual water extractions from Lake Casitas. The safe yield trend and the five stages of restrictive actions are illustrated in Figure 3.

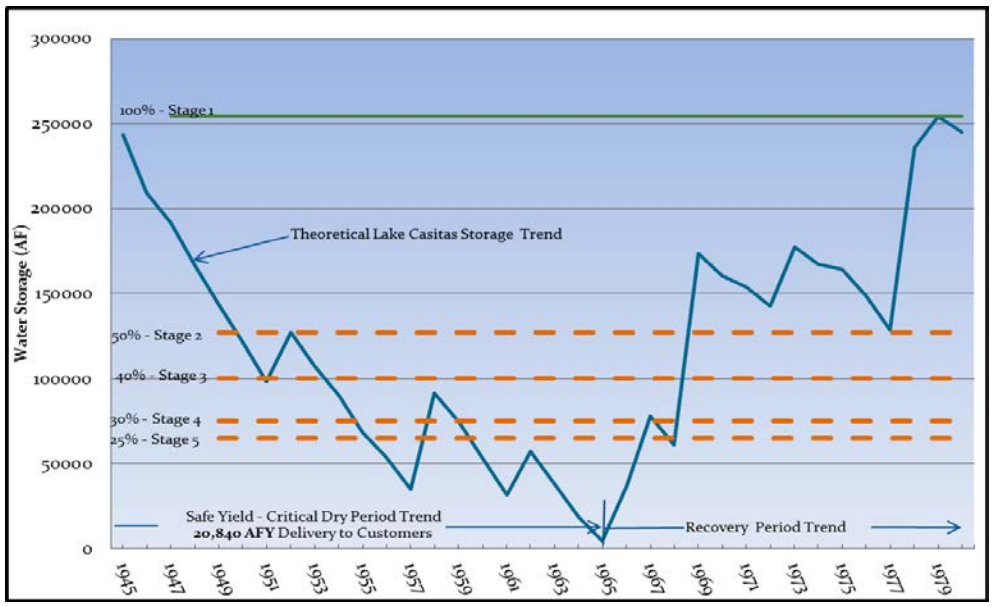

Figure 3 – Lake Casitas Safe Yield Storage Trend and Stages for Demand Reduction

4.2 Water Allocation Principles.

Each and every water service provided by Casitas is metered and a basic water use allocation is established for each customer account that provides a reasonable amount of water for the customer's needs and property characteristics (WC § 372). The following principles are to be followed for the Casitas water allocations:

1) Each Casitas water service shall be assigned either a monthly water allocation in the terms of Units or an annual water allocation in terms of Units and Acre-feet.

2) Allocation shall not mean an entitlement or imply water rights in favor of the customer.

3) The assignment of allocations shall be based on reasonable and necessary water use, the application of water conservation practices and standards, and other relevant factors associated with water use during Stage 1 conditions at Lake Casitas.

4) The Casitas Board of Directors reserve the right to make individual allocation assignments and to change water allocations at any time within each classification based on the changes to the availability of water stored in Lake Casitas, changes in water use that appears to compromise the reliability of the Lake Casitas water supply, and changes in water conservation practices and standards.

5) Water allocations provided by Casitas are assigned to property or water purveyors and are not transferrable from one property or water purveyor to another.

6) Casitas' water allocations shall not be sold, exported, bartered or traded by or between Casitas' customers.

7) Casitas water allocated shall not be transported from the property or by any agency served to any other property or agency without prior written agreement with Casitas.

4.3 Allocation Assignments to Water Service Classifications.

Casitas has established the definitions of water customer classifications as provided by the Casitas Rates and Regulations for Water Service and has made specific allocation assignments to each and every water account by either (1) written agreement, or (2) the application of historical water use data, or (3) the application of documented water use standards. Where deemed necessary by Casitas, Casitas may perform site specific water use audits and survey to determine the appropriate level of allocation to be assigned to any one service connection or customer. Water allocations may change by action of the Casitas Board of Directors based on the Lake Casitas storage level or trend, water use trends, and the performance by customer classification in meeting water consumption reduction goals.

The following subsections describe the method used to assign the water allocation for each classification of water service at **Stage 1** condition:

Business

1) Water allocation shall be specified as an **annual** allocation based on a fiscal year (July 1st to June 30th).
2) Allocation assigned by recorded agreement; or
3) Where not defined by recorded agreement, the lesser of the historical water consumption recorded for either the 80% of the 1989-90 water use or the Fiscal Year 2012-13 water use.

Fire

There is no water allocation for the Fire classification. This water use is for emergency only, and not a part of a continuing annual water use.

Industrial

1) Water allocation shall be specified as an **annual** allocation based on a fiscal year (July 1st to June 30th).
2) Allocation assigned by recorded agreement; or
3) Where not defined by recorded agreement, the lesser of historical water consumption recorded for either the 80% of the 1989-90 water use or the Fiscal Year 2012-13 water use.

Interdepartmental

1) Water allocation shall be specified as an annual allocation based on a fiscal year (July 1st to June 30th).
2) The **annual** allocations for individual Interdepartmental classification services shall be based on the Fiscal Year 2012-13 water use.

Irrigation (Commercial Agriculture)

1) Water allocation shall be specified as an **annual** allocation based on a fiscal year (July 1st to June 30th).
2) Qualifying acreage for each Irrigation account shall be limited to acreage that can be identified as under irrigation prior to March 1, 1992. There will be no allocation for irrigation acreage that has been expanded after March 1, 1992, except as otherwise approved in written and recorded agreement between Casitas and the property owner. Casitas' records and mapping will be the standard for the identification of lands in irrigation prior to March 1, 1992.
3) Allocation assignments to lands served by multiple meter services shall consider the proportion of the allocation that each meter is intended to serve. The aggregation of meter readings and allocations from multiple meters shall not be allowed except under the terms and conditions of an approved addendum to the Application for Water Service to provide an aggregation variance. The customer may apply for the aggregation of allocations and water volume for accounts serving contiguous parcels under a single ownership, subject to the conditions of the Casitas addendum to the Application for Water Service. The aggregation variance must be approved and on file for the current year during which the variance is applicable. The issuance of the aggregation variance is subject to the discretion of the General Manager.
4) The Stage 1 water allocation assigned to each Irrigation water account is the greater volume of either (1) the water use recorded at each meter service during fiscal year 2012-13 or (2) eighty (80) percent of recorded water volume metered to the account in fiscal year 1989-90, neither of which shall exceed a water volume of 3 acre-feet per acre applied to the qualifying acreage.
5) The residential water use for Agricultural/Domestic classification that is directly associated with the Irrigation shall be considered as Irrigation for purpose of allocation assignments and meeting the demand reduction requirements for Irrigation.

Multi-Family Residential

1) Stage 1 water allocations are assigned to each existing Multi-Family Residential account by either a recorded agreement or based on the standards set in 1992 by Casitas.
2) The Multi-Family Residential water allocation for each account shall be distributed by either a monthly or bi-monthly scheduling of the allocation.
3) A part of the Multi-Family Residential allocation is provided for health and sanitation and shall be set at **84 units per year per dwelling,** distributed evenly each month as 7 units per month for each dwelling.
4) The essential water use portion of the allocation is not subject to adjustment by the Staged Demand Reduction Program, unless otherwise deemed by the Board to be a necessity during extreme water supply conditions or during emergencies.
5) The part of the Multi-Family Residential allocation that is in excess of the essential allocation shall be specified as a monthly allocation and distributed proportionally to reflect varying seasonal water use, as follows:

Month	July	August	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
% of Total Annual Allocation	.17	.17	.12	.05	.05	.05	.02	.02	.02	.10	.10	.12

The part of the Multi-Family Residential allocation that is in excess of the essential allocation is subject to adjustment by the Staged Demand Reduction Program.

6) Where not previously assigned a residential allocation, a residential allocation shall be based on the following:
    a. The essential health and sanitation portion of the residential allocation shall be set at **84 units per year per year per dwelling,** and be constant for each month of the year;
    b. Non-essential portion of the annual residential allocation shall be based on a maximum limit of 1.99 acres (86,684 square feet) of irrigated landscape area and set as follows:
        i. For the first 5,000 square feet of landscape area, 15 gallons per square foot;
        ii. For the next 10,000 square feet of landscape area, 10 gallons per square foot
        iii. For the next increment up to 71,684 square feet of landscape area, 3 gallons per square foot;

Other

1) Water allocation shall be specified as an **annual** allocation based on a fiscal year (July 1st to June 30th).
2) Allocation assigned by recorded agreement; or
3) Where not defined by recorded agreement, the lesser of historical water consumption of either the 80% of the 1989-90 water use or the Fiscal Year 2012-13 water use.

Resale

1) Water allocation shall be specified as an **annual** allocation based on a fiscal year (July 1st to June 30th).
2) The Stage 1 allocation for each individual Resale customer shall be mutually agreed to by each water agency and Casitas, be incorporated into a memorandum of understanding (MOU), and assigned to provide water to supplement the Resale agency's primary source of water supply. An annual adjustment to the allocation assignment may be a condition of the MOU.
3) An objective of a MOU is to achieve parity between the Resale agency customers and Casitas customers in applying similar overall water use restrictions and financial penalties in each Stage.
4) The Resale agency shall determine the reliability of its water sources and ensure that the annual water requirements from Casitas do not exceed their annual water allocation from Casitas.
5) The allocation assignment from Casitas shall not be used by the Resale agency for growth within the Resale service area, unless additional allocation for growth is authorized by written agreement with Casitas.
6) The Resale agency shall implement water conservation measures in accordance with the State's or California Urban Water Conservation Council's Best Management Practices, responsibly maintain water system metering and pipeline systems to reduce water losses, and when necessary or when asked to do so, implement water demand reduction measures similar to or more restrictive than those imposed by Casitas to assure the continued availability of water for health and safety purposes.

Residential

1) Stage 1 water allocations are assigned to each existing Residential account by either a recorded agreement or based on the standards set in 1992 by Casitas.

2) The Residential water allocation for each account shall be distributed by either a monthly or bi-monthly scheduling of the allocation.
3) A part of the Residential Allocation is provided for health and sanitation and shall be set at **120 units per year,** distributed evenly each month as 10 units per month for each dwelling.
4) The essential water use portion of the allocation is not subject to adjustment by the Staged Demand Reduction Program, unless otherwise deemed by the Board to be a necessity during extreme water supply conditions or during emergencies.
5) The part of the Residential Allocation that is in excess of the essential allocation shall be specified as a monthly allocation and distributed proportionally to reflect varying seasonal water use, as follows:

Month	July	August	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
% of Total Annual Allocation	.17	.17	.13	.05	.05	.05	.02	.02	.02	.10	.10	.12

The part of the Residential Allocation that is in excess of the essential allocation is subject to adjustment by the Staged Demand Reduction Program.

6) Where not previously assigned a residential allocation, a residential allocation shall be based on the following:
    a. The essential health and sanitation portion of the residential allocation shall be set at **120 units per year,** and be constant for each month of the year;
    b. Non-essential portion of the annual residential allocation shall be based on actual irrigated landscape area of the parcel with a maximum limit to 1.99 acres (86,684 square feet) of irrigated landscape area and set as follows:
        i. For the first 5,000 square feet of irrigated landscape area, 15 gallons per square foot;
        ii. For the next 10,000 square feet of irrigated landscape area, 10 gallons per square foot
        iii. For the next increment up to 71,684 square feet of irrigated landscape area, 3 gallons per square foot;

Temporary

1) There is no water allocation assigned for the Temporary classification. Temporary water service is not property related on a permanent basis.
2) Temporary water use is limited for a short-term of six months or less, for such purposes as construction projects, or short-term water supply emergencies, or temporary backup water to non-metered agricultural parcels.
3) Temporary meters that are issued to serve supplemental commercial irrigation shall be temporarily allocated water based on the allocation assignment provided at the time of the application for the Temporary service based on the same water use standards as provided for the Irrigation classification, and reduced by Stage conditions,. The allocation does not extend beyond the period of the temporary water service application of six (6) months, unless the Casitas Board of Directors approves a limited continuance of the temporary service.

4.4 Allocation Adjustments.

A Casitas customer may request the reconsideration of their initial assigned Stage 1 water allocation within 60 days of the adoption of the WEAP where the request does not include a consideration for either an expansion in the area of use or new construction. The customer shall submit a water allocation adjustment application in order to have their request considered by the General Manager of

the District. The information contained on the application may be subject to an audit and, if necessary, additional documentation may be required in order to substantiate the requested adjustment.

Adjustments to water allocations that have been assigned through a recorded Water Service Agreement between the property owner, or prior property owner, and Casitas must proceed through an amendatory agreement, will be subject to the capital facility charges for the amount of water provided as the allocation adjustment, and subject to the availability of water allocations.

Adjustments to water allocations will not be granted in amounts that exceed 80 percent of the FY 1989-90 metered usage of water by the meter service account without prior Board approval.

4.5 Standards for a Water Allocation Adjustment.

Water allocation adjustments may be considered by Casitas during initiation of the WEAP that appropriately assigns a Stage 1 allocation, to ensure that the needs of the water customer are reasonably balanced against the purpose of this Plan.

Water allocations may be considered for adjustment for:

a. Correction of irrigable area square footage;
b. Correction of number of dwelling units (Multi-family accounts only);
c. Exemption granted for a licensed in-home childcare or elderly care facility;

Water allocations will not be adjusted to accommodate:

a. Pools, ponds, spas, or hot tubs;
b. In-home businesses or hobbies that use an increased amount of water;
c. Gardens and orchards;
d. Homeowner's Association requirements for turf areas in excess of that water allocation specified by Casitas for a Residential classification;
e. Where an allocation has been assigned through a recorded agreement.

Agricultural Irrigation Allocation Adjustment Standards:

a. Limited to acreage planted in commercial agricultural production prior to March 1, 1992. Casitas shall also consider the assignment of an appropriate allocation to lands that are verified as being in a crop rotation status, or temporarily in a fallowed state, having been in a planted status prior to March 1, 1992.
b. Comparative (same crop type and average use of various parcels) crop usage in FY2012-13 for full irrigation, not to exceed 3 AF/AC/YR, which is located within a 1-mile circumference of the parcel seeking the appeal for a change in water allocation.

4.6 Appeals Process.

Customers that are denied an adjustment of water allocation may request a review of the request by submitting a written appeal to the Casitas Water Resources Manager stating the nature of the appeal. The appeal shall be reviewed by the Casitas Water Resources Manager and a recommendation shall be reported to the General Manager. The decision of the General Manager shall be reported to the customer in written form. If the customer is not satisfied with the General Manager's decision, the customer must request within 10 days that the appeal be placed on the agenda of the Casitas Board of Directors. The determination by the Board of Directors shall be final.

4.7 Availability of Allocations.

The determination of supplies being available for issuance of new allocations of water shall be made upon staff recommendation at a regular Board of Directors meeting. The determination that water is or is not available shall be within the determination of the Board of Directors. The determination that a supply is available shall be based upon more detailed information about existing supplies, the availability of new supplies, new water supply projects, or contracts or proposed contracts for additional supplies where, in the opinion of the Board of Directors, the supply of water is definite enough to provide the assurance to the County of Ventura that there is a forty year supply.

4.8 Allocation for New or Expanded Water Uses.

A customer may request a change to a water allocation assignment for the purposes of obtaining new or expanded use of water that is associated with a new building permit, new or existing conditional use permit, or agricultural irrigation acreage expansion. The approval of an addition or change to the water allocation for new and/or expanded water allocation is subject to Casitas' discretion on the limits of available water allocation and subject to the charges for new and/or expanded water allocation.

When the Board of Directors determine that additional new water supplies are available, either from the safe yield of the existing CMWD project supply or additional new supplies, supplies shall be allocated in accordance with the following criteria:

a) No single property owner or applicant for the given type of service (municipal, industrial or agricultural) shall receive a new water allocation greater than 10 percent of the total new available supply or the minimum standard residential allocation, whichever is greater. If the applicant's allocation requirements are not fully met, the applicant may maintain a position of priority until more water is available.

b) All applicants seeking an allocation shall provide Casitas with a detailed description of the project, the use of water for which the water is sought, and information on peak flow and annual water requirements. Casitas shall determine meter size and amount of allocation based upon reasonable and necessary needs and Casitas' Rates and Regulations.

c) The amount of water to be allocated shall be at Casitas' sole discretion. The assignment of an allocation shall be limited to the availability of water from the Lake Casitas safe yield, and be based on current water demand factors as adopted by the District and as amended. The amount of water required for the project may be calculated and submitted for the consideration of Casitas by a civil engineer, registered in the State of California, representing the project proponent.

SECTION 5: STAGED DEMAND REDUCTION IMPLEMENTATION

5.1 Staged Demand Reduction Principles.

The primary source of water that is available to the Casitas Municipal Water District is the amount of water stored behind Casitas Dam, forming Lake Casitas. The quantity of water stored in Lake Casitas is dependent upon the local hydrology, watershed conditions, diversions from the Ventura River, and the outflow from lake evaporation and water deliveries to beneficial uses. There may be times during which Casitas must consider implementing staged water demand reductions to ensure a sustainable water supply and prevent a complete depletion of water supply in Lake Casitas.

The District has assigned five stages of water storage in Lake Casitas that serve as a guidance to triggering the implementation of water use reduction goals and measures. The overarching goals of the Staged Demand Reduction Program are:

1) conserving the water supply for the greatest priority and public benefit; and
2) mitigating the effects of a water shortage on public health, safety, and economic activity.

5.2 Water Resource Conditions and Actions.

The General Manager shall report to the Board of Directors each year *(April)* with an assessment of the current water storage in Lake Casitas and local groundwater basins, current water use trends, predicted weather conditions, and an evaluation of current water use reduction goals. The time of the reporting can be each April, as the rainfall season is ending and water resources can be evaluated at the maximum for the year, or as Lake Casitas storage reaches a change in Stage action level. The Board of Directors may, at their sole discretion, declare that a Stage condition of water supply in Lake Casitas exists and implement the appropriate demand reduction goals and measures in response to current and/or predicted water availability conditions. Casitas shall make such determinations public and follow with appropriate and timely notification of all customers. Casitas has established the implementation of various Stages of action based on the amount of water in storage in Lake Casitas, as shown in Table 3. An action to declare and implement a Stage may be by either an action by Casitas Board of Directors based on unanticipated changing lake supply conditions or by the following schedule in Table 4.

Table 3 – Stage Conditions

Stage	Stage Title	Lake Casitas Storage - %	Lake Casitas Storage Action Level (acre-feet)
1	Water Conservation	100% - 50%	237,761 to 118,880
2	Water Shortage Warning	50% - 40%	118,880 to 95,104
3	Water Shortage Eminent	40% - 30%	95,104 to 71,328
4	Severe Water Shortage	30% - 25%	71,328 to 59,440
5	Critical Water Shortage	25% - 0%	59,440 to 3,000

Table 4 - Stage Action Schedule

Target Dates	**Action**
June - April	Monitor water demands, rainfall, reservoir level trend, groundwater trends, and diversion and runoff amounts.
Early April	Staff presents water status report and a recommendation to the Casitas Board of Directors. Publish a notice of a public hearing if changes are recommended.
Late April	Casitas Board of Directors formally declares a Stage, and/or water shortage emergency, adopts recommendations for demand reduction actions.
May	Customer Notification of change in Stage, allocation, and conservation surcharge.
June	Stage demand reduction actions are effective and are implemented.

5.3 Demand Reduction Goals and Measures.

The demand reduction goals and measures begin with Stage 1, where reasonable and appropriate water allocation assignments are made to each Casitas service connection and the end water users are

Demand Reduction Stage	**1**	**2**	**3**	**4**	**5**
Volume Range of Lake Casitas	254,000 to 127,000	127,000 to 100,000	100,000 to 75,000	75,000 to 65,000	65,000 to 3,000

implementing the Best Management Practices that conform to State requirements for water conservation and water use efficiency measures. Upon determination of a Stage 2 condition and continuing through Stage 5 conditions, the primary actions to achieve the demand reduction goal is the adjustment of allocations that were made available for each classification during Stage 1 by a reduction of the allocation during the duration of the declared Stage condition.

5.4 Stage Adjustments to Allocations.

The five stages of storage in Lake Casitas and the initial guideline for water allocation adjustments for each classification at each Stage are presented in Table 5. Upon recommendation of the General Manager and approval of the Board of Directors at the onset of a specific Stage, the District shall apply appropriate demand reduction factors to the allocations for each customer classification, as deemed necessary. The Board of Directors retain the sole discretion to make allocation changes as a result of declaring a change in Stage, or during any Stage, that are more or less severe than that provided in Table 5. Examples of applying this discretion may include, but not be limited to, the change in any water resource conditions or the demand reduction goals are not being attained by the customer classification.

Table 5 – Staged Water Demand Reductions for Water Classifications

% Lake Storage	100% - 50%	50% - 40%	40% - 30%	30% - 25%	25% - 0%
Water Use Reduction Response Goal	20%	20%	30%	40%	50%
Residential & Multi-Family Residential Essential Use Non-essential Use	 0% 20%	 0% 20%	 0% 30%	 0% 40%	 0% 50%
Business	20%	20%	30%	40%	50%
Industrial	20%	20%	30%	40%	50%
Other	20%	20%	30%	40%	50%
Resale	20%	20%	30%	40%	50%
Irrigation	20%	20%	30%	40%	50%
Interdepartmental	20%	20%	30%	40%	50%

Note: Initial Stage 1 Allocations include a 20% reduction from the 1989-90 demands.

Essential Use Allocations will remain the same and not adjusted, except as otherwise determined by the Board to be a necessity to preserve water supply during extreme conditions. The measures to achieve the demand reduction goal may be selected from a menu of options as provided in Table 6, or should water supply conditions become worse than anticipated the Casitas Board may adopt more stringent requirements as deemed necessary.

5.5 Customer Notification.

The customers of each and every classification shall be notified in a timely and appropriate manner of any and all actions to declare and implement Demand Reduction Stage. The methods of communication to the customer shall be through direct mailings, public meetings, and billing information that provides the customer the comparison of water use with allocation.

5.6 Water Rates and Conservation Penalty.

a. The Casitas Board of Directors shall annually consider the setting or adjustment of water rates that reflect the cost of water service, consistent with State law.

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1. Casitas has implemented a tiered inclining rate structure for the Residential and Multi-family Residential classifications that represents the proportional cost of service that is attributable to the parcel that is served water.

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b. The Casitas Board of Directors shall annually set the Conservation Penalty for each classification that will be applied to each individual customer billing for each unit of water that is in excess of the customer's allocation, or the adjusted allocation pursuant to a change in Stage. The Conservation Penalty is imposed to curtail the potential for adverse effects of excessive water consumption.

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c. Upon determination of a change in the Demand Reduction Stage, or at such time the Board deems that the customer response does not appear to attain the desired demand reduction goals, the Board may consider the modification of the Conservation Penalty.

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d. Revenues recovered from the Conservation Penalty will supplement Casitas' water conservation costs, provide revenue for water shortage related projects, and cover costs associated with implementing changes to the WEAP as directed by the Board.

5.7 Appeals for Exception to Staged Adjustments of Allocation or Conservation Penalty Assessment.

a. A Casitas customer may file an appeal for:

1. An Exception to Staged Adjustment of Allocation, as provided in Section 5.4 above; or
2. The assessment of a Conservation Penalty, as provided in Section 5.6 above

by submitting a written appeal, on a form provided by Casitas, directly to the General Manager or his/her designee.

b. The following paragraphs provide the criteria or reasons for an appeal for an Exception to Staged Adjustments of Allocation and an appeal for an Exception to Staged Adjustments of Allocation may be granted for one or more of the following reasons:

1. The staged adjustment would cause a condition affecting the health, sanitation, fire protection, or safety of the customer or the public;
2. Strict application of the water allocation adjustment provisions imposes a severe or undue hardship on a particular business, or renders it infeasible for a business or class of business to remain in operation;
3. The customer is a hospital or health care facility using industry best management practices;
4. The business has already implemented environmental sustainability measures and water conservation measures reducing water consumption to the maximum extent possible.

c. The customer must support their reason for an appeal for an Exception to Staged Adjustments of Allocation with supporting documentation or substantial evidence demonstrating the need for an exception. A failure to provide supporting documentation or evidence shall result in a denial of the appeal.

d. The appeal for an Exception to Staged Adjustments of Allocation will be first reviewed, approved or denied, by the General Manager or his/her designee. The decision of the General Manager or his/her designee shall be reported to the customer/appellant in written form. If the customer is not satisfied with the General Manager or his/her designee's decision, the customer/appellant must request, within 10 days of the date of the General Manager or his/her designee's decision, that the appeal be placed on the agenda of the Casitas Board of Directors for their review and determination based on the criteria set forth in Section 5.7(b)(1)-(4). The determination by the Casitas Board of Directors shall be final.

e. The following paragraphs provide the criteria and process for an appeal from a Conservation Penalty:

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1. An appeal for relief of a Conservation Penalty may only be considered when a natural disaster such as a wildfire, earthquake, flood or landslide or other naturally occurring phenomenon which directly causes a leakage or leakage event.

2. The customer must file their appeal to the Casitas Municipal Water District Board of Directors' Appeals Panel.[1] A request for review and an evidentiary hearing must be made in writing and submitted to the District within thirty (30) days of date the Casitas bill with the Conservation Penalty was issued by the District. Upon receipt by the District, a review and evidentiary hearing will be placed on the next agenda of the Appeals Panel.

3. The appeal of a Conservation Penalty must explain why the leakage or leakage event was caused by a naturally occurring event such as wildfire, earthquake, flood or landslide.

4. The customer/appellant must support their reason for an appeal from a Conservation Penalty with supporting documentation or substantial evidence demonstrating the circumstances for the appeal. A failure to provide supporting documentation or evidence shall result in a denial of the appeal.

5. The General Manager or his/her designee will review the appeal and the documentation or evidence provided by the customer supporting the appeal. The General Manager or his/her designee may request additional information from the customer. Following a review of the appeal, the General Manager shall make a recommendation to the Appeals Panel. A copy of the General Manager's recommendation will be provided to the customer/appellant.

6. If a review and evidentiary appeal hearing is properly requested before the Appeals Panel, the customer/appellant shall have an opportunity to state their case and present evidence supporting their appeal. Following the customer's presentation of the grounds for appeal, the Appeals Panel shall review the General Manager's recommendation on the conservation penalty appeal and determine whether to grant the appeal in full, apportion the penalty, or deny the appeal based on the following:

   A. The documentation and/or evidence provided by the customer in their initial written appeal;
   B. The basis of the General Manager's recommendation as provided in the General Manager's written explanation of the grounds for the recommendation; and
   C. Any additional circumstances the Appeals Panel determines to be relevant during the evidentiary hearing.

7. In order to approve an appeal of a Conservation Penalty, the Appeals Panel must make the following findings:

[1] The Appeals Panel is a Board-appointed committee composed of three (3) Board members who are authorized to conduct evidentiary hearings, make findings and render decisions in accordance with this section of the Water Efficiency and Allocation Program. This is in accordance with California Water Code Sections 71300, 71301 and 71305.~~; Div. 20; Part 3; Chap. 2.~~

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A. The customer provided documentation or substantial evidence that the Conservation Penalty could not be avoided by circumstances within the customer's reasonable control;

B. The General Manager's written recommendation is valid or invalid in light of the customer's documentation or evidence provided; and

C. The reason for the appeal is not to accommodate for leakage or a leakage event within the control of the customer.

8. If the appeal for a Conservation Penalty is approved by the Appeals Panel, the Appeal Panel shall determine if the Conservation Penalty is denied in whole or in part.

9. Following the review and the evidentiary hearing, the Appeals Panel shall provide a written determination with findings to the customer within thirty (30) days of the hearing either approving, denying or apportioning the appeal. The Appeals Panel's determination is final and binding on the customer.

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SECTION 6: EXPORT OF CASITAS WATER

Water Code Section 71611 authorizes Casitas to sell water under its control for use only within the jurisdictional boundaries of the Casitas Municipal Water District. The unauthorized export and use of Casitas water beyond the Casitas district boundaries can have significant negative impacts on the Casitas water supply reliability, and therefore shall be prohibited unless specifically authorized in writing by the Casitas Board of Directors. All customers receiving Casitas water into water conveyance systems which cross Casitas boundaries shall meet the following requirements as a condition of service:

1) Customers shall submit to Casitas a certified report on the last day of each month that demonstrates that no Casitas water was transported or used outside Casitas boundaries during the prior month without written approval by Casitas.
2) Customer shall install and maintain approved metering devices and shall be required to account for all Casitas water delivered in the customer's system.
3) In the event Casitas water is exported during any month, the customer shall be billed for exported water at five (5) times the Casitas rate for the Temporary Service classification.
4) In the event the customer fails to comply with the conditions of service stated in the above (1) and/or (2), all water purchased in excess of the allocation shall be considered exported water and shall be billed in accordance with the foregoing.
5) This Section, Export of Casitas Water, is in effect at all times.
6) The exceptions to the export are during a declaration by the Board of Directors of surplus water, and limited to the surplus water or exchange agreement between the Board of Directors and other party.

Continuing or reoccurring violations of this section by any Casitas customer may result in the restriction or disconnection of water service to the customer.

Table 6 – Stage Actions and Water Demand Reduction Measures

Water Shortage Condition	Key Casitas Communications and Actions	Customer Demand Reduction Measures	Penalties And Rates
Stage 1 Supply Range 100% - 50% Voluntary Demand Reduction **To Stage 1 Allocation**	• Initiate public information and advertising campaign. • Publicize ways to reduce water consumption. • Coordinate conservation actions with other water purveyors and cities. • Perform water audits and promote water efficient use/conversions. • Conduct water workshops. • Temporary staffing for public inquiries, as needed.	• Water conservation practices requested of all customer classifications. • Adhere to Water Waste Prohibition Ordinance and State of California laws and regulations regarding water waste • Adhere to assigned water allocation or less.	• Consider and implement Conservation Penalty for water use in excess of allocation. • Consider rates for revenue stabilization and cost of service.
Stage 2 Supply Range 50% - 40% Mandatory Demand Reduction to Stage 1 Allocation	• Declare Stage 2 • Implement demand reductions for each customer classification. • Intensify public information campaign. • Optimize existing water resources. • Intensify leak detection. • Develop appeals staffing. • Consult with major customers to develop conservation plans and water use audits.	• Continue all Stage 1 measures. • Landscape watering advised to two (2) watering days per week. • Require water audits for large water users; implement recommendations of the water audits. • Businesses display “save water” signage. • Increase public information.	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.
Stage 3 Supply Range 40% - 30% Demand Reduction From Stage 1 Allocation **10%**	• Declare Stage 3 • Implement demand reductions for each customer classification. • Expand and intensify public information campaign. • Provide regular briefings, publish monthly consumption report. • Hire additional temporary staff in customer service and conservation. Water waste enforcement.	• Continue with Stage 1 and 2 measures. • Reduced water allocations. • Landscape watering advised to one (1) watering day per week.	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.
Stage 4 Supply Range 30% - 25% Demand Reduction From Stage 1 Allocation **20%**	• Declare Stage 4 • Implement demand reductions for each customer classification. • Continue to provide regular media briefings. • Open drought information center.	• Continue with Stage 1 through 3 measures. • Reduced water allocations. • Landscape watering advised to one (1) watering day per week. • Consider prohibition of filling swimming pools and fountains. .	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.
Stage 5 Supply Range 25% - 0% Demand Reduction From Stage 1 Allocation **30%**	• Declare Stage 5 • Implement demand reductions for each customer classification. • Minimize outdoor water use and non-essential uses. • Implement aggressive public outreach and education program. • Implement crisis communications plan. • Coordinate with State and local agencies to address enforcement challenges. • Water Shortage Emergency declaration to be considered. • Consider further Staged reductions and other future Board actions	• Continue with Stage 1 through 4 measures. • Reduced water allocations. • Rescind Temporary meters issued.	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.

CASITAS MUNICIPAL WATER DISTRICT

ORDINANCE NO. _____

A ORDINANCE ~~ADOPTING AND IMPLEMENTING~~AMENDING ~~A~~ THE
WATER EFFICIENCY AND ALLOCATION PROGRAM
FOR ALL CASITAS CUSTOMERS

WHEREAS, in 1989 Casitas evaluated the concern that the water demands within the Casitas boundaries may be exceeding supplies; and

WHEREAS, in 1990, Casitas concluded that the long-term demand upon Lake Casitas shall not exceed the safe yield of Lake Casitas and other Casitas sources of water supply ; and

WHEREAS, in 1992, Casitas restricted the expansion of water service for all classifications of water service until additional water supplies had been identified and made available to allocate to Casitas customers; and

WHEREAS, in 1992, Casitas adopted Ordinance 92-7, the Water Efficiency and Allocation Program (WEAP) which was implemented in the Casitas Rates and Regulations for Water Service for all Casitas customers; and

WHEREAS, in 2004, Casitas evaluated the safe yield of the Ventura River Project under the changed conditions imposed by the 2003 Biological Opinion, pursuant to the Federal Endangered Species Act, for the operations of the Robles Diversion and the inclusion of the change in water supply with the eventual removal of Matilija Dam, concluding that the safe yield of the Ventura River Project is significantly reduced as a result of these changing conditions and that alternative demand reduction measures may be required to balance long-term water supplies and water demands while meeting the needs of the environment; and

WHEREAS, in 2005, Casitas prepared and adopted the 2005 Urban Water Management Plan and established various water storage levels in Lake Casitas as the action triggers for the allocation program set forth in the WEAP; and

WHEREAS, in 2006, Casitas implemented operational measures at the Robles Diversion and Fish Passage Facility to comply with the 2003 Biological Opinion for the restoration of the endangered steelhead trout in the Ventura River, and that the implementation of said operational measures lessened the quantities of water that could be diverted to and stored in Lake Casitas for beneficial uses, and thereby reducing the safe yield of the Ventura River Project; and

WHEREAS, in 2009, the State of California enacted the Urban Water Management Planning Act (SB7X X) that legislated requirements for long-term water resources planning to ensure adequate water supplies to meet existing and future demands for water; and

WHEREAS, Article X, Section 2 of the California Constitution declares that the general welfare requires that water resources be put to beneficial use, that waste or unreasonable use or unreasonable method of use of water be prevented and that conservation of water be fully exercised with a view to the reasonable and beneficial use thereof; and

WHEREAS, California Water Code, Section 375, authorizes a water supplier to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve water supplies; and

WHEREAS, the application of water allocations, water conservation measures and progressive restrictions on water use set forth herein are intended to provide to the water consumer an effective and immediately available means of conserving water in a manner that is essential to ensure a reliable and sustainable minimum supply of water for the public health, safety, and welfare and to preserve valuable limited water supply, avoid depleting water storage to an unacceptably low level, and thereby lessen the possibility of experiencing severe critical water shortages if dry conditions continue or worsen; and

WHEREAS, California Water Code, Sections 71610.5 and 71611, provides that a district may undertake a water conservation program to reduce water use as well as sell water under its control, without preference, to cities, other public corporations and agencies, and persons, within the district for use within the district.

WHEREAS, Casitas first approved and adopted the WEAP in 1992 and has made subsequent amendments thereto.

~~WHEREAS, Casitas has reviewed Ordinance No. 92-7 in light of current conditions and has determined that Ordinance 92-7 be superseded by this Ordinance;~~

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Casitas Municipal Water District as follows:

~~1. Ordinance No. 92-7 is hereby superseded by this Ordinance;~~

1. The ~~2015~~ Water Efficiency and Allocation Program is hereby amended to include revisions to Section 5.6 and the addition of Section 5.7 to accommodate appeals of the Conservation Penalty; and ~~dopted~~:
~~2.~~ A revised version of Table 6 is to be incorporated
2. ; and
3. The General Manager is hereby directed to implement the procedures, rules and regulations to carry out ~~the components of the 2015~~amended Water Efficiency and Allocation Program.

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ADOPTED this ___day of _____, ~~2015~~2019.

_____
President, Casitas Municipal Water District

ATTEST:

_____
Secretary, Casitas Municipal Water District

MEMORANDUM

TO: Board of Directors

From: Michael L. Flood, General Manager

RE: 2019 Casitas Water Supply and Demand Assessment

Date: April 19, 2019

1. BACKGROUND

In accordance with the direction provided in the Water Efficiency and Allocation Program, adopted May 9, 2018, specifically Section 5.2 entitled "*Water Resource Conditions and Actions,"* the Board of Directors are to receive an assessment of local water supplies, water demands, and current effectiveness of water demand reduction measures. The information in the assessment may necessitate the consideration and direction from the Board of Directors for further actions to preserve water supply for the future.

2. ANNUAL EVENT SUMMARY

The annual event summary is to provide insight to unusual events that have occurred within the boundary of the Casitas Municipal Water District that would not otherwise be directly reported in the content of the assessment. The key events are as follows:

a) The Casitas Municipal Water District has continued to cope with the demands of the acquisition of the Ojai Water System. The acquisition transferred to Casitas the operations and maintenance of the Ojai Water System including six groundwater wells in the Ojai Groundwater Basin which have an ongoing goal of maximizing the use of groundwater for that system through both maintenance and planning for future improvements.

b) The Thomas Fire of December 2017 has had a continuing effect on District operations primarily centered on the control of turbidity in Lake Casitas for water quality purposes and negative impacts to the operation of the Robles Fish Passage facility.

c) A groundwater adjudication commenced in the Ojai Valley area through an amended cross complaint filed with the California Superior Court on September 21, 2018. This action included not only Casitas but also many public and private water users in the Ojai Valley. This is of special significance to the District due to its operation of seven groundwater wells in addition to its right to divert water from the Ventura River. There would likely be no impact on water supply for the next twelve months but the District will need to divert funding from other needs in order to cope with increased legal costs.

3. ASSESSMENTS

The assessments are to be considered in the implementation of a Stage and the demand reduction measures for FY 2019-20.

WEATHER CONDITIONS.

During the period of 2012 through 2018, the Ventura River watershed has been in an extreme drought condition with less than average rainfall amounts (Table 1) that had been insufficient to cause the restoration of local water resources. Rainfall totals during the 2019 winter season were above the long-term average rainfall for Matilija and Casitas Dam locations and have had a positive impact to water supplies in the early months of the year.

Table 1 – Rainfall Totals for Matilija Dam and Casitas Dam (inches)

Water Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg.
Matilija Dam	16.56	36.54	40.28	14.21	11.85	14.76	17.57	13.35	31.98	16.75	37.54	28.23
Casitas Dam	14.82	31.13	35.99	15.11	10.99	9.90	11.65	11.07	30.75	9.89	24.77	23.31

The winter storms of 2019 can be described as above-average and significant. The annual rainfall total during the period of October1 to April 1, 2019, at Matilija Dam and Casitas Dam are respectively 37.54 and 24.77 inches.

WATER RESOURCES.

The primary water resources within the Casitas district boundaries are collectively the groundwater basins of the Ventura River, Ojai and Upper Ojai, and the surface water storage at Lake Casitas.

Groundwater Basins. The winter of 2019 brought significant recovery to the local groundwater basins within Casitas' district boundaries. The rainfall events caused continued flashy peak flows with large amounts of debris and silt from the highly burned Ventura River watershed but this effect diminished toward the end of the season.

The Upper Ventura River groundwater levels have had significant recovery since April of 2018. The recent data presented by the Ventura River Water District illustrates that with this season's storm flows, groundwater levels increased to within a few feet of the normal April 1 average but still short of being completely full (see VRWD April 2019 Newsletter). Groundwater recovery has been assumed to be partially impacted due to the fine sediment and organic matter from the burned watershed finding its way into the permeable gravels of the river. The storage recovery in the Upper Ventura River Basin would likely allow groundwater pumpers to minimize their use of Casitas supply over the next twelve months.

The Ojai groundwater basin is a primary water source for the Ojai Valley's urban and agricultural water demands. The basin's groundwater storage recovered an approximate 63-foot rise in water elevation recorded at a key well in the basin since November of 2018. The Ojai basin Groundwater Management Agency has reported that the Ojai basin has risen to an estimated storage of 57,600

acre-feet (72% capacity) by April 2019 and continuing to rise as water continues to drain from the watershed.

Surface Water Storage. Lake Casitas is the primary source of water supply for the Casitas Municipal Water District. Its construction in the 1950's was as a supplemental supply to local groundwater and as a primary source for areas that do not have groundwater. Figure 1 presents the annual high-low water storage fluctuations that Lake Casitas has experience since 1970. Lake Casitas storage was last at full storage capacity (252,867 acre-feet) in May 2006 and has since been in a declining storage trend due to drought conditions, evaporation, and water use.

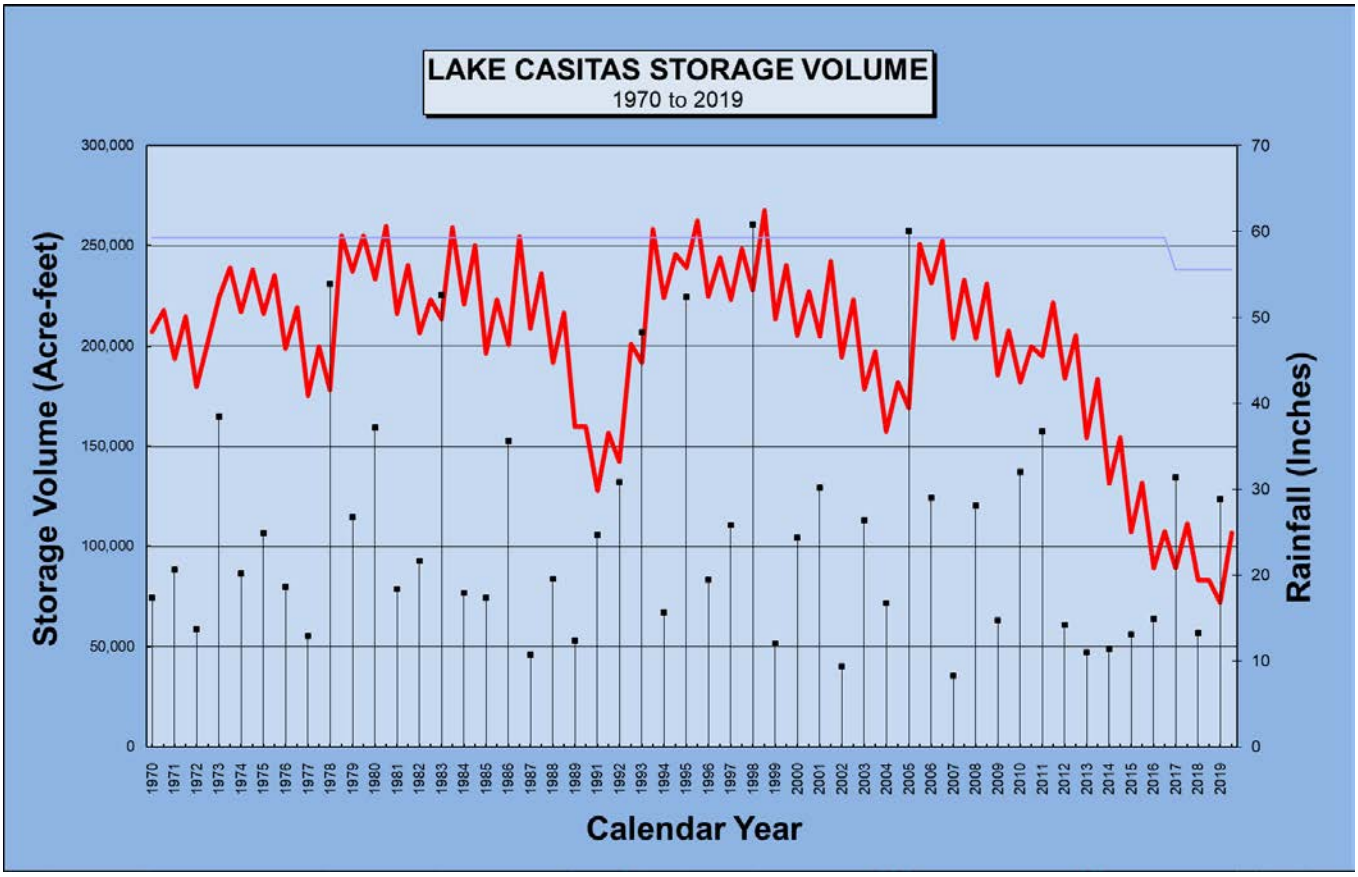

Figure 1 – Lake Casitas Storage Volume and Rainfall Trend (1970 to April 2019)

On January 1, 2018, Casitas officially changed the storage table based on the bathymetric survey conducted at Lake Casitas. The volume stored at each designated percentage specified in the Water Efficiency and Allocation Program (WEAP) is changed to reflect the data provided by the bathymetric survey as follows:

Table 2 – WEAP Stages and Lake Casitas Volumes

Stage	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**
Percent Storage	100%	50%	40%	30%	25%
Volume (Acre-feet)	237,975	118,988	95,190	71,393	59,494

On January 9, 2018, Lake Casitas storage level declined to 72,478 acre-feet. The 2019 winter rain storms caused a significant rise in the Lake Casitas storage volume to 106,742 acre-feet on April 10, 2019.

In consideration of a April 2019 start point at 106,742 Acre-feet in storage at Lake Casitas, applying evaporation, no runoff additions to storage, and comparing three rates of water demands, Figure 2 illustrates the time for Lake Casitas to reach a particular level. This chart illustrates that with the given demand rates, no additional rainfall and runoff, the District could reach Stage 3 in five to nine months, Stage 4 in fifteen months to two years, and Stage 5 in twenty-one months to three years.

Looking forward to the changes of Lake Casitas storage during the remainder of 2019, based on 2018 water demands and estimated evaporation, Lake Casitas is projected to decline to approximately 95,000 acre-foot capacity by November 2019.

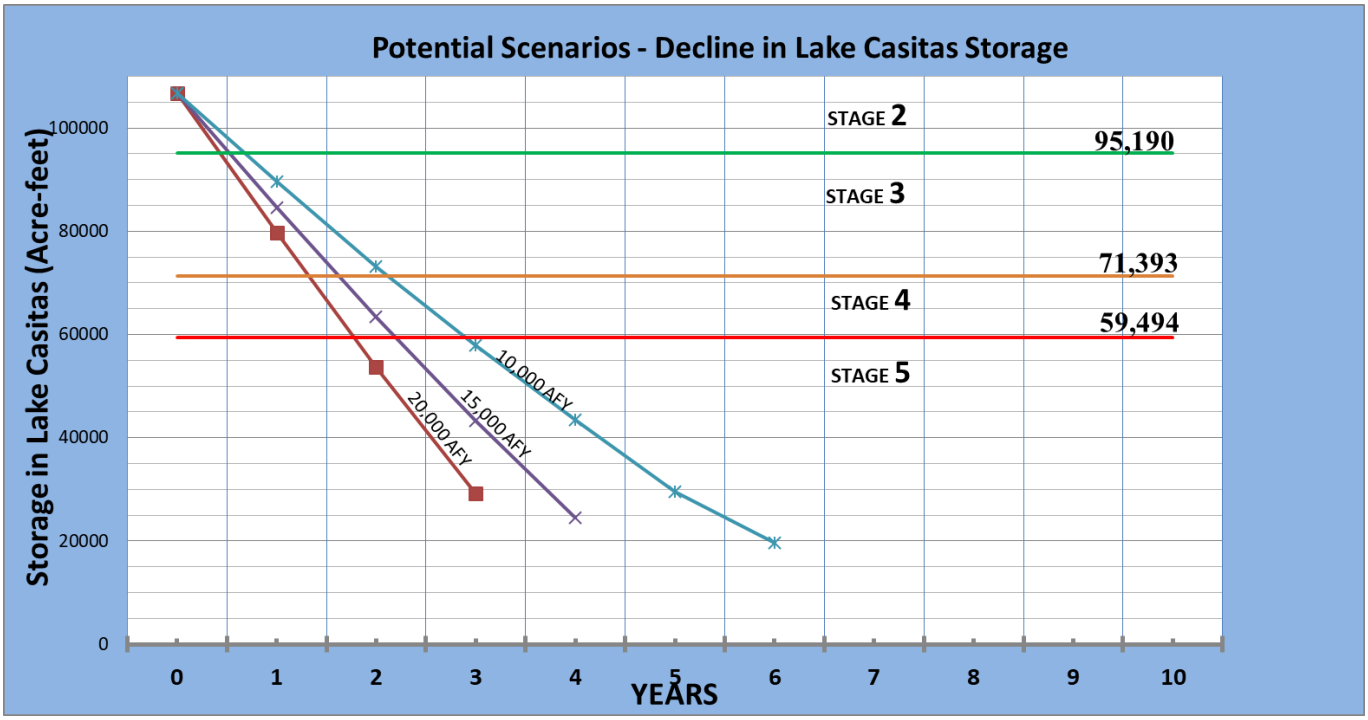

Figure 2 – Hypothetical Decline in Lake Casitas Storage with No Rainfall or Runoff.

WATER DEMAND.

In FY 2013-14, the Casitas water demands from Lake Casitas peaked to 20,417 acre-feet, while Lake Casitas was still in a Stage 1 condition. In April 2014, the State's Drought Emergency Declaration raised the public awareness to the on-going drought throughout California, the severe conditions in the State Water Project and Central Valley Project, and the growing scarcity of water for agriculture and communities statewide.

In April 2015, Lake Casitas storage declined to fifty percent of its storage capacity and the Casitas Board of Directors declared that a Stage 2 condition existed for the Lake Casitas supply. In doing so, the Board of Directors initiated Stage 2 mandatory water demand reduction requirements with the further adoption of a revised Water Efficiency and Allocation Plan (WEAP). A key element of the WEAP was the assignment of individual water allocations for residential, commercial and agricultural beneficial water uses, and the assignment of a conservation penalty for water use that was in exceedance of the assigned water allocation.

In June 2016, the Casitas Board of Directors declared that a Stage 3 condition exists as Lake Casitas continued to decline to 100,000 acre-feet of water in storage. The Stage 3 declaration implemented a conservation surcharge of $5.00 per unit and limited the available for new water use to 10 acre-feet per fiscal year. In April 2017, the Casitas Board of Directors continued the Stage 3 declaration, pending further decline of Lake Casitas storage to a Stage 4 level.

From December 2018 through February 2019, the Casitas Board of Directors considered the possibility of a Stage 4 declaration but decided to forego the declaration based on the strong conservation response from the community (near a Stage 5 level) combined with rainfall that had been adding significant supply volume to Lake Casitas.

Water Demand Response. A critical function of the WEAP is to manage water supplies in such a manner that prevents Lake Casitas from reaching a minimum pool condition through the implementation of water demand response measures – the assignment of individual water allocations and the implementation of a conservation surcharge for water use in excess of the allocation.

Since FY 2013-14, the demand on the Lake Casitas supply has continued to decline (Table 3) in response to the WEAP, water resource changes by large customers, and the heightened customer awareness of water resource conditions. The estimated water delivery in FY 2018-19 is an indication of the continuance of the decline in water delivery from Lake Casitas.

Table 3 – Water Deliveries from the Lake Casitas Supply

Fiscal Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19 (Estimated)
Lake Casitas Water Deliveries (AF)	20,417	17,339	15,662	13,200	12,322	10,650
% below 2013-14 Delivery	0	15	23	35	40	48
Declared Stage	1	1	2	3	3	3

Each of the listed periods since FY2015 exhibit the water demand reduction resulting from the public outreach, the conservation surcharge, and the effects of the State's 2014 drought declaration. (Note that the amounts in Table 3 are registered at the Marion Walker Treatment Plant and don't include system losses thus will differ from amounts reported on the District's Monthly Consumption Reports).

Conservation Penalty. The District has implemented a conservation penalty for water use in excess of the individual customer's Stage allocation. The funds resulting from the conservation penalty are to be applied toward new water supply projects and the water conservation efforts of the District.

In September 2015, and for the remainder of FY 2015-16, the residential water used in excess of the monthly allocation was billed as a conservation penalty at the rate of $1.00 per unit. Effective July 1, 2016, and continued into FY 2018-19, the conservation penalty was increased to $5.00 and the allocation reduced an additional 10 percent for the Stage 3 condition.

Allocation penalties collected through February 2019 for all residential accounts equates to roughly 240 Acre-Feet of overuse in this category. This is a significant increase from 2018 wherein penalties had been collected on approximately 125 Acre-Feet of overuse. It should be noted however that this

likely due to the fact that Ojai Water System residential accounts were not included in the amount collected in 2018.

Revenue. The Revenue and Expense Report for July 1, 2018 through February 28, 2019, indicates that water sales revenue is $ 279,820 less than the same period in FY 2017-18. Reasons for this include increased conservation, imposition of conservation penalties on the Ojai Water System, and a wet period from December through the end of February that typically causes a decrease in outside uses.

Growth. The service area of the District is experiencing extremely slow growth. Most requests that Casitas receives are related to expansions of residential housing construction. The slow growth rate is indicative of the information illustrated in Table 5. During the past eight years, Casitas has installed twenty-three meters and issued 29.76 acre-feet of water allocation. On the average, less than three meters have been installed per year and new or additional allocation assignments have been less than four acre-feet per year.

In 2017, Casitas acquired the Ojai Water System in which Casitas has addressed residential and multi-dwelling projects that were in progress at the time of the system acquisition.

Table 4 – Water Service and Allocation Assignments by Casitas (CY 2012-2019)

Calendar Year	No. of Meters Issued	Allocation Issued (AF)
2012	3	2.22
2013	1	1.88
2014	6	9.85
2015	1	1.27
2016	3	2.08
2017	3	5.54
2018	0	0
2019	6	6.92

4. POLICY AND PROGRAMS IN PLACE.

Resolution Adopting Management Priorities of Casitas Municipal Water District, Resolution No. 93-12. On March 10th, 1993, the Casitas Board of Directors resolved by Resolution No. 93-12 (1) that Casitas shall manage Lake Casitas and its water supplies so that it can provide back up to other water systems and meet its direct customer demands during droughts without running the lake dry.

Water Waste Prohibition Ordinance. (Casitas Ordinance 15-02). This Ordinance established water waste prohibitions and identified actions against violations of the Ordinance. Casitas staff has been actively engaged with the public reports of water waste.

Water Conservation Program. Since 1992, Casitas has actively assisted water customers throughout the district with fixture retrofits, irrigation surveys, residential and institutional water use surveys, provision of water conservation materials to local schools, public workshops and

presentations on a wide variety of water conservation topics, public messaging, and financing assistance for water well improvements. The Water Conservation Program has partnered with other Ventura County agencies to obtain grants for additional water conservation measures. The Water Conservation Department is also expected to add two additional positions this next year to assist customers with meeting conservation targets.

Water Efficiency and Allocation Program (WEAP). The WEAP is the key water management tool for long-term drought response and water demand. The WEAP was originally adopted by the Board of Directors in January 1992 and recently revised in May 2018. The WEAP is the backbone to the Casitas Urban Water Management Plan. A critical element of the WEAP implementation is to cause water demands to be commensurate to the declared Stage of Lake Casitas.

State of California. On April 7, 2017, Governor Brown lifted the January 17, 2014 drought declaration, leaving in place water waste prohibitions and requirements for continuing development of urban and agricultural water use standards to promote continued water conservation (Executive Order B-40-17). The State is developing new regulations to continue the conservation measures aa well as measures to hold all water users accountable for their water use.

Water Security Projects. The Casitas Municipal Water District is committed to investigating and implementing opportunities to expand water supply availability.

Matilija Formation - Continue to investigate the water availability and quality, field data gathering for environmental considerations is on-going. This project could possibly provide a local emergency water supply. The preliminary schedule for final completion is two years.

State Water Interties – The Casitas Municipal Water District is diligently pursuing the development of the infrastructure and agreements needed for the exchange of State water between Calleguas, the City of Ventura, Casitas, United, and other parties with the discretion of the Casitas Board of Directors and due consideration of the fiscal impacts and funding methods of the project. This is an opportunity for regional collaboration to address common water supply reliability needs of entirety of Ventura County. Additionally, Casitas and Carpinteria Valley Water District are pursuing grant funding to increase the size of a current intertie connection as well as build pump stations to move State Water Project water into Casitas' system. The preliminary schedule for final completion of these projects is five to six years.

Ojai Well Field Rehabilitation – This project is intended to restore the production of the Ojai Well Field wells and also drill one replacement well. This is expected to be completed within two years.

Comprehensive Water Resources Plan - While not specifically a water security project, Casitas has hired a consultant to analyze current water resources and develop a plan that will support the development of appropriately-sized projects. One primary component is a refreshed analysis of the safe yield of Lake Casitas, taking into account possible climate change aspects. Work on the plan began earlier this year and is expected to be complete in Fall 2019.

5. RECOMMENDED WEAP ACTIONS

The WEAP lists in Table 6 a series of actions to be considered by the Board of Directors for implementation when transitioning to any Stage condition of Lake Casitas. A revised copy of the Table 6 is attached to the end of this memorandum that has a few recommended updates included.

The following are the staff recommendations for WEAP actions to be considered for adoption by the Board of Directors at the April 24, 2019 Board Meeting:

Customer Demand Reduction Measures

1. **Continue with Stage 3 measures**. With the possibility of Lake Casitas returning to Stage 3 levels below 95,000 Acre-Feet later this year, a Stage 3 condition should remain in place. Water conservation is a way of life for the District's customers and the District should use the continued Stage 3 declaration as a means to reinforce that message. The enforcement of the Water Waste Prohibition Ordinance should continue during Stage 3 under the current system of public notification of waste. The system for allocation assignment and billing should continue as Stage 3, until such time that the Board makes a different determination. The Board should review the WEAP Stage declaration in February 2020.

2. **Continue current reduced water allocations**. Continue Stage 3 until water supply conditions warrant a change. If the water demand reduction measures are not being met during the course of FY 2019-20, the conservation penalty should be increased.

3. **Landscape watering restriction**. Continue with an advisory (not mandatory) one day per week. Casitas has heard from other local agencies that there is a difficulty in water systems meeting landscape irrigation water demands on one day a week basis. Casitas has also heard from landscape maintenance, parks, special facilities, and direct customers that this requirement is difficult to meet.

Penalties and Rates.

1. **Consider and implement Conservation Penalty for water use in excess of allocation**. Continue with the current conservation penalty of $5.00 for each unit of water that is over the monthly allocation assignment for all classifications of service. It is recommended to keep the conservation penalty at the same value for FY 2019-20 and change only if it is determined that water demand reduction is not being attained. Direct staff to work with customers that are repetitively in excess of the allocation assignments.

2. **Continue planned rates for revenue stabilization and cost of service**. The Board has adopted water rates to achieve revenue stabilization and cost of service that became effective July 1, 2017 and continue over four years.

3. **Provide a revised Conservation Penalty appeals process**
   Staff and the Board of Directors have been working on a revised appeals process to address customers with an appeal of their conservation penalty. The revised appeals process recommendation is expected to be complete within the next few months.

Issuance of Additional Allocations

1. **Continue to set an annual allocation limit for new or existing water service connections.** Adhere to the Board's prior direction to limit the volume of water to be allocated to new service connections or requests for additional allocation. Based on the Growth section above, a limit of 10 acre-feet per fiscal year appears to be a reasonable approach**.**

Communications

1. **Continue communicating the Stage 3 Condition**. Stage 3 is identified as a condition in which a water shortage is eminent. The current demand for Lake Casitas supply is fifty percent less than the 20,000 acre-foot safe yield of Lake Casitas (Table 3) which is compliant with the Stage 5 demand reduction target. The conservation message is working at this point in time. The Board of Directors may consider at any time however to move to a particular Stage based on a number of factors including conservation response, supply forecasts, current supply, etc.

2. **Continue the public information campaign**. Despite the Governor's action to declaring the ending of the California drought, local water users have continued to conserve. The local resale agencies also recognize that their water supplies are subject to sufficient rainfall and they may have to rely again on Lake Casitas under continuing drought conditions. Casitas needs to continue the messaging of local water supply reliability, water supply project status, and responsible water use. This can be done through newsletters, website and social media posts, and public workshops.

3. **Provide regular briefings, publish monthly consumption report**. A part of this task is being accomplished by staff as a requirement of the State Water Resources Control Board. The billing system provides each customer a monthly status on their water use and the application of conservation surcharges.

Modification of the WEAP.

1. Modification of Section 5.6 & 5.7 to include an appeal process for Conservation Penalties.

2. Incorporate Table 6 (herein) as revised.

Table 5 – Stage Actions and Water Demand Reduction Measures

Water Shortage Condition	Key Casitas Communications and Actions	Customer Demand Reduction Measures	Penalties And Rates
Stage 1 Supply Range 100% - 50% Voluntary Demand Reduction **To Stage 1 Allocation**	• Initiate public information and advertising campaign. • Publicize ways to reduce water consumption. • Coordinate conservation actions with other water purveyors and cities. • Perform water audits and promote water efficient use/conversions. • Conduct water workshops. • Temporary staffing for public inquiries, as needed.	• Water conservation practices requested of all customer classifications. • Adhere to Water Waste Prohibition Ordinance and State of California laws and regulations regarding water waste • Adhere to assigned water allocation or less.	• Consider and implement Conservation Penalty for water use in excess of allocation. • Consider rates for revenue stabilization and cost of service.
Stage 2 Supply Range 50% - 40% Mandatory Demand Reduction to Stage 1 Allocation	• Declare Stage 2 • Implement demand reductions for each customer classification. • Intensify public information campaign. • Optimize existing water resources. • Intensify leak detection. • Develop appeals staffing. • Consult with major customers to develop conservation plans and water use audits.	• Continue all Stage 1 measures. • Landscape watering advised to two (2) watering days per week. • Require water audits for large water users; implement recommendations of the water audits. • Businesses display “save water” signage. • Increase public information.	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.
Stage 3 Supply Range 40% - 30% Demand Reduction From Stage 1 Allocation **10%**	• Declare Stage 3 • Implement demand reductions for each customer classification. • Expand and intensify public information campaign. • Provide regular briefings, publish monthly consumption report. • Hire additional temporary staff in customer service and conservation. Water waste enforcement.	• Continue with Stage 1 and 2 measures. • Reduced water allocations. • Landscape watering advised to one (1) watering day per week.	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.
Stage 4 Supply Range 30% - 25% Demand Reduction From Stage 1 Allocation **20%**	• Declare Stage 4 • Implement demand reductions for each customer classification. • Continue to provide regular media briefings. • Open drought information center.	• Continue with Stage 1 through 3 measures. • Reduced water allocations. • Landscape watering advised to one (1) watering day per week. • Consider prohibition of filling swimming pools and fountains. .	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.
Stage 5 Supply Range 25% - 0% Demand Reduction From Stage 1 Allocation **30%**	• Declare Stage 5 • Implement demand reductions for each customer classification. • Minimize outdoor water use and non-essential uses. • Implement aggressive public outreach and education program. • Implement crisis communications plan. • Coordinate with State and local agencies to address enforcement challenges. • Water Shortage Emergency declaration to be considered. • Consider further Staged reductions and other future Board actions	• Continue with Stage 1 through 4 measures. • Reduced water allocations. • Rescind Temporary meters issued.	• Consider and implement Conservation Penalty for water use in excess of allocation – response to reduced allocation. • Consider rates for revenue stabilization and cost of service.

MEMORANDUM

TO: Board of Directors

From: Michael L. Flood, General Manager

RE: **Resolution Declaring Stage 3 Water Supply Condition at Lake Casitas**

Date: April 19, 2019

RECOMMENDATION:

The Board of Directors adopt a resolution declaring a continuing Stage 3 Water Supply Condition exists for the Lake Casitas water supply and provide direction to staff to implement specific actions in accordance with the Casitas MWD Water Efficiency and Allocation Program (WEAP).

BACKGROUND:

On April 27, 2016, the Board of Directors adopted a resolution declaring that a Stage 3 water supply condition existed for the Lake Casitas water supply. Three categories of specific actions were identified to be part of the declaration:

Category 1: Communication and Outreach – this included intensification of public outreach focused on alerting the public to the existence of a Stage 3 water supply condition and that mandatory water use reductions were in place. Budget development to support outreach efforts was also part of this category.

Category 2: New Service Connections & Allocations - Direction to staff to bring back a recommendation on either a moratorium or controlled issuance of new water service connections and allocations.

Category 3: Specific Actions to Support Conservation – This involved a list of specific actions involving allocation adjustments, landscape irrigation limitations and conservation penalties.

The Stage 3 condition was affirmed by the Board of Directors in both the 2017 and 2018 fiscal years.

During the 2019 winter season, the level in Lake Casitas saw a recovery in to nearly 45% of full during the winter season but will likely drop below 40% of full prior to November 2019.

This includes consideration of current conservation continuing and normal evaporation at Lake Casitas.

DISCUSSSION:

The WEAP provides the Board of Directors full discretion to determine what water supply condition Stage to declare in response to a drought emergency and is contained primarily in Section 5.4. This includes (but is not limited to) the water level of Lake Casitas, the measured response to the call for conservation, and changes to water resource conditions.

The 2019 Water Supply Assessment Memo provided during the April 24, 2019 Board Meeting went into more detail on the current and future status of Lake Casitas over the next several months and the recommended actions for the coming fiscal year.

The attached resolution contains the specific recommended actions that the Board of Directors should consider in relation to a the declaration of a continuing Stage 3 Lake Casitas water supply condition for the 2020 fiscal year.
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CASITAS MUNICIPAL WATER DISTRICT

RESOLUTION NO. 19-

RESOLUTION DECLARING A CONTINUING
STAGE 3 WATER SUPLY CONDITION
FOR ALL CASITAS CUSTOMERS

WHEREAS, on April 26, 2016 the Board of Directors of the Casitas Municipal Water District adopted Resolution 16-09 declaring that a Stage 3 water supply condition did exist at Lake Casitas, and

WHEREAS, due to a winter season that produced a higher than average local rainfall and runoff, as of April 2019 Lake Casitas did recover to nearly 45% of its full capacity of 237,975 Acre-Feet, and

WHEREAS, the 2019 Water Supply Assessment produced by Casitas MWD's General Manager predicts that Lake Casitas will drop to below 40% of full capacity prior to the end of the 2019 fiscal year, and

WHEREAS, the Casitas Water Efficiency and Allocation Program adopted on April 24, 2019 identifies a decline to forty (40) percent of storage available in Lake Casitas as the possible Stage 3 condition and subject to water demand reduction measures to preserve the Lake Casitas water supply during a continuation of the drought; and

WHEREAS, Article X, Section 2 of the California Constitution declares that the general welfare requires that water resources be put to beneficial use, that waste or unreasonable use or unreasonable method of use of water be prevented and that conservation of water be fully exercised with a view to the reasonable and beneficial use thereof; and

WHEREAS, California Water Code, Section 375, authorizes a water supplier to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve water supplies; and

WHEREAS, California Water Code, Section 71611 provides that a district may sell water under its control, without preference, to cities, other public corporations and agencies, and persons, within the district for use within the district.

WHEREAS, California Water Code Section 71640 authorizes the governing body of a municipal water district to restrict the use of district water during any emergency caused by

drought, or other threatened or existing water shortage, and may prohibit the wastage of district water or the use of district water during such periods for any purpose other than household uses or such other restricted uses as the district determines to be necessary, and may prohibit use of district water during such periods for specific uses which it finds to be nonessential; and

WHEREAS, California Water Code Section 71642 authorizes the governing body of a municipal water district to find the existence or threat of a drought emergency or other threatened or existing water shortage, and that finding is prima facie evidence of the fact or matter so found, and such fact or matter shall be presumed to continue unchanged unless and until a contrary finding is made by the board by resolution or ordinance; and

WHEREAS, pursuant to Water Code section 71641 and Government Code section 6061, the [District] must publish in a newspaper of general circulation any ordinance setting forth the restrictions, prohibitions, and exclusions determined to be necessary under Water Code section 71640 within 10 days after its adoption; and

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Casitas Municipal Water District as follows:

1) Pursuant to Water Code section 71642, and for the reasons set forth herein, the Board continues with the determination of the existence or threat of a drought emergency or other water shortage condition; and

2) Pursuant to California Water Code Section 71611 and under the authority of Water Code Section 71640, any water that is delivered from Lake Casitas and the Casitas distribution system that is used outside the District boundaries is considered an unreasonable use and an unreasonable method of use; and

3) Casitas hereby declares that a continuing Stage 3 water supply condition exists within the service area of the Casitas Municipal Water District; and

4) The Board of Directors hereby directs staff to take the following actions that are described in the 2019 Water Efficiency and Allocation Program for a Stage 3 condition in Lake Casitas, in the specified time, that include:

a) Effective upon adoption of this Resolution:
    i. Continue with the Stage 1, Stage 2 and Stage 3 measures; and
    ii. Continue the public information campaign within Casitas Municipal Water District that a continued mandatory reduction in water use is required during Stage 3 water supply conditions.

iii. Continue measures to inform and educate all water users within Casitas Municipal Water District as to methods for achieving the reduction in water use.
iv. Maintain the current level of public outreach in relation to a specific Stage 3 message.
v. Review the current budget including staffing requirements to support water conservation and public outreach efforts.

b) Effective July 1,2019, continue the following Stage 3 actions and measures:

i. Reduce the Stage 1 allocation of every customer by ten (10) percent; and
ii. Maintain the conservation penalty at $5.00 per unit for all water usage exceeding monthly allocations for residential customers and annual allocations for all other customers; and
iii. Restrict landscape irrigation watering to the hours of 6PM to 10AM; and
iv. Place a limit of ten (10) Acre-Feet of new allocation assignments for the 2020 Fiscal Year.

5) The Stage 3 water supply condition shall be presumed to continue unchanged unless and until a contrary finding is made by the Board by resolution or ordinance.

ADOPTED this 24th day of April, 2019.

_____
Pete Kaiser, President
Casitas Municipal Water District

ATTEST:

_____
Brian Brennan, Secretary
Casitas Municipal Water District

CASITAS MUNICIPAL WATER DISTRICT
MEMORANDUM

TO: MICHAEL FLOOD, GENERAL MANAGER

FROM: JULIA ARANDA, ENGINEERING MANAGER

SUBJECT: ADOPT INITIAL STUDY - MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE OJAI WATER SYSTEM IMPROVEMENTS PROJECT

DATE: 04/24/2019

RECOMMENDATION:

It is recommended the Board of Directors adopt the Initial Study - Mitigated Negative Declaration (IS-MND) and Mitigation Monitoring and Reporting Plan (MMRP) for the Ojai Water System (OWS) Improvements Project.

BACKGROUND AND DISCUSSION:

The Condition-Based Assessment and Water Master Plan for the OWS was completed in September 2018 and identified various improvement projects, including pipeline replacements, tank rehabilitation, new tank, and hydraulic improvements. The District engaged Rincon Consultants (Rincon) in August 2018 to prepare an IS-MND to address all the proposed improvements in one comprehensive document in compliance with the California Environmental Quality Act (CEQA).

Specific technical analyses performed by Rincon included: air quality, biological resources, cultural resources, greenhouse gas emissions, noise, paleontological resources, and transportation. The IS-MND includes an MMRP which will be used for all OWS projects.

The Notice of Intent to Adopt a Mitigated Negative Declaration was posted to the District's website and published in the Ojai Valley News on March 15, 2019. The IS-MND and appendices were also posted to the District's website on March 15, 2019. The 30-day public review period ended April 15, 2019.

A comment letter was received from the US Fish and Wildlife Service (USFWS) regarding California red-legged frog habitat in San Antonio Creek. The MMRP was updated to incorporate the recommended mitigation measures from USFWS.

Comment letters were received past the deadline for the comment period from the following agencies:

- Ventura County Air Pollution Control District
- Ventura County Environmental Health Division
- Ventura County Public Works Agency Transportation Department
- Ventura County Public Works Watershed Protection, Watershed Planning and Permits Division
- State of California Department of Transportation District 7

While these letters were not received within the 30-day public review period, responses to the comments provided are provided in Appendix H of the IS-MND as a courtesy to the commenters.

BUDGET IMPACT:

There is no budget impact related to adopting the IS-MND.

Attachments: Resolution to Adopt Initial Study - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program for Ojai Water System Improvements
Ojai Water System Improvements Project Final Initial Study and Mitigated Negative Declaration dated April 2019

CASITAS MUNICIPAL WATER DISTRICT

RESOLUTION APPROVING THE MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE OJAI WATER SYSTEM IMPROVEMENTS PROJECT, ADOPTING THE NOTICE OF DETERMINATION, AND DIRECTING THE NOTICE OF DETERMINATION TO BE FILED WITH THE CLERK OF THE COUNTY OF VENTURA

WHEREAS, An Initial Study was conducted which determined although the project could have a significant effect on the environment, there will not be a significant effect in this case because mitigation measures have been incorporated into the project.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Casitas Municipal Water District as follows:

1. The Board finds the Ojai Water Systems Improvement Project, with the mitigation measures included in the Initial Study will not have a significant effect on the environment.

2. These findings are made pursuant to the provisions of CEQA.

3. The Notice of Determination for the Ojai Water Systems Improvement Project be adopted by the Board.

4. The Clerk of the Board files the Notice of Determination with the Clerk of the County of Ventura.

ADOPTED this 24th day of April 2019.

_____
Pete Kaiser, President
Casitas Municipal Water District

ATTEST

_____
Brian Brennan, Secretary
Casitas Municipal Water District

CASITAS MUNICIPAL WATER DISTRICT
MEMORANDUM

TO: MICHAEL FLOOD, GENERAL MANAGER

FROM: LINDSAY CAO, CIVIL ENGINEER

SUBJECT: RINCON PUMP PLANT ELECTRICAL UPGRADE, SPECIFICATION NO. 17-397

DATE: 04/24/19

RECOMMENDATION:

It is recommended the Board of Directors:

1. Adopt the Notice of Exemption for Rincon Pump Plant Electrical Upgrade; and
2. Adopt the resolution accepting a proposal submitted by the lowest responsible and responsive bidder and award the contract for construction of the Rincon Pump Plant Electrical Upgrade, Specification No. 17-397 to Oilfield Electric & Motor of Ventura in the amount of $1,105,800. It is further recommended the President of the Board execute the agreement for said work and the Board authorize staff to proceed with the administration of the contract.

BACKGROUND AND DISCUSSION:

The Rincon Pump Plant is in need of electrical upgrade to improve the efficiency of the facility and bring the facility into compliance with current electrical codes. On January 23, 2019, the Board determined bids for Rincon Pump Plant Electrical Upgrade shall only be accepted from pre-qualified contractors.

Four contractors received passing scores, and all these pre-qualified contractors submitted proposals to the District on April 15, 2019. The table below shows the summary of bids. A bid tabulation is attached and a summary is presented in the following table. The Engineer's Estimate for the project is $1,168,000.00.

Rincon Pump Plan Electrical Upgrades, Specification No. 17-397

Bidder	Total Bid
High Volt Electric	$1,601,984.00
Taft Electric Company	$1,496,000.00
Venco Electric, Inc	$1,375.700.00
Oilfield Electric Co. dba Oilfield Electric & Motor	$1,105,800.00

This project includes: expansion of the existing Rincon Pump Plant control room; installation of new switchgear and connecting it to the existing systems; installation of new underground conduits from the transformer to the new switchgear per Southern California Edison requirements; and installation of a low voltage panel.

This project is Categorically Exempt from the California Environmental Quality Act (CEQA) under Section 15301 (d). A Notice of Exemption has been prepared and will be filed with the County of Ventura upon adoption by the Board.

BUDGET IMPACT:

Funds in the amount of $600,000 are budgeted this fiscal year for the project, and $1,169,000 is included in the requested budget for fiscal year 2019-20.

Attachment: Bid Tabulation

CASITAS MUNICIPAL WATER DISTRICT

RESOLUTION AWARDING A CONTRACT
FOR THE RINCON PUMP PLANT ELECTRIAL UPGRADE
SPECIFICATION NO. 17-397

WHEREAS, the District invited bids from qualified contractors for the above-referenced project, and

WHEREAS, the Rincon Pump Plant is a critical component in the District's water supply system, and

WHEREAS, the District received four bids, with the lowest responsive bid submitted by Oilfield Electric & Motor in the sum of $1,105,800.00,

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Casitas Municipal Water District as follows:

1. 1. That the bid from Oilfield Electric & Motor in the amount of $1,105,800 be accepted for the Rincon Pump Plant Electrical Upgrade, Specification No. 17-397 and a contract awarded.

2. That staff is hereby authorized and directed to proceed with the administration of the contract.

ADOPTED this 24th day of April, 2019.

_____
President,
Casitas Municipal Water District

ATTEST:

_____
Secretary,
Casitas Municipal Water District

NOTICE OF EXEMPTION

Casitas Municipal Water District
1055 Ventura Avenue
Oak View, California 93022

TO: Clerk's Office
Ventura County
800 South Victoria Avenue
Ventura, California 93009

Project Title: **Rincon Pump Plant Electrical Upgrade**

Project Location: Ventura, California

Description of Project:

The project includes (1) expansion of the existing Rincon Pump Plant control room and (2) installation of new switchgear and connecting it to the existing systems.

Name of Public Agency Approving Project: Casitas Municipal Water District

Exempt Status: Categorical Exemption, Section 15301(d)

Reason Why Project is Exempt:
The project includes electrical upgrades to improve the efficiency of the facility and bring the facility into current code compliance; therefore, it falls under California Code of Regulations Categorical Exemption Section 15301(d) Existing Facilities.

Lead Agency Contact Person: Michael Flood, General Manager
Telephone No: (805) 649-2251

Signature: _____ Date: _____
President
Casitas Municipal Water District

CASITAS MUNICIPAL WATER DISTRICT
BID TABULATION
RINCON PUMP PLANT ELECTRICAL UPGRADE
Engineering Estimate:$1,168,000

				High Volt Electric	Taft Electric Company	Venco Electric, Inc	Oilfield Electric & Motor
Item	Description	Quantity	Unit	Amount	Amount	Amount	Amount
1	Bonds and Insurance	1	LS	$54,855.00	$14,000.00	$53,000.00	$18,400.00
2	Mobilization	1	LS	$169,678.00	$53,000.00	$37,000.00	$4,500.00
3	Removal of asphalt in preparation for site work as it pertains to scope of work as specified	1	LS	$33,219.00	$6,000.00	$9,000.00	$5,500.00
4	Installation of foundation drain pipe around new and existing foundation	1	LS	$47,624.00	$5,000.00	$13,000.00	$8,500.00
5	Connection of foundation drain pipe to point of release (to be coordinated with	1	LS	$15,006.00	$3,000.00	$6,600.00	$3,000.00
6	Backfill and provide new asphalt	1	LS	$32,228.00	$39,000.00	$13,200.00	$9,000.00
7	Temporary protection of existing equipment during demolition and constructio	1	LS	$22,508.00	$11,000.00	$25,000.00	$8,800.00
8	Initiate demolition of wall(s) and removal of existing roll up door and windows	1	LS	$53,348.00	$19,000.00	$18,000.00	$25,000.00
9	Installation of new roll up door and windows	1	LS	$19,627.00	$30,000.00	$46,800.00	$31,000.00
10	Installation of new roofing	1	LS	$156,264.00	$45,000.00	$44,000.00	$50,500.00
11	Installation of rain gutters and downspouts	1	LS	$16,656.00	$2,000.00	$6,500.00	$6,500.00
12	Prepare existing and new exterior walls for acceptance of water-resistant paint	1	LS	$22,214.00	$7,000.00	$14,500.00	$18,000.00
13	Paint all walls, interior and exterior side, and roofing elements, including gutters and downspouts	1	LS	$56,648.00	$50,000.00	$36,600.00	$26,500.00
14	Removal of temporary protection of existing equipment	1	LS	$8,700.00	$3,000.00	$4,500.00	$4,800.00
15	Testing of all systems for operability	1	LS	$21,870.00	$7,000.00	$10,500.00	$7,500.00
16	Prepare soil for formwork and acceptance of concrete foundations and slab	1	LS	$66,218.00	$111,000.00	$69,000.00	$63,500.00
17	Provide wall construction	1	LS	$64,898.00	$38,000.00	$75,000.00	$41,000.00
18	Provide roof construction	1	LS	$62,693.00	$177,000.00	$122,000.00	$8,500.00
19	Provide a new 2.4kV switchgear and make connections from new switchgear to existing MCC as specified	1	LS	$469,949.00	$637,000.00	$608,000.00	$637,800.00
20	Provide new 10ft.x12ft. slab box and underground conduits from pad mount transformer to new switchgear per Southern California Edison requirements, which includes excavation and backfill as specified	1	LS	$46,347.00	$69,000.00	$35,500.00	$30,000.00
21	Provide protection and maintain operation of the existing switchgear and motor control center as shown on Drawings in order to accomplish the new work without disrupting water service to end users	1	LS	$15,540.00	$10,000.00	$12,700.00	$20,000.00
22	Provide low voltage panels including conduit and wire extensions as shown on drawings	1	LS	$43,924.00	$80,000.00	$33,800.00	$25,000.00
23	Provide conduit stub-outs for future generator and pump plant controls, per Drawings	1	LS	$22,056.00	$16,000.00	$2,500.00	$2,500.00
24	Complete start-up and testing	1	LS	$21,553.00	$12,000.00	$37,500.00	$8,500.00
25	Provide new indoor fan coil unit and outdoor condensing unit, including miscellaneous work, per Drawings	1	LS	$21,854.00	$36,000.00	$31,000.00	$30,000.00
26	Clean up and demobilization	1	LS	$21,554.00	$8,000.00	$8,000.00	$7,500.00
27	Provide O & M and as-built drawing	1	LS	$14,953.00	$8,000.00	$2,500.00	$4,000.00
TOTAL SCHEDULE				**$1,601,984.00**	**$1,496,000.00**	**$1,375,700.00**	**$1,105,800.00**

CASITAS MUNICIPAL WATER DISTRICT
MEMORANDUM

TO: MICHAEL FLOOD, GENERAL MANAGER

FROM: JULIA ARANDA, ENGINEERING MANAGER

SUBJECT: PROFESSIONAL ENGINEERING SERVICES FOR THE ROBLES DIVERSION FISH SCREEN IMPROVEMENTS PROTOTYPE PLAN

DATE: 04/24/19

RECOMMENDATION:

It is recommended the Board of Directors authorize the General Manager issue a Task Order to MKN & Associates for the Robles Diversion Fish Screen Implementation Prototype Test Plan in an amount not to exceed $158,506.00.

BACKGROUND AND DISCUSSION:

Casitas operates the Robles Diversion Dam on the Ventura River, including the Fish Passage and Screen. The Fish Passage and Screen were installed in 2003. The wedge-wire fish screens are cleaned using a traveling brush system, which has experience numerous mechanical failures and hampered diversions to the Robles Canal.

The District engaged MKN & Associates (MKN) in November 2018 to evaluate alternatives to replace the fish screens so the full diversion can be achieved across the greatest range of flows. MKN has completed the preliminary screening of alternatives and rating/ranking and developed four alternatives to conceptual design level with associated hydraulic analysis, constraints, constructability, impacts to diversion operations, permitting issues, estimated costs, and anticipated timeline for implementation. The Robles Diversion Fish Screen Alternatives Feasibility Study presents the analysis of these four alternatives:

1. Alternative 1 – Improve Existing Fixed Screen System and Associated Brush Cleaner System
2. Alternative 2 – Install a Backspray System to Work in Tandem with Improved Brush System
3. Alternative 3 – Replace the Existing Fixed Screen System with Traveling Screens
4. Alternative 4 – Independent Auxiliary Water Supply for Fish Ladder to Work in Tandem with Improved Brush System

These alternatives were presented to the Water Resources Committee at their meeting of April 16, 2019. A summary of the alternatives is attached for information.

Based on the evaluation performed, District staff intend to implement Alternative 1 during the upcoming dry season and prototype three alternatives during the next wet season. Assistance is needed from MKN to prepare a Prototype Test Plan, as it is expected the District will need an

informal consultation with National Marine Fisheries Service (NMFS), in coordination with the US Bureau of Reclamation, to implement the prototypes. The Prototype Test Plan will be used in discussions with NMFS. MKN's proposal includes:

- Project Management, Meetings and Quality Assurance/Quality Control
- Prototype Test Plan
- Support During Informal Consultation (as needed)

The proposed schedule includes completion of the Prototype Test Plan by mid-June 2019. District staff will then initiate the informal consultation process.

BUDGET IMPACT:

This item was not included in the fiscal year 2018-19 budget and a budget authorization is requested. The proposed budget for fiscal year 2019-20 includes $250,000 to continue work on this project, including implementation of Alternative 1.

Attachments: Robles Diversion Fish Screen Alternatives Feasibility Study dated April 2019
MKN & Associates Proposal for Robles Diversion Fish Screen Improvements Prototype Test Plan dated April 16, 2019

MKN & Associates, Inc.
PO Box 1604
Arroyo Grande, CA 93421
805-904-6530

April 16, 2019

Julia Aranda, PE
Engineering Manager
Casitas Municipal Water District
1055 Ventura Ave.
Oak View, CA 93022

SUBJECT: **Proposal to Support the Development of a Prototype Test Plan for Robles Diversion Fish Screen Improvements**

Dear Julia,

PROJECT UNDERSTANDING

This proposal provides a scope of work, cost estimate and proposed schedule to prepare a Prototype Test Plan for screen improvement alternatives. The proposal is being prepared in response to Casitas Municipal Water District's (the District) verbal request, made on April 2, 2019, for a Prototype Test Plan to field test potential improvements to the fish screen system at the Robles Diversion Dam. The work described in this proposal is the next step towards implementation of screen cleaning improvements following the recent completion of the Robles Diversion Fish Screens Alternatives Feasibility Study ("Feasibility Study").

The general structure of the team and respective roles assigned for the Feasibility Study will be retained for the Prototype Test Plan development. MKN will provide project management, local client and supplier/contractor liaison, meeting participation including preparation of meeting agendas and minutes, preparation of CAD drawings of the prototype elements, conceptual cost estimates for the prototype testing, and assembly and production of the Prototype Test Plan. Alden will perform the necessary hydraulic and structural engineering to develop preliminary designs for prototype elements and procedures to field test the four alternatives presented in the Feasibility Study. Rincon Consultants (Rincon) will provide environmental compliance and permitting analysis aspects of the work.

SUMMARY OF PROPOSED SERVICES

The primary goals of the Prototype Test Plan are to develop designs for testing the apparatus to a level of detail that will: 1) provide confidence that the test(s) can be implemented; 2) improve the cost and schedule estimates for prototype testing; and 3) support informal consultation and agency review, such that the agencies can determine whether the plan can proceed as written. After the Prototype Test Plan is complete, the District will initiate informal consultation with the agencies to seek approval prior to implementing the test plan. Additional design will be required after informal

consultation and agency review in order to bring the prototype test apparatus to a biddable/ constructible level. The final design of the prototype testing apparatus is not included in this scope of work.

For the purpose of developing this scope of work, we assume that the Prototype Test Plan will include:

- The general layout and required components to field test each alternative
- The physical layout for the overall prototype test, which is assumed to include concurrent testing of multiple alternatives
- A description of how the test apparatus will be integrated with the existing system
- A general description of the test methods (not a detailed test program)
- Anticipated operational requirements for prototype testing
- Potential limitations of the prototype tests
- Discussion of how the prototype performance will be evaluated
- Construction cost estimate
- Implementation schedule estimate
- Environmental and permitting considerations

The proposed scope of work and additional details are provided below.

SCOPE OF WORK

Task Group 100 – Project Management, Meetings, and QA/QC.

Project Management – MKN will monitor budget and schedule, coordinate with internal team members, and provide communication on a regular basis to the District regarding project status. MKN will provide a monthly progress report and invoice. Any potential changes to project scope or schedule will be promptly conveyed to the District's project manager. Time for coordination of a technical nature is included within the technical tasks and will not be allocated to project management.

Meetings – MKN anticipates the following meetings:

Kickoff Meeting: Work on the Prototype Test Plan will commence soon after completion of the Feasibility Study, and the same staff will be used for both phases of work. As such, a review of the project history and background will not be necessary. The purpose of the kick-off meeting will be to:

a) Confirm mutual understanding of the project goals, scope of work, and expectations for the project deliverables
b) Receive an update from the District on the 2019 diversion season including observations of the effects of the Thomas Fire and the effectiveness of any modifications that have been implemented
c) Discuss high-level concepts for the prototype tests and get feedback from the District on possible opportunities or constraints based on their knowledge of the facility

Progress Meetings/Workshops**:** Two progress meetings/workshops will occur at the following milestones:

1) At the approximate mid-point of the design development
2) After the draft Prototype Test Plan has been submitted

The purpose of the first progress meeting/workshop will be to receive input and initial feedback from the District that will support refinements to the plan. The purpose of the second workshop will be to discuss the District's questions and review comments on the draft Prototype Test Plan.

QA/QC – A senior MKN staff member will review deliverables for technical feasibility, completeness, and presentation prior to submittal to District.

Assumptions:

- MKN staff will participated in the kickoff meeting at the District office. Alden staff will participate via teleconference.
- MKN staff will participate in the progress meetings/workshops at the District office. Alden staff will participate via teleconference, with one exception: Alden's structural engineer will attend the mid-point progress meeting in person. The structural engineer will combine the meeting with a preliminary "plan-in-hand" site walk to verify dimensions, look for potential conflicts, and improve general project understanding prior to finalizing the Prototype Test Plan drawings.
- PowerPoint presentations are not required for any of the meetings.
- Meetings with the Water Resources Committee and Board of Directors are not required.

Task Group 200 – Prototype Test Plan

Task Group 200 includes work required to develop a Prototype Test Plan with sufficient detail for informal consultation with the agencies. The following information will be developed to define the anticipated prototype test for each screen improvement alternative:

- Prototype Test Apparatus (layout, components, integration with existing system)
- Test Method and Operation
- Prototype Test Limitations

The District intends to set up the test apparatus for all of the alternatives prior to the 2020 diversion season, provided that the informal consultation, final test apparatus design, and physical implementation can be completed in less than eight months. Given the intent to test concurrently, the Prototype Test Plan will treat the prototype testing of the four alternatives as a single "project" with respect to:

- Evaluation Criteria
- Cost Estimate
- Schedule
- Environmental and Permitting Considerations

The following tasks will be used to develop the Prototype Test Plan.

Define Apparatus, Test Method, and Operation – This task will include defining the general layout, components, test method and operation for each alternative. The cost estimate for engineering services assumes the following:

- Alternative 1: Improve Existing System
  - Replace sheave traction liners
  - Increase cleaning speed/frequency
  - Modify the brush arm
  - Change the screen orientation
- Alternative 2: Backspray System
  The Project Team will develop the test apparatus, test method, and operational requirements for the backspray system
- Alternative 3: Traveling Screen
  Project Team will develop the test apparatus, test method, and operational requirements for the backspray system
- Alternative 4: Independent Auxiliary Water Supply for Fish Ladder
  - No prototype test apparatus will be developed
  - Project Team will develop a test method and operational requirements to determine the effect of reducing the flow through the fish screen by 121 cfs.
  - Project Team will develop a SOW to develop a hydraulic model of the canal from the head gates to the fish screen

Field-Verify Proposed Prototype Layouts – MKN staff will review existing record drawings, proposed prototype systems, and identify potential conflicts with structural members or appurtenances. Field observations will be documented with photographs and tape measurements to facilitate preliminary design of prototype systems.

Perform Analyses – Limited analyses will be required to verify compatibility of the prototype test apparatus with the existing facility. The following analyses are envisioned:

- New brush arm: Check proposed member size for anticipated drag and estimate the change in tension on the brush cleaning cable.
- Change screen orientation: Review the wedgewire screens to determine if additional structural supports are needed for the change in screen orientation. Determine structural support configuration and member sizing (if needed).
- Backspray system: Determine design requirements for equipment (pumps, pipes, valves, and filtration system) and structural supports required for temporary system.
- Traveling screens: Determine size and configuration of test screen to meet physical constraints of existing facility. Identify screen support locations and determine potential modifications to the existing concrete structure and steel framing. Determine the proposed structural support configuration and size primary support members and components.
- Power Supply: As part of this determination our subconsultant IRJ Engineers (IRJ) will review the existing electrical service serving the existing facility. In addition, we will review

information provided by others to determine the electrical load for each of the alternatives. If the existing electrical service has adequate capacity, IRJ will describe the effort to obtain the power for the respective alternative. If it is determined that the electrical load will exceed the capacity of the service, IRJ will make recommendations for accomplishing the prototype testing using a portable generator to augment the existing service capacity.

Prepare Drawings – It is assumed the following drawings will be prepared for the Prototype Test Plan:

- General Arrangement, All Test Apparatus
- Alternative 1 – Improve Existing Brush System, Details (Sheet 1) – Two Brush Arms, Modified Brush Arm, Rotated Screen Panel
- Alternative 2 – Backspray System Test Apparatus, Plan, Elevation and Sections
- Alternative 2 – Backspray System Test Apparatus, Details (Sheet 1)
- Alternative 2 – Backspray System Test Apparatus, Details (Sheet 2)
- Alternative 3 – Traveling Screen Test Apparatus, Plan, Elevation, and Sections
- Alternative 3 – Traveling Screen Test Apparatus, Details (Sheet 1)
- Alternative 3 – Traveling Screen Test Apparatus, Details (Sheet 2)

Prepare Cost Estimate – MKN will develop an AACE Class 4 estimate of costs to implement the apparatus required to prototype test the alternatives. Alden will review the cost estimate for reasonableness and consistency with the test apparatus design.

Prepare Schedule – MKN will develop a schedule for the prototype test period. The schedule will cover the period from submittal of the Prototype Test Plan to the agencies through completion of testing. Alden will review the schedule and evaluate for consistency with the anticipated test program.

Define Evaluation Criteria – The prototype testing is expected to provide practical insight into the relative cost, constructability, operation and effectiveness of each alternative. The testing may provide insights into improvements that could be made for full-scale implementation. The Prototype Test Plan will identify evaluation criteria that can be used to support future decision-making.

Environmental and Permitting Considerations – Rincon will prepare a narrative and provide input to the schedule considerations for the Prototype Test Plan.

Prepare Prototype Test Plan – The Project Team will collaborate on the preparation of the Prototype Test Plan. The test plan will describe the test configurations and proposed apparatus, cost estimate, schedule and environmental considerations. The intended purpose of the document is to support the District's planning and decision-making and to provide a basis for agency review and input during the informal consultation process. We assume that a calculation appendix will not be required. The Prototype Test Plan will be initially submitted to the District as a draft. Upon receipt of the District's comments on the draft Prototype Test Plan, the final Test Plan will be prepared. We

assume that large-scale changes to the concepts will not be required to respond to the District's comments.

It is assumed the draft and final Plan will be submitted as pdfs and MS Word files and hard copies will not be required.

Task Group 300 – Support During Informal Consultation (As-Needed)
The District will initiate informal consultation with the agencies to seek approval prior to implementing the test plan. Task Group 300 provides an allowance for Project Team staff to provide input to the informal consultation with the agencies, for example to respond to questions or provide additional information. This task will only be used if and when requested by the District. We assume that in-person participation by Alden staff will not be required to support the informal consultation process. However, MKN and Rincon staff will be available for in-person meetings within the budget allocation for this task group.

FEE

The attached spreadsheet includes a detailed breakdown of manhours for each task identified above. Terms and conditions are addressed in the agreement between the District and MKN.

SCHEDULE

The following schedule is proposed for completion of the Prototype Test Plan.

Milestone	**Date**
Notice to Proceed	Thursday, April 25, 2019
Kick-Off Meeting	Monday, April 29, 2019
Preliminary Drawings Complete (for Progress Meeting No. 1 & Plan-in-Hand Site Visit)	Wednesday, May 15, 2019
Progress Meeting No. 1	Thursday, May 16, 2019
Submit Draft Prototype Test Plan	Wednesday, June 5, 2019
CMWD Review of Draft Prototype Test Plan	Wednesday, June 12, 2019
Submit Final Prototype Test Plan	Wednesday, June 19, 2019

We appreciate the opportunity to continue working with the District on this important project. Please let me know if you have any questions or comments.

Sincerely,

Michael K. Nunley, PE
President/CEO
Attachment: Budget Table

Robles Diversion Fish Screen Alternatives - Prototype Test Plan

	Principal Engineer	Senior Project Engineer	Project Engineer	Hydraulic Systems Analyst	Assistant Engineer	Drafter	Administrative Assistant	Total Hours (MKN)	Subtotal Labor (MKN)	ODCs (MKN)	Alden (Subconsultant)	Rincon (Subconsultant)	IRJ (Subcontractor)	**Total Cost**
Task Group 100 Project Management, Meetings, and QA/QC														
Project Management	12							12	$ 2,160	$ 200	$ 1,760			$ 4,120
Kickoff Meeting	8				8			16	$ 2,456	$ 200	$ 3,960			$ 6,616
Progress Review Meetings/ Workshops (2)	12	8			8			28	$ 4,536	$ 800	$ 7,040			$ 12,376
QA/QC	16							16	$ 2,880		$ 1,650			$ 4,530
Subtotal	**48**	**8**	**0**	**0**	**16**	**0**	**0**	**72**	**$ 12,032**	**$ 1,200**	**$ 14,410**	**$ -**	**$ -**	**$ 27,642**
Task Group 200 Prototype Test Plan														
Define Apparatus, Test Method, and Observation	2							2	$ 360		$ 19,360			$ 19,720
Field- Verify Proposed Prototype Layouts	2	8			8			18	$ 2,736	$ 400				$ 3,136
Perform Analyses	2	16			16			34	$ 5,112		$ 9,900		$ 7,150	$ 22,162
Prepare Drawings (8 Sheets)	8	8			8	108		132	$ 14,292		$ 8,800			$ 23,092
Prepare Cost Opinion	8	16			24			48	$ 7,208		$ 2,970			$ 10,178
Prepare Schedule	4							4	$ 720		$ 1,980			$ 2,700
Define Evaluation Criteria	2							2	$ 360		$ 2,860			$ 3,220
Environmental and Permitting Considerations	2							2	$ 360		$ 1,210	$ 10,272		$ 11,842
Prepare Draft Prototype Test Plan	8				16		8	32	$ 3,928		$ 9,570			$ 13,498
Prepare Final Prototype Test Plan	8	8			8		4	28	$ 4,044		$ 2,200			$ 6,244
Subtotal	**46**	**56**	**0**	**0**	**80**	**108**	**12**	**302**	**$ 39,120**	**$ 400**	**$ 58,850**	**$ 10,272**	**$ 7,150**	**$ 115,792**
Task Group 300 Support During Information Consultation (As-Needed)														
As-Needed Tasks	16							16	$ 2,880	$ 200	$ 7,590	$ 4,402		$ 15,072
Subtotal	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**$ 2,880**	**$ 200**	**$ 7,590**	**$ 4,402**	**$ -**	**$ 15,072**
TOTAL BUDGET	**110**	**64**	**0**	**0**	**96**	**108**	**12**	**390**	**$ 54,032**	**$ 1,800**	**$ 80,850**	**$ 14,674**	**$ 7,150**	**$ 158,506**

Billing Rates	**$/hr**
Principal Engineer	180
Senior Project Engineer	170
Project Engineer	150
Water Resource Planner	138
Assistant Engineer	127
Drafter	97
Administrative Assistant	57

Mileage to be reimbursed at IRS rate

Table 4-1
Summary of Alternatives: Evaluation Matrix

Relative Rank
First
Second
Third
Fourth

	Potential for Improved Performance	Operational Simplicity	Permitting Requirements	Implementation Complexity	Capital Cost	Operation and Maintenance Cost	Ability to Prototype
Alternative 1: Improve Existing Brush Screen Cleaner	Improvement expected, but other alternatives would be more effective.	The components would be no more complex to operate and maintain than the existing system.	No anticipated permitting requirements.	6 - 8 months	$15,000 - $30,000	Power cost is not expected to increase significantly	Changes are readily implementable and could be tested on a single side of the fish screen channel.
Alternative 2: Fixed Backspray + Alternative 1	Improves upon Alternative 1, but would not reduce the hydraulic or debris load on the fish screen channel	The pumps, nozzles and filter system are new components that would require routine monitoring and maintenance.	No change to facility footprint. Permits may be required to discharge pump filter backwash into the channel. Informal consultation with NMFS should be anticipated.	21 - 29 months	$2,480,000	Power cost and operator attention are expected to be significant. Additionally, the filtration system will require routine maintenance including replacement of sand or other media	A prototype consisting of a single gang of 6 backspray pipes installed behind two screen panels, a pump and a filter could be installed without substantial changes to the existing facility.
Alternative 3: Traveling Water Screens	Substantial increase in cleaning rate and removing debris from the fish screen channel offers best opportunity for improvement.	There would be new motors and controls to maintain, but expectation is that this would be relatively infrequent.	Change to facility footprint would trigger requirements for RWQCB, USACE and CDFW permits. Sensitive species permitting would be required. Informal consultation with NMFS should be anticipated.	32-41 months	$11,900,000	Power cost will be higher under this alternative.	A prototype test would require the purchase of a single traveling water screen and the installation of the screen support structure. Modest changes to the existing system, but no major structural modifications would be required.
Alternative 4: Dedicated AWS Supply + Alternative 1	Improves upon Alternative 1, and reduces the flow rate that must pass through the existing fish screen channel.	A second, independent screen system for the AWS supply would need to be monitored and maintained.	Change to facility footprint would trigger requirements for RWQCB, USACE and CDFW permits. Change to fish ladder AWS flow supply is a material difference from the original design. Consultation with NMFS should be anticipated.	26-35 months	$4,000,000	Raising and lowering the screens into position will require additional power cost but impact will be relatively minor compared to the other alternatives.	This alternative could not be prototype tested. However, the effect on the existing fish screen system could be estimated by observing the performance with the flow rate reduced to 500 cfs from 621 cfs.

CASITAS MUNICIPAL WATER DISTRICT

ROBLES DIVERSION FISH SCREEN ALTERNATIVES FEASIBILITY STUDY

APRIL 2019

PREPARED FOR:

CASITAS MUNICIPAL WATER DISTRICT
1055 VENTURA AVENUE
OAK VIEW, CA 93022

PREPARED BY:

mkn

ALDEN

Rincon Consultants, Inc.
Environmental Scientists Planners Engineers
www.rinconconsultants.com

mkn

MKN & Associates | P.O. Box 1604 | Arroyo Grande, CA 93421 | T: 805-904-6530

Casitas Municipal Water District
Robles Diversion Fish Screens Alternatives
Feasibility Study

Board of Directors
Russ Bagerly
Brian Brennan
Jim Word
Pete Kaiser
Angelo Spandrio

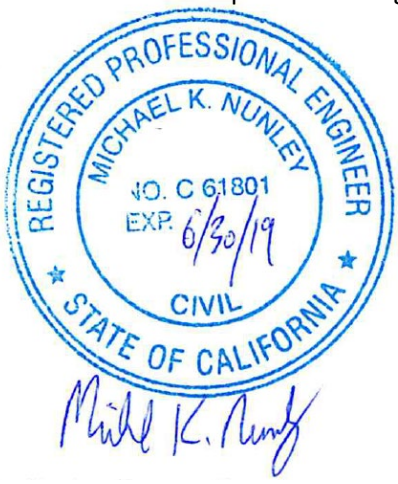
Staff
Michael Flood – General Manager
Julia Aranda, PE – Engineering Manager
Michael Shields – Operations Manager
Scott Lewis – Fisheries Program Manager

MKN
Michael K. Nunley, PE
Vanessa Imani, EIT

Alden
Shari Dunlop, PE
Nathaniel Olken, PE
Mark Graeser, PE
Chick Sweeney, PE

Rincon Consultants
Lindsay Griffin
Steve Howard
Christopher Julian

Prepared Under the Responsible Charge of:



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1.0 Introduction

1.1 Project Background

Casitas Municipal Water District (CMWD) operates the Robles Diversion Dam (Robles Diversion) on the Ventura River. The Robles Diversion includes a fish passage and screening system that was installed in 2004. After the fish passage and screening system was installed, the volume of flow that could be diverted at the Robles Diversion became limited due to blockage of the screen by debris and rapid wear of the screen cleaning equipment. CMWD has implemented several incremental modifications to improve the screen cleaning performance, but is still not able to effectively divert water when the river flows and debris loads are high. CMWD, with support from Michael K. Nunley & Associates, Inc. (MKN) and their subconsultants Alden Research Laboratory (Alden) and Rincon Consultants Inc. (Rincon), is evaluating options to maximize diversion at the Robles Diversion across the greatest range of river flows.

Flow that is diverted to the Robles Canal must pass through a fish screen system that excludes fish from the canal. The fish screen system also includes a fish ladder to allow upstream migrating fish access to the river above the Robles Diversion. Prior to the fish screen installation, large debris was excluded from the canal by a coarse trashrack and fine debris passed through the Robles Diversion, into the canal and then to Lake Casitas. CMWD staff report that the canal was not negatively affected by the passage of fine debris, and that full diversion was possible before the fish screens were installed.

The screen cleaning system is unable to keep the screens clear during high flow conditions when there is substantial debris in the river. When debris clogs the fish screens, the headloss across the screens becomes high and the volume of flow that can be drawn through the screens and into the canal is reduced. In this scenario, CMWD can either withdraw water at a lower flow rate than the system is designed for, or CMWD staff can shut the system down to manually clean the screens and increase the withdrawal capacity. In both of these scenarios, the total volume of water diverted to Lake Casitas is less than the maximum possible for the given river flow.

The fundamental objective of the project is to maximize the total volume of water that the Robles Diversion is able to supply to Lake Casitas over the greatest range of flows in the Ventura River. Due to severe drought conditions in Southern California, Lake Casitas was only at 30% of its capacity prior to the 2019 rainy season. The Robles Diversion provides approximately 30 – 40% of the water supplied to the lake. Debris blockage on the fish screens during the peaks of big storms and even during normal diversion operations has resulted in reduced diversion rates, frequent shutdowns for manual cleaning, or no water diversion during small magnitude and short duration storms. The 2017 Thomas Fire burned much of the watershed, which exacerbated the debris load and introduced fine debris, such as sediment from hill-slope erosion, ash and charcoal. This study will look specifically at improvements that can be made to the Robles Diversion fish screens and their associated screen cleaning system, as a means to maximize diversion potential. A secondary objective of the present study is to provide sufficient description, analysis and cost data to support CMWD's anticipated grant funding requests to implement recommended improvements.

This report is the third submittal produced by MKN to address the project goals. The first submittal was the project kick-off meeting and site visit summary document, dated January 18, 2019, which provides substantial background about the facility and the challenges faced by CMWD. The site visit summary is included as an appendix to this feasibility study. Only limited background information has been repeated in the body of this feasibility study report and the reader is referred to the appendix for additional details. The second submittal was a screening-level alternatives assessment. A broad list of potential measures were identified, subjected to a cursory evaluation, narrowed to a short-list of four alternatives, and presented in a technical memorandum dated February 27, 2019. The present report provides a high-level feasibility assessment of the four short-listed alternatives. Appendices include drawings to define the major features of each alternative, a table of reference projects, a biological constraints analysis that explains the biological

and permitting constraints of the alternative deemed to have the most complex requirements, and the site visit summary document.

1.2 Project Layout

The general project layout is shown in Figure 1-1 and Figure 1-2. Moving from left to right (looking downstream, toward the spillway) the project includes an embankment/cutoff wall, a spillway, and the diversion canal headworks. Note that although the diversion headworks are on river right, the natural thalweg is on river left. Moving from upstream to downstream the major project components include a timber debris fence, the canal entrance gates, the diversion flume, the fish screen channel, and the fish ladder and its Auxiliary Water Supply (AWS) pipe. These are described in additional detail below.

A timber fence upstream of the fish screen system is used to exclude large debris from the immediate vicinity of the canal headworks. There is also a coarse trashrack immediately upstream of the canal gates.

A fish guidance device is located within the diversion flume structure, downstream of the canal entrance gates, but upstream of the fish screens. The intended operation of the fish guidance device is to close the louvers during high flow events and guide upstream migrating adult steelhead to an exit channel upstream of the diversion headworks to reduce the potential for fall back. The louvers were damaged during the first high flow events with the fish screening and passage system in place. There is no cleaning system on the louvers and the diversion must be shut down to close them.

The fish screen is made up of panels of vertical wedgewire screen material, with baffle panels located directly behind the screen panels. The wedgewire screen is sized to exclude juvenile salmonids from the flow that is diverted to the canal and meets National Marine Fisheries Service (NMFS) criteria for fry. The purpose of the baffle panels is to achieve a balanced through-screen flow distribution from the upstream to downstream end of the fish screen system and remedy any observed “hot spots”, i.e. locations in which the NMFS’ criterion for approach velocity is exceeded. The original baffle panels were designed with baffles made up of a pair of perforated plates with ¼” holes. Debris was routinely trapped between the screen panels and the baffles, which restricted flow to the canal and was a very difficult location to clean. The baffle system was replaced in 2017 with paired plates having ½” rectangular openings, and CMWD reports that this has substantially reduced the debris accumulation between the screens and the baffles.

At the downstream end of the fish screens the unscreened flow and downstream migrating fish are routed to the top of the adult fish ladder. Part of the screened flow from the downstream side of the fish screens is routed to the fish ladder attraction flow AWS pipeline. CMWD operates a Vaki Riverwatcher to monitor upstream migrant passage. The high debris load that is passed through the Vaki Riverwatcher is problematic because it results in false positive readings (mistakes debris for fish) and is a maintenance problem. The screened flow, minus the auxiliary attraction flow, is passed to the canal and is conveyed to Lake Casitas.

The Robles Diversion was designed to divert up to 671 cubic feet per second (cfs) from the river. At the maximum diversion rate, the flow would be distributed as follows:

- Fish ladder = 50 cfs
- Fish ladder auxiliary flow pipeline = 121 cfs
- Robles canal = 500 cfs

Historically the debris that clogged the fish screens was composed primarily of standard vegetation (leaves, twigs, grasses) and filamentous algae. The 2017 Thomas Fire has added fire-related debris such as ash, fine charcoal, and sediment from hill-slope erosion, which has been observed to mix with organics to create a matrix or mat of debris. In addition to the debris on the front side of the screens, CMWD has observed calcification on the back side of the screens, which reduces the screen capacity and restricts flow. CMWD reports that prior to the 2019 flood season, sediment accumulation within the diversion flume and fish screen channel did not affect diversion operations or screen cleaning. During a heavy rain event in February 2019, a substantial volume of sediment accumulated in the channel and had to be excavated using heavy equipment before diversion could resume. This change in sediment load is almost certainly

attributable to the increased hill-slope erosion resulting from the Thomas Fire. Sediment was not thought to be a problem at the start of this study; therefore the four short-listed alternatives do not include provisions that are specifically intended to address sediment deposition in the diversion flume or fish screen channel.

Figure 1-1: Aerial Photo Showing Major Project Features

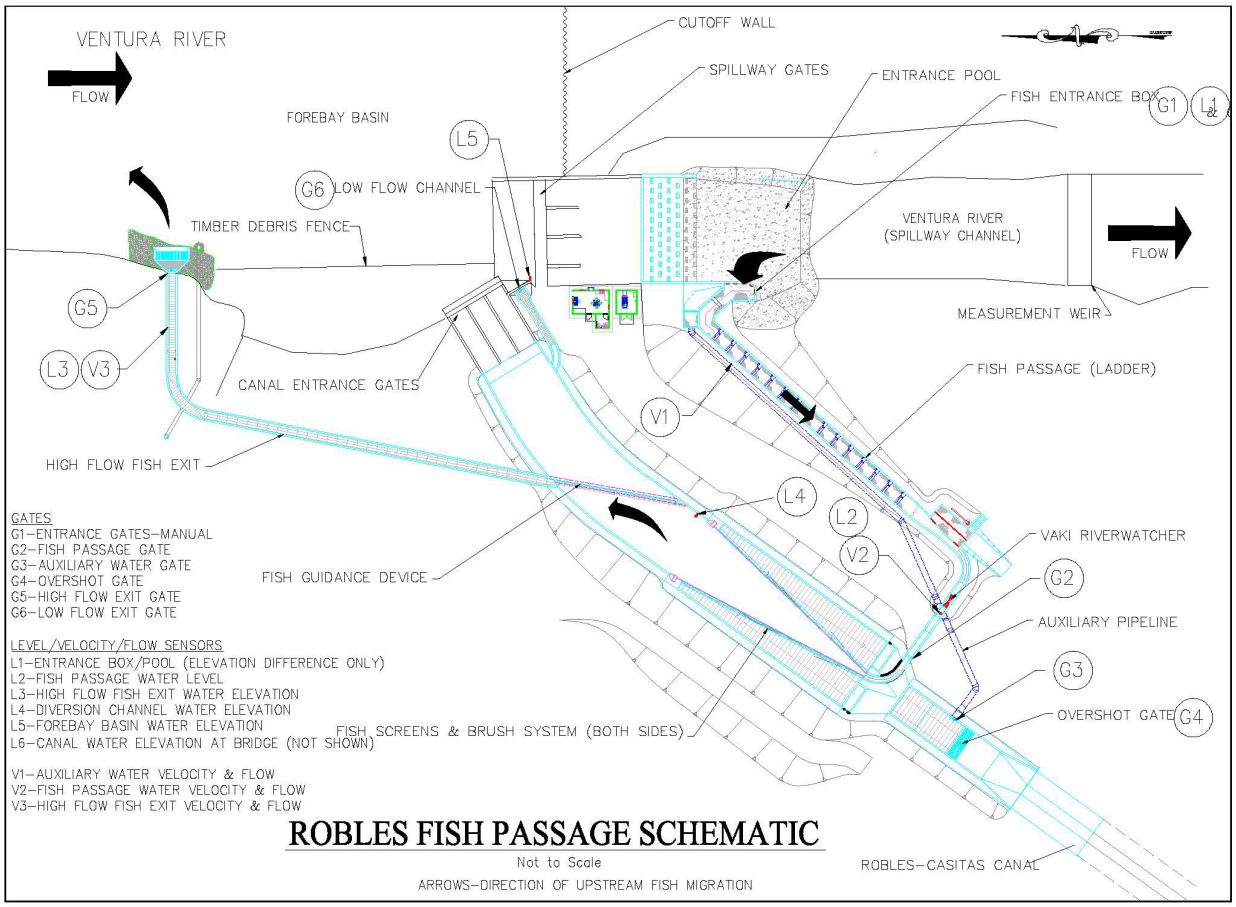


Figure 1-2: Robles Fish Passage Schematic

1.3 Screening-Level Study Results

The screening-level study produced an extensive list of potential measures to improve the effectiveness of the Robles Diversion and provided a recommendation to carry four alternatives forward to a high-level feasibility study for further evaluation. These alternatives were selected to represent a range of levels of complexity, cost, implementation timeline, and anticipated effectiveness. The four alternatives are:

- Alternative 1 – Improve the existing fixed screen system and associated brush cleaner system
- Alternative 2 – Install a fixed manifold backspray system to work in tandem with the improved brush system (Alternative 1)
- Alternative 3 – Replace the existing fixed screen system with traveling screens
- Alternative 4 – Reduce load on the existing screen system by suppling the fish trap auxiliary flow separately from the screened v-channel flow, in combination with the improved brush system (Alternative 1)

Alternative 1 has features that are readily implementable and that could serve as building blocks for Alternatives 2 and 4. In addition, the success of the measures implemented at the existing screen system over the short term could be used to support CMWD's future decision of which remaining alternative(s) to implement. Supplemental measures that could be advantageous to any or all of the alternatives are also described.

2.0 Methodology

This feasibility study advances the understanding of the four alternatives that were selected for further analysis in the screening-level evaluation. This was accomplished by developing the following: plan and section drawings to define the general layout; hydraulic analysis as required to size the alternatives; a high-level review of the structural feasibility/constructability of each alternative; an AACE Class 4 cost estimate; and an anticipated timeline for design and construction. In addition, the specialty maintenance needs and necessary permit modifications were identified.

The high-level feasibility assessment relied heavily on similar installations at screened diversions. Reference projects are summarized in Appendix 2 of this document. Calculations were limited to computation of the screen area needed to achieve design or fisheries criteria and estimates of the relationship between sheave diameter and brush speed. Structural requirements and considerations were developed based on a detailed review of the existing diversion structure, engineering judgement, and experience with other similarly sized hydraulic structures. No hydraulic or structural modeling tools were used for this feasibility study.

To develop cost opinions for the proposed improvements, MKN utilized the Association for Advancement of Cost Estimating International (AACE) guidelines for cost estimating practices and classification. The Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Process Industries (AACE International Recommended Practice No. 18R-97) provides guidelines for applying the principles of estimate classification to projects. A summary of the recommended classification system is presented in Table 2-1 below.

Table 2-1: Cost Estimate Classification Matrix

Estimate Class	Primary Characteristic	Secondary Characteristic			
	Level of Project Definition	**End Usage**	**Methodology**	**Expected Accuracy Range**	**Preparation Effort**
	Expressed as % of complete definition	Typical purpose of estimate	Typical estimating method	Typical variation in low and high ranges [a]	Typical degree of effort relative to least cost index of 1 [b]
Class 5	0% to 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50%, H: +30% to +100%	1
Class 4	1% to 15%	Study or Feasibility	Equipment Factored or Parametric Models	L: -15% to -30% H: +20% to +50%	2 to 4
Class 3	10% to 40%	Budget, Authorization, or Control	Semi-Detailed Unit Costs with Assembly Level Line Items	L: -10% to -20% H: +10% to +30%	3 to 10
Class 2	30% to 70%	Control or Bid/Tender	Detailed Unit Cost with Forced Detailed Take-Off	L: -5% to -15% H: +5% to +20%	4 to 20
Class 1	50% to 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	L: -3% to -10% H: +3% to +15%	5 to 100

[a] The state of process technology and availability of applicable reference cost data affect the range markedly. The +/- value represents typical percentage variation of actual costs from the cost estimate after application of contingency (typically at a 50% level of confidence) for given scope.

[b] If the range index value of "1" represents 0.005% of project costs, then an index value of 100 represents 0.5%. Estimate preparation effort is highly dependent upon the size of the project and the quality of estimating data and tools.

The cost opinions developed for this study are considered Class 4 Estimates, which is defined by AACE International as follows:

> *Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering is from 1% to 15% complete and would comprise at a minimum the following: plant capacity, block schematics, indicated layout, process flow diagrams (PFDs) for main process systems, and preliminary engineering process and utility equipment lists. Class 4 estimates are prepared for a number of purposes, such as but not limited to, detailed strategic planning, business development, project screening at more developed stages, alternative scheme analysis, confirmation of economic and/or technical feasibility, and preliminary budget approval to proceed to next stage. Typical accuracy ranges for Class 4 estimates are -15% to -30% on the low side, and +20% to +50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. American National Standards Institute (ANSI) Standard Reference Z94.2-1989 references this class as a "Budget Estimate", with an accuracy range between -15% to +30%.*

The cost opinions for this study are anticipated to be within an accuracy of -20% to +30%. The accuracy reflects the level of confidence that an estimate will be near the actual project cost. This concept should not be confused with the application of a project contingency (which is applied for unknown or unforeseen project conditions). As the proposed project is refined during future phases of implementation, the accuracy range of the cost estimates will narrow to reflect an increased confidence in the estimating data.

MKN contacted vendors to acquire budgetary estimates for major equipment items such as screens, pumps, and filtration systems. Other materials, equipment, and labor costs were based on recent bids, actual project costs, or cost opinions developed for similar projects. Other costs such as design, construction management, administration, permitting, and escalation to midpoint of construction were also incorporated as described in the cost opinion tables.

An evaluation matrix was used in the screening-level analysis to assess the relative performance of each potential measure for a range of defined criteria. This matrix has been updated for the four alternatives presented in this feasibility study to provide an "at a glance" summary of the benefits and challenges associated with each alternative.

3.0 Fish Screening Improvement Alternatives

Four alternatives were carried forward to the feasibility study:

- Alternative 1 – Improve existing fixed screen system and associated brush cleaner system
- Alternative 2 – Install a fixed manifold backspray system to work in tandem with Alternative 1
- Alternative 3 – Replace the existing fixed screen system with traveling screens
- Alternative 4 – Reduce load on the existing screen system by supplying the fish ladder auxiliary flow separately from the screened flow that passes through the V-screens. This alternative is intended to be used in combination with Alternative 1.

3.1 Alternative 1: Improve Existing Fixed Screen System and Associated Brush Cleaner System

Alternative 1 consists of a number of readily-available measures that could be implemented and tested using off-the-shelf or locally fabricated components and minimal design. These measures could be adopted incrementally based on available funding to increase the reliability of the fish screen and rate of diversion. Even if fully implemented, the proposed measures may not achieve the desired levels of diversion on their own, but could provide a measurable increase in the volume of flow that is diverted. In addition, improvements to the existing system could serve as a component of a more comprehensive diversion improvement strategy in combination with Alternative 2 (backspray system) or Alternative 4 (reduced load) to meet CMWD's diversion goals.

3.1.1 Variants Considered

Options to improve the performance of the existing system fall into five categories:

- Address excessive wear of the sheave traction liners
- Increase cleaning speed/frequency
- Modify the brush arm
- Change the screen orientation
- Add a sparger to one of the brushes on each arm

CMWD indicated that the existing motor has excess capacity. For this study, the Project Team has assumed that the existing motor has sufficient capacity to support all of the considered variants. CMWD should check the motor capacity and estimated loads for each variant to confirm that the existing motor is capable of handling the proposed loads.

Address Excessive Wear of the Sheave Traction Liners

The existing sheave traction liners are polymer-based and wear quickly when the flow rate in the channel is high. This leads to regular failures and the need to turn out (stop diverting) to replace the sheave traction liners. CMWD reports that the sheave traction liners may need to be replaced as frequently as three times per day during periods of high flow and debris influx. Resolving the problem of sheave traction liner wear will increase the amount of flow diverted to the canal by reducing the number of times CMWD needs to turn out the Robles Diversion to replace the liners, or remove restrictions on diversion flow rate that are imposed to limit the rate of wear.

The sheave traction liners must achieve a balance between being soft enough for the cable to "grab" thereby preventing slipping, but robust enough that they will not wear excessively under normal operating conditions. Reducing slipping and wear of the traction liners will increase the reliability of the existing brush cleaning system. The sheave traction liner slipping and wear are likely the result of high hydrodynamic load on the brush arm as it moves upstream. Potential solutions include reducing the hydrodynamic load and increasing the durability of the sheave traction liners.

The initial alternatives screening technical memorandum recommended that CMWD could modify the plastic brush covers to reduce hydrodynamic drag, and thus the load and wear on the sheave traction liners. These covers were

initially installed to create an eddy in an attempt to move debris away from the screens. The effect of the eddy on cleaning efficiency was not realized because the plastic covers increased the hydrodynamic load on the brushes as they moved upstream, leading to increased slipping and traction liner failure. CMWD removed the plastic covers during a storm in February 2019, and initial observations indicate that this action reduced the sheave traction liner failures. CMWD will continue to monitor the sheave wear during future storms to verify how removing the plastic covers has affected the sheave traction liner wear.

Reevaluating the design of the existing drive system should be considered to ensure drive diameter and sheave profile meet the design requirements. A liner material may not be required if the system is adequately designed.

Another option, one that CMWD already plans to implement and test, is to replace the traction liner with a new material. The existing traction liner is polymer-based. Plastics and other polymer-based materials are relatively soft and have a low static coefficient of friction. A new liner should be made out of more durable materials with a higher static coefficient of friction. Rubber could be used since it has a high friction coefficient, but it is not expected to last as long as more durable plastics. Composite materials used in the rail industry could also be considered, although the Project Team does not know of any applications of these materials for projects similar to the Robles Diversion cleaning system. The liner could also be removed to increase the static friction coefficient, however this would result in increased wear on the sheave, which is expected to have a higher replacement cost than a sheave traction liner.

Another measure that could address cable slipping would be to add cable tensioners to the existing cleaning system. The cable tensioner would be placed on the non-brush side of the cable near the drive. This side of the cable is slack when the brush is being pulled upstream. Maintaining the tension on the slack side of the cable will increase the maximum force that can be applied to the brush side of the cable when the brush is pulled upstream. Placing the cable tensioner on the outside of the cable (pushing in) will also increase the contact angle with the sheave, further increasing the maximum force on the brush before it slips. The tension on the cable should be set so that it reduces slippage when the brush is moving upstream but does not cause slippage while is it moving downstream. Prototyping this option would require the purchase and installation of a cable tensioner. Installation and adjustment of a cable tensioner could be accomplished by CMWD staff.

If modifications to the existing drive system are not adequate to sufficiently address slipping and excessive wear of the sheave traction liners, the cable drive could be replaced with a chain drive system. An example of a fish screen with a chain drive is provided in Figure 3-1. Switching to a chain drive would require the existing sheave to be replaced with a sprocket. The teeth on the sprocket would prevent slipping. A shear pin or electrical overload protection would be needed to reduce the likelihood of damaging the sprocket or the motor. A chain drive is also compatible with other options to improve the performance of the existing system described below. Testing a chain drive system would require that a complete chain drive system be installed on one of the existing brush drives. A new drive/motor may be needed to handle the increased loads on the chain drive.

Figure 3-1: Chain Drive at the North Fork of the Sprague River, OR

Increase Cleaning Speed/Frequency

During periods of high debris load, the cleaners operate continuously but are unable to keep the screens clean. CMWD reports that during periods of very heavy debris influx the existing cleaning system cannot reliably maintain the screens in a clean condition and it is preferable to turn out, shut the screen system down, and manually clean the debris from the screens than to operate with the accumulated debris on the screens. Reducing the time between cleanings (passes of the brush) would reduce the amount of debris that builds up on the screens and the associated head loss across the screens.

The most straightforward method to increase the cleaning speed is to increase the brush speed. The first method to increase the speed is to increase the speed of the existing motor; however there will be a practical limit to how fast the brushes can move while still providing effective cleaning. The existing motor speed can be readily changed; however, under current settings the speed must be the same whether the brush is traveling upstream or downstream. Increasing the speed in the upstream direction of travel will increase hydrodynamic load on the brush arm; therefore this action should be paired with the previously discussed methods to reduce excessive wear on the sheave traction liners, or the settings should be changed to allow different travel speeds for the upstroke versus the downstroke. Increasing the motor speed would be easy to test and could be applied with minimal changes to the existing system.

A second relatively simple method to increase the brush speed would be to replace the existing sheave with a larger diameter sheave. The existing sheave is approximately 5 inches in diameter; assuming that the same number of revolutions per minute is maintained, then a 1 inch increase in the diameter (~20% increase) will result in an approximate 20% increase in speed. The Project Team understands that the existing motor is not operated at capacity and has assumed that there is sufficient capacity to maintain the current rotational speed with a larger sheave. This option has an engineering advantage compared to increasing the motor speed, because a larger diameter sheave would increase the friction area and contact angle of the cable and the sheave, increasing the maximum tension on the cable

before slipping. Prototyping this option would require the purchase of a larger sheave and traction liner, but the installation and testing could be accomplished by CMWD staff.

A third option is to add a second brush arm to each cleaning system. This option would increase the frequency of cleaning while maintaining the same brush speed. A second brush arm on each side of the screen channel would be arranged so one brush cleans the upstream portion and the other brush cleans the downstream portion of the screen, as seen in Figure 3-2. This option essentially doubles the rate of cleaning, by cutting the cleaning length in half. Adding a second brush arm could be easily incorporated into the existing cable drive system by splicing in a second brush near the middle of the brush side of the cable. A new brush lifting mechanism would be needed at the center of the screen to allow debris to pass under the brush prior to switching directions. The second brush arm would increase the load on the motor and the tension on the cable and should be paired with a method to reduce wear and slippage of the sheave liner. This option could be paired with a modified brush arm, as described below, to provide overlap in cleaning zones. If prototype testing indicates that adding a second brush increases the cleaning rate of the screens, but overloads the motor or results in additional sheave liner slipping and wear, additional modifications such as replacing the existing motor with a larger motor, the use of a chain drive or the addition of a dedicated drive system for each brush could be considered.

Figure 3-2: V-screen with Two Brush Systems per Side on the Santiam River, OR (Courtesy Santiam Water Control District)

Modify the Brush Arm

The existing system has one brush arm with two, closely-spaced brushes on each side of the fish screen channel, Figure 3-3. Two brush arm modifications were considered: adding weight to the arm and adding a second brush arm to each existing brush trolley. Adding weight to the arm will increase the force of the brush on the screen and would be effective if the brush is riding over debris impinged on the screen face. CMWD has field adjusted the weight on the brushes and

observed good contact between the brushes and the screens; therefore further changes to the weight is expected to have a limited probability of success. However, changing the weight would be easy to prototype by adding more weighted plates to the brush.

A second potential brush modification is the addition of a twin brush arm to the existing trolleys, similar to the brush systems shown in Figure 3-2 and Figure 3-4. Spacing the brush arms several feet apart is advantageous over a single brush arm because the first arm removes the heavy debris while the second arm removes any remaining debris or debris that passes over the first brush arm. Each of the modified brush arms should have two brushes, a coarse outer brush and a fine inner brush. The existing brush and trolley could be modified to incorporate a second arm or a new trolley could be designed to better distribute the weight of the new brushes. In either case, a prototype brush can be added to the existing system with modest effort.

Figure 3-3: Existing Robles System, Single Brush Arm with Two Closely-Spaced Brushes

Figure 3-4: V-screen brush with Two Brush Arms per cleaning system at the A-canal Diversion Klamath River, OR (Courtesy Bureau of Reclamation) (https://www.flickr.com/photos/usbr/16411346396)

Change the Screen Orientation

The wedgewire material used for the existing fish screen has 1.75 mm, vertically oriented slot openings. This orientation is consistent with other fish screens that the Project Team is aware of. CMWD staff has observed that the debris comes off easily when the screens are hand-wiped parallel to the bars. Changing the orientation of the wedgewire so that the slots are horizontal would align them with the horizontally traveling brush, possibly increasing the effectiveness of the brush cleaning system. This may however lead to filamentous debris wrapping around the screen support bars and clips, where the cleaner cannot reach. Because the height and width of the existing panels are not the same, the existing panels could not simply be turned and installed into the existing guides: New panels would need to be fabricated in order to change the screen panel orientation. The new wedgewire screen panels would need to be reviewed to determine whether additional structural supports are needed for the change in screen orientation. . A single panel could be replaced to test whether changing the orientation results in improved cleaning. Developing design details and schematics will allow the District to develop a detailed cost opinion for the prototype, but an order of magnitude estimate of $50,000 to $100,000 is considered appropriate for assembly and installation of a prototype as described above. The budget should be refined during design of the prototype system.

Add a Sparger to One of the Brushes on Each Arm

An air sparger system could be used in conjunction with the existing brush to move debris and silt away from the screen. A sparger system would release a constant stream of air through nozzles located at the bottom of the brush arm. As the brush arm moves along the screen, the air bubbles would create turbulence that may move the debris out into the fish screen channel where it would have less of a chance at re-impinging on the screen. A similar sparging system is used on the Naches Selah Diversion in Washington, where it is used to prevent sediment accumulation at the bottom of the screen. The Project Team is not aware of any air sparging systems with vertical flat plate screens used strictly for debris removal. Initially, this variant was dismissed because sediment accumulation was not thought to be a problem.

Given the observations during the February 2019 storms, a sparger could be reconsidered if the newly observed heavy sediment load causes persistent interruption to diversion. This option does not lend itself to a small scale prototype test at the Robles diversion. A full scale test could be conducted on one side of the V-screen. This would require substantial equipment and installation costs associated with the addition of an air compressor, blower, festoon and flexible air piping.

3.1.2 Selected Configuration for Feasibility Assessment

Alternative 1 is comprised of an assemblage of measures that can be incrementally implemented. For the purpose of developing cost and schedule estimates for this feasibility study, Alternative 1 includes the following components:

1. Remove the plastic brush covers (done)
2. Replace the sheave traction liners
3. Add a cable tensioner
4. Increase the brush speed
5. Add a second brush arm, modified to increase the brush spacing, to each side of the V-screen channel

Drawing 1 in Appendix 1 illustrates the proposed configuration of Alternative 1.

The included measures were limited to only those that are compatible with the existing cable drive system. If modifications that rely on the existing cable driven system do not provide a sufficient increase in flow and reliability, then all of the selected options could be used with a chain drive system. The cost and schedule implications of changing to a chain drive system are not included in Alternative 1.

A technology implementation guide is presented below to illustrate the likely sequencing of incremental changes. These include the baseline measures identified as Alternative 1 and additional variants that could be implemented if the measures included in Alternative 1 do not produce the desired effect.

Removing the plastic brush covers, replacing the sheave traction liners and adding a cable tensioner should be the first steps to address excessive wear of the traction liners and improve the reliability of the brush cleaning system. If sheave traction liner wear is still a problem, then the next modification to consider would be increasing the diameter of the drive sheave. This modification will increase the maximum tension on the cable before slipping occurs and increase the brush speed. The larger diameter drive sheave would only be implemented if removing the brush covers, replacing the sheave traction liners and adding a cable tensioner do not successfully address slipping and wear; therefore the larger diameter sheave is not included in the baseline definition of Alternative 1.

Once slipping and reliability of the cleaning system are addressed, modifications to the brush should be implemented. For Alternative 1, it is assumed that the changes to the brush would include adding a second brush arm on each trolley, and installing a second (dual brush arm) trolley on each side of the V-screen channel.

Reorienting the screens so the wires are parallel to the movement of the brush would need to be prototype tested to assess effectiveness before a recommendation could be made to implement this measure. This measure would have a higher initial cost than the recommended measures, and is not included in the baseline definition of Alternative 1. CMWD may want to consider this option prior to replacing the existing screens at the end of their service life.

A sparger system is not included in the baseline definition of Alternative 1 because there is no precedent for using a sparger to address debris problems. This measure could be revisited if the newly observed sediment deposition events persist and continue to be an impediment to diversion.

3.1.3 Hydraulic Considerations

There are no notable hydraulic considerations for Alternative 1. Improved screen cleaning would be expected to reduce head loss and increase diversion rates. Alternative 1 is expected to improve the hydraulic performance of the fish

screen. When not diverting water, the second brush arm would be parked on the screen. This could lead to debris build up at the brush. Operating the cleaning system prior to turning in should remove this debris preventing any changes to the screen hydraulics.

3.1.4 Structural Considerations

Alternative 1, as defined, would not require any changes to the footprint of the fish screens and is not expected to require any notable structural modifications. Minor structural modifications or structural supports may be needed to accommodate a chain drive system.

3.1.5 Constructability Considerations

Most of the recommended options are small-scale modifications that can be completed by local contractors. Replacing the sheave traction liners, adding cable tensioning devices, adjusting the brush speed and increasing the diameter of the drive sheave (if needed) are options that could be completed by CMWD. Replacing the cable drive system with a chain drive system and adding a second brush are more involved options that may require a mechanical contractor and a local fabricator.

3.1.6 Environmental and Permitting Considerations

Alternative 1 does not change the essential function or methods of diversion and screen cleaning from the existing system. The diversion would still operate with brush-cleaned, fixed vertical screens designed to meet NMFS fish passage criteria. Based on our understanding of existing communication protocol, CMWD may wish to notify the Bureau of Reclamation (BOR) prior to adding the second brush arm, which is a more substantive physical change than the other components of Alternative 1. In addition, the project would likely qualify for a CEQA Statutory or Categorical Exemption provided that the project does not result in significant unavoidable impacts.

3.1.7 Operation and Maintenance Considerations

The goal of these options is to improve the performance of the existing brush cleaning system. Any increases in labor or material costs are expected to be offset by a reduction in labor to replace the traction liners and manually clean the screens. If a screen tensioner is added to the brush cleaning system the tension on the cable should be periodically adjusted (as needed) to account for stretching of the cable.

3.1.8 Class 4 Cost Estimate

The costs for alternative will be affected by how the District implements the project. Assuming outside contractors or fabricators perform the modifications described herein, a budget of $10,000 to $20,000 should be adequate. An additional budget of $5,000 to $10,000 may be adequate to hire an engineering consultant for specifying components and developing schematics or drawings.

It is recommended the District receive quotes from local fabricators or contractors for installing elements of Alternative 1. This will be necessary to establish a budget since these relatively low-cost items are difficult to estimate, given the unique nature and the small scale of these improvements.

A budget of $15,000 to $30,000 should be adequate to implement Alternative 1. The cost may be less if the District opts to implement part or all of the elements of Alternative 1 using in-house resources.

3.1.9 Timeline for Design and Construction

The Project Team considered the time required for design, permitting, and construction in developing a feasible implementation schedule as summarized below:

Table 3-1: Alternative 1 Timeline for Design and Construction		
Task or Phase	Duration	Comments
Prototyping, Schematic Drawings and Specifications	2-4 months	It is assumed the District could implement this alternative at full scale without developing a prototype since implementation cost is relatively low. However, if prototyping is desired, as described below, this could add time to this phase of work.
Permitting	N/A	No permitting consultation required to replace brushes.
Bid Advertisement	2 months	Bid advertisement may not be required, unless the District chooses to competitively bid the fabrication work.
Procurement and Construction	2 months	Many parts are readily available and brush assemblies can be fabricated locally.
Estimated Duration	6-8 months	

3.1.10 Prototype Testing

Prototype testing of the selected modifications to the brush cleaning system would be conducted by applying the recommended changes to the cleaner on one side of the fish screen channel. Testing most of the recommended options would involve installing an option and determining if it is effective. If the modification is successful it could then be applied to the other side of the fish screen channel. A cable tensioning system could be adjusted as part of a pilot test to determine a proper setting that reduces slippage as the brush moves both up and downstream.

While not recommended for full scale application at this time, CMWD could consider a pilot study of changing the screen mesh from vertically oriented to horizontal. This test would require an existing screen panel to be replaced with one with horizontal wires. The cleanliness of this panel can be compared to that of adjacent panels. The results of this study could be used to aid in the selection of appropriate mesh panels at the end of the current panel's service life.

3.2 Alternative 2: Install a Backspray System to Work in Tandem with Improved Brush System

A fixed manifold backspray system working in tandem with an improved brush screen cleaner system could be used to improve the screen cleaning system at Robles Diversion. Backspray systems have been used at similar fish screen structures and the biological effects of backspray systems have been accepted by NMFS (*e.g.*, at the Ventura County

Watershed Protection District's San Antonio Creek Spreading Grounds Project). Modest changes to the structure would be required to install the backspray system in the area behind the screens. Substantial modifications would be required to install the pumps, filters, piping and controls for the system; however, the overall facility footprint is expected to remain the same.

3.2.1 Variants Considered

Air vs. Water Backspray

Backspray systems are typically designed as either air or water based systems. Air burst cleanings consist of a timed release of pressurized air to dislodge debris. This type of cleaning is typically used on cylindrical wedgewire wire screens where the burst of air expands and travels out and up though the wedgewire material, pushing debris away from the screen. For cylindrical wedgewire screens, approximately 2 to 3 screen volumes of air at an initial pressure of over 100 psig is used for cleaning. An example of the disturbance caused by an air burst on a cylindrical wedgewire screen is shown in Figure 3-5. Air burst systems have also been used with inclined flat plate screens, where the air moves debris up the screen as it expands. The Project Team is not aware of any air burst systems that are used with vertical flat panel screens. Adapting this type of system to a flat panel screen would require an air manifold system located at the bottom of each screen panel between the screen and the baffle plate. The air burst would operate sequentially starting at the upstream end of the screen and working downstream to reduce debris re-impingement onto recently cleaned panels. This type of air burst system is not designed for continuous cleaning. The cleaning frequency is a function of compressor power and receiver volume. A larger compressor and receiver would be required for more frequent cleaning. Continuous low pressure air has been used for debris and sediment management; however use of low pressure air systems is limited and does not have any advantages over the air sparging system identified in Alternative 1.

Figure 3-5: Surface Disturbance during an Air-burst

Water backspray cleaning systems are frequently used with traveling water screens with the cleaning system located above the water surface to flush debris into a collection trough, where it is either disposed of or returned back to the waterbody. Submerged water backsprays have also been used with cylindrical wedgewire and other end of pipe screens. With these systems the screen cylinder rotates past a series of fixed internal spray nozzles that push debris from the screen face.

Water backspray cleaning systems are also used at facilities with flat panel screens similar to Robles. Examples include the Green River Headworks, Swift Floating Surface Collector, Upper and Lower Baker surface collectors and Cowlitz Falls North Shore Fish Collector. The water backspray at the Cowlitz Falls North Shore Fish Collector is shown on Figure 3-6. The Cowlitz system uses a movable manifold system to push debris off the entire screen surface and is not used in conjunction with a movable brush.

Water pressure at the nozzles typically falls between 30 psig and 100 psig depending on the application. A water backspray was selected for Alternative 2.

Figure 3-6: Flat Panel Screens with a Water Backspray at the Cowlitz Falls North Shore Collector on the Cowlitz River, Washington (Courtesy Tacoma Power)

Water Source

Water for the backspray system can be provided by either a potable water source or by water drawn from the plenum on the back side of the fish screen.

There is a 6" diameter, potable water line at the site. If potable water is used, filtration should not be required; however the California Department of Fish and Wildlife (CDFW) may require that the water be treated for chlorine. Booster pumps may also be needed to increase the water pressure to desired levels. Discharge of potable water into the Ventura River would require additional permitting (Regional Board Standard Form 200). Using potable water would provide a reliable supply of water that would be available regardless of the debris load on the screens. Since the District is purveyor, use of this water would result in lost revenue and may become a significant ongoing cost.

Alternately, water pumped from the clean side of the screens could be used for the backspray system. Water at Robles Diversion is highly turbid and contains a large amount of suspended silt, sediment and organic matter. This highly turbid water could lead to increased wear and a reduced service life for the backspray pumps, and clogging and erosion of the spray nozzles. Pre-filters, such as sand filters would be needed to prevent clogging and erosion of the spray nozzles. Maintaining these filters may be difficult during periods of high sediment and debris loads. Discharging the filter backwash water into the canal may require additional water quality permits. Reliability issues could be addressed with the installation of redundant pumps and filters.

Neither potable water nor water withdrawn from the back side of the screens is the ideal water source for a water backspray at the Robles diversion. Installation and operation of a water backspray using water drawn from the plenum has been selected for this analysis, because it is expected to result in lower annual costs and fewer permitting requirements.

3.2.2 Selected Configuration for Feasibility Assessment

A fixed manifold water backspray system, using water withdrawn from the clean side of the screens was selected for Alternative 2. A fixed manifold backspray was used because the backspray is not intended to be the primary cleaning system. The spray manifolds would work in conjunction with the horizontally moving brushes to reduce debris buildup at the face of the brush and push the debris to the middle of the channel, thereby improving the overall cleaning efficiency of the screens. Drawings 2a and 2b in Appendix 1 illustrate the proposed layout of Alternative 2. This layout represents a conceptual design. Additional refinements and optimization would be warranted during final design development.

The water backspray would consist of a series of vertical pipes spaced every 2.25 ft on center placed behind the screen baffles. Couplings designed for ¼ inch fittings would be spaced evenly along the submerged portion of the pipes. A short section of ¼ inch pipe connected to each coupling would pass through the existing baffle plate and terminate at a spray nozzle located approximately 6 inches behind the wedgewire screens. The total flow per header pipe is estimated to be 108.5 gpm, based on an average nozzle flow of 3.5 gpm at 60 psi per nozzle. The actual nozzle size, spray pattern and flow would need to be refined during detailed design and prototype testing.

The vertical pipes would be grouped together in a gang of 6 pipes. Each of these gangs would connect to a common header pipe for each side of the V-screen channel. The flow in each gang of 6 pipes would be controlled by an automated valve triggered by the brush cleaning system. As the brush moves along the screen it would open the valve turning on the water backspray for the section of screen that is being brushed. The brush would then trigger the open valve to close and the next valve to open as it passes over to the next gang of 6 pipes. Only one gang of 6 pipes per side would be operated at a time, resulting in a maximum backspray flow of approximately 650 gpm per side, or a total flow of 1,300 gpm for the entire fish screen.

Each side of the screen would have a separate backspray water system, including a separate filter assembly. Flow to each system would be provided by a pump located in the screened water plenum behind the screens. No additional fish screening would be needed for this pump. Large sand filters to remove suspended sediment and other debris would be located between the pumps and the header pipe to reduce the amount of silt and debris in the backspray water. The Project Team recommends that a redundant pump and additional filter capacity be included in the design to improve the reliability of the backspray system.

3.2.3 Hydraulic Considerations

The backspray would create localized outflows from the screen when operating. These localized outflows represent a small portion of the screen and should not impact the maximum diversion rate of the screen. Approximately 1,300 gpm of water passing through the screens would be pumped back out through the screens. This flow is expected to have a negligible impact on the total flow rate diverted when the system is operating.

3.2.4 Structural Considerations

This alternative would not require any major structural changes to the existing diversion structure. Additional supports for the pumps, filters, header pipes and vertical pipes would be needed. Slots may need to be cut into the existing baffle panels in order to accommodate the new backspray system. No changes to the fish screen channel would be needed.

A retaining wall would be required around the filtration areas to provide a flat area for placing the filters, backwash pumps and storage, and supporting facilities.

3.2.5 Constructability Considerations

This alternative requires a significant amount of piping. This alternative also includes pumps, filters, and automated valves. In addition to installing the piping and equipment, the system would require electrical and instrumentation systems.

Adding significant electrical load for new pumps will require evaluating the existing electrical service to determine if adequate power is available. This should be performed early in the preliminary planning and design process to identify any required improvements and determine likely cost for that work. For this analysis, it is assumed any electrical improvements will fall within the assumed allowance identified in the cost opinion.

Special attention will need to be given to incorporating the backspray system within the existing fish screen system and structures. It could be a challenge to install the required piping and valves and avoid conflict with the brush screen cleaning system. The space behind the baffles varies and there is limited space at the upstream end to install the new backspray system.

The backspray system includes significant new equipment and sequenced instrumentation; therefore startup could be a lengthy process.

3.2.6 Environmental and Permitting Considerations

Alternative 2 does not change the essential function or methods of screen cleaning from the existing system. The backspray system would act as a means to improve the effectiveness of the brush-cleaned, vertical screen system. Based on our understanding of existing communication protocol, CMWD may wish to notify the Bureau of Reclamation (BOR) prior to proceeding with Alternative 2, which would require a substantial physical change to the system. In addition, Alternative 2 may require informal consultation with NMFS and CDFW. Water quality requirements associated with releasing the pump filtration system backwash into the canal should be determined.

If potable water is used instead of screened water from the plenum, the permitting requirements are expected to be greater than the assumed scenario.

The project would likely qualify for a CEQA Statutory or Categorical Exemption provided that the project does not result in significant unavoidable impacts. If, however, it is later determined following consultation with NMFS and CDFW that the project would not qualify for exemption from CEQA (e.g., if the project is not considered an emergency project or the project falls under one of the exceptions to being categorically exempt), Alternative 2 may require preparation of an Initial Study (IS) and a Mitigated Negative Declaration (MND) or Environmental Impact Report.

3.2.7 Operation and Maintenance Considerations

The backspray system would be operated any time there is water in the fish screen. When the diversion is turned out and no water is being diverted, but the vertical screens are still wetted, the backspray and brush should be operated for at least one cycle per week to reduce fouling of the nozzles and screens. The system would operate continuously just prior to turning in and during diversion events. Operating for several cleaning cycles prior to turning in will remove debris already impinged on the screen face. When operating, the backspray system would require approximately 1,300

gpm of high pressure water (60 psi at the nozzles was assumed for this study). Power would be needed to operate the pumps and valves. The flow and pressure through the pumps and filters would be monitored during operations and the filters backwashed as needed. The backwash water was assumed to be discharged into the canal downstream of the pumps.

A detailed inspection of the backspray pipes and nozzles should be conducted after each diversion event to verify that the nozzles are clean and operating as expected. These inspections would consist of operating the backspray but not the brush when the diversion is turned out but the fish screen is still submerged. The operations crew would verify the pressure in each gang of 6 pipes and watch the movement of debris from the screen to identify areas where the nozzles are not working as planned. If the pressure is not within the desired operating range or clogged nozzles are found, the nozzles on the effected pipes should be cleaned prior to the next diversion event.

The water jets may result in localized erosion of the wedgewire materials. This issue would be exacerbated if the nozzles are not adequately maintained because this can lead to concentrated water jet flows with high velocities. The wedgewire material within the backspray zone should be inspected when the fish screen is dewatered to look for signs of erosion. Any damaged panels would then be replaced.

3.2.8 Class 4 Cost Estimate

The table below summarizes the preliminary cost opinion for Alternative 2.

Table 3-2: Preliminary Cost Opinion for Alternative 2 – Install a Fixed Manifold Backspray System

Item	Description	Quantity	Unit	Unit Price	Amount
1	Mobilization/Demobilization (5% of subtotal)	1	LS	$ 63,100	$ 63,100
2	Structural Modifications	1	LS	$ 60,200	$ 60,200
3	Backflush Assemblies	1	LS	$ 550,000	$ 550,000
4	Backflush Pumps, Control Panel, and Flowmeter	1	LS	$ 80,000	$ 80,000
5	Filtration System	1	LS	$ 210,000	$ 210,000
7	Header Piping, Valves, And Fittings	1	LS	$ 140,000	$ 140,000
8	Electrical (10% Allowance)	1	LS	$ 110,000	$ 110,000
9	Instrumentation and Controls (10% Allowance)	1	LS	$ 110,000	$ 110,000
	Subtotal				$ 1,323,000
	General Conditions (10%)				$ 132,000
	Construction Cost Opinion				$ 1,455,000
	Escalation to Midpoint of Construction (4.5%)				$ 65,000
	CEQA (CE assumed)				$ 5,000
	Design, Construction Management, & Administrative Costs (35%)				$ 509,000
	Contingency (30%)				$ 437,000
	Total (Rounded)				$ 2,480,000

The opinion of probable construction cost presented here is only an opinion of possible construction costs for budgeting purposes. This opinion is limited to the conditions existing at issuance and is not a guarantee of actual price or cost. Uncertain market conditions such as, but not limited to, local labor or contractor availability, wages, other work, material market fluctuations, price escalations, force majeure events and developing bidding conditions, etc. may affect the accuracy of this estimate. MKN & Associates, Inc., is not responsible for any variance from this budgetary opinion

of construction cost or actual prices and conditions obtained. The opinion of probable construction cost is based on the concept plans prepared for the District; addition or subtraction of design elements will impact the final project cost.

3.2.9 Timeline for Design and Construction

The Project Team considered the time required for design, permitting, and construction in developing a feasible implementation schedule as summarized below:

Table 3-3: Alternative 2 Timeline for Design and Construction

Task or Phase	Duration	Comments
Prototype Development and Testing	7-9 months	It is assumed prototype development will require 4-6 months and implementation/testing will require up to 3 months during wet weather
Plans and Specifications	6 months	Assume plans and specifications could begin during prototyping, with approximately 3 months for completion after end of testing
CEQA Compliance	0-6 months	Assume CEQA compliance (or resource agency permitting) will begin approximately 3 months after design begins, following the conclusion of consultation with USFWS and NMFS. Project may qualify for a statutory or categorical exemption, in which case no compliance time is required.
Resource Agency Permitting	1-3 months	It is assumed informal consultation with USFWS and NMFS will be required. In addition, it is assumed that no alteration to the jurisdictional footprint of the facility will be required to install the backspray system; therefore permits from the resource agencies would not be required. However, If potable water is used for the backspray system (not anticipated), then permits could be required to address “discharge” of potable water into

		the Ventura River (Regional Board Standard Form 200), and the California Department of Fish and Wildlife (CDFW) may require that the water be treated for chlorine.
Bid Advertisement	2 months	
Major Equipment Procurement	4-5 months	By Contractor prior to construction
Construction (Field Work)	4 months	
Estimated Duration	21-29 months	

CMWD should consider lead time for the filtration equipment, controls, instrumentation, and pumps when determining construction schedule. Based on discussions with vendors, it was estimated a submittal would require 4 weeks with another 12 to 16 weeks for delivery. CMWD would not need to procure the equipment prior to hiring a contractor.

3.2.10 Prototype Testing

A substantial engineering design would be necessary for a reliable and effective system. Prototype testing is recommended to aid in the design and address potential operating issues prior to moving to a full scale backspray installation. The primary focus of this study would be to determine if the backspray can consistently transport debris off the screens and towards the middle of the channel, where it is less likely to re-impinge on the screens. During testing, adjustments could be made to refine the backspray pressure, spacing and nozzle type. This study would also be used to determine the size and type of filters needed for reliable operation and the level of effort necessary to maintain the pumps and filters.

The prototype test would consist of a single gang of 6 backspray pipes installed behind two screen panels, a pump and a filter. This section of screen would then be visually monitored when the fish screen is in use to determine if it remains cleaner than the sections without a backspray and the degree in which debris removed from the screens is moved downstream. Any operational issues (e.g. clogging of the nozzles) or deficiencies (e.g. not removing debris) should be noted and changes made to the pilot system prior to the next diversion event.

Developing design details and schematics will allow the District to develop a detailed cost opinion for the prototype, but an order of magnitude estimate of $100,000-200,000 is considered appropriate for assembly and installation of a prototype as described above. The budget should be refined during design of the prototype system.

3.3 Alternative 3: Replace the Existing Fixed Screen System with Traveling Screens

Alternative 3 would replace the existing flat panel wedgewire screens with vertical traveling water screens. Traveling water screens have a cleaning advantage over flat panel screens because the screens would be rotated and cleaned continuously, greatly reducing the length of time that the screens can accumulate debris. This system is expected to have a relatively high likelihood of success; however, it is also expected to come at a high cost. There are precedents for traveling screens that have been accepted by NMFS for use in similar applications.

3.3.1 Variants Considered

<u>Screen Type</u>

Traveling water screens are a common feature at a wide array of water withdrawals. Most of the current screen designs use a series of 2 ft high mesh panels that rotate over a top sprocket. This type of traveling water screen is several feet wide and does not have a flat face to guide fish and debris to a bypass. Continuous belt screens, like those produced by Hydrolox and shown in Figure 3-7 would be a better option for a retrofit at Robles Diversion. These screens use a continuous polymer belt instead of large screen panels, resulting in a smooth face that is conducive to guiding fish and debris to a bypass. The 1800 series mesh used with these screens has 1.7 mm wide slots, which is slightly smaller than the 1.75 mm slots used with the current flat plate screens.

Figure 3-7: Isometric View of a Typical Hydrolox Screen with Debris Lifting Flights and Water Backwash (These Features would not be Included in the Screens at Robles)

Cleaning System

As a traveling water screen rotates, it carries debris up toward the water surface, where it is removed. The simplest method to remove debris is to lift debris to the descending side of the screen where the debris drops into a collection

device or directly into the channel on to the clean side of the screens. This type of cleaning system is commonly used with angled screens, as shown in Figure 3-8.

Figure 3-8: Angled Hydrolox Screens at the Ray Canal Diversion on the Little Wind River, Wyoming (Courtesy Hydrolox)

Another common cleaning system is a water spraywash. This cleaning method uses high pressure water jets to push debris from the screens. The spraywash can be located either on the ascending side of the screen to push debris away from the screen face and back into the fish screen channel, or on the descending side of the screen to push debris into the plenum behind the screens or a collection system. A spraywash on the descending side of the screen is advantageous compared to an ascending side spraywash because the debris is removed from the screening channel. Once removed from the descending side of the screen, debris can either be collected as shown in Figure 3-9, or flushed into the water on the back side of the screens. A spraywash system requires continuous operation when the screen is operating. The volume of water is expected to be similar to what is required for the water backspray option in Alternative 2.

Figure 3-9: Hydrolox Screens with a Water Backwash at the Cowlitz Falls North Shore Collector on the Cowlitz River, Washington (Courtesy Tacoma Power)

A third cleaning option is the use of a fixed brush across the screen. This brush can either be installed on the ascending or descending side of the screen. A brush located on the ascending side of the screen, similar to the one shown on Figure 3-10, results in the debris moving down the fish screen channel where it can re-impinge on the screen. A brush cleaning system on the descending side of the screen results in the debris being removed from the fish screen channel.

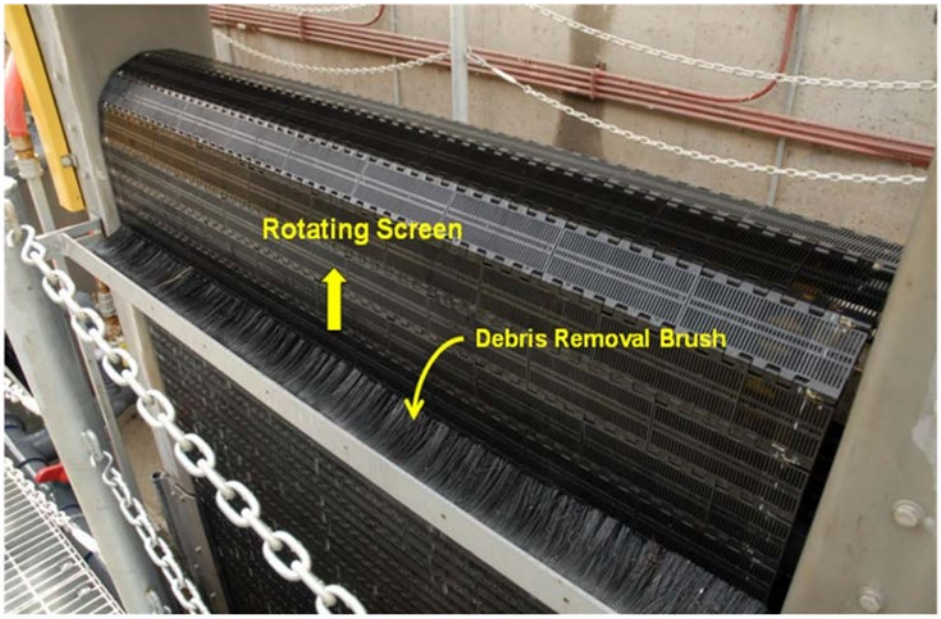


Figure 3-10: Hydrolox Screens with a Front Brush North Unit Irrigation District on the Crooked River near Madres OR (Courtesy Hydrolox)

For Alternative 3 the Project Team selected a brush cleaned system with the brush located on the descending side of the screen. This cleaning method was selected because the debris is removed from the fish screen channel, reducing the cumulative debris load on the screens, and does not require the addition of a spraywash and associated piping and operation and maintenance concerns. Another advantage of moving debris to the clean side of the screens is that it will reduce the amount of debris that enters the fish ladder.

The Project Team recognizes that CMWD needs to closely consider how to manage the debris and that routing it into the canal via the plenum on the back side of the screen may create problems or require additional maintenance downstream. However, removing the debris from the fish screen channel provides better performance for the fundamental goal of this study, which is to improve the efficiency of the fish screen cleaning system and thereby increase the flow volume that the Robles Diversion can withdraw. Removing the debris completely from the system could also be considered; however handling and disposal of the expected volume of material could be very challenging.

Approach Velocity

Traveling water screens require a support structure which reduces the effective screen area compared to the existing screens. As a result, retrofitting the fish screen with traveling water screens would increase the screen approach velocity above current levels unless the size of the screens is increased.

The new traveling water screens selected for Alternative 3 would be approximately 12 ft wide with an effective screening width of 11.67 ft. This screen size would allow the screen support structures to be mounted to the face of the existing support columns. These support structures would take up approximately 6 inches of space per screen. Hydrolox screens have an approximately 9 inch high non-filtering boot section. This boot section would be located in front of a 1 ft high bottom sill. Based on these assumptions, a total of 21 screens would be needed to pass a design flow of 621 cfs at a design approach velocity of 0.35 ft/sec. Eighteen screens could be installed within the existing fish screen footprint. With only 18 screens, the screen approach velocity would be just under 0.4 ft/sec at the design diversion rate of 621 cfs. Maintaining an approach velocity of 0.35 ft/sec without expanding the footprint would limit the maximum diversion rate to approximately 557 cfs. The NMFS criterion for approach velocity is ≤ 0.4 ft/s. The approach velocity was set to the lower of the two values and the maximum diversion rate was maintained for the purpose of this feasibility study. Given that the slightly higher approach velocity would allow the traveling screens to be installed within the existing footprint, CMWD may want to investigate the rationale for the design criterion of 0.35 ft/s, or initiate consultation with NMFS and CDFW to discuss whether increasing the screen approach velocity would be an option. If CMWD cannot increase the screen approach velocity they may also want to consider the tradeoff between reducing the maximum diversion rate and increasing the amount of time water is diverted.

3.3.2 Selected Configuration for Feasibility Assessment

The Project Team selected a design using vertically rotated Hydrolox screens with a descending side brush cleaning system for use at the Robles Diversion. Drawings 3a, 3b and 3c in Appendix 1 illustrate the proposed arrangement. These screens would be placed within the fish screen channel in front of the existing screen panel location, as shown in Figure 3-11. The screen would reduce the V-channel width by approximately 16 inches, resulting in an increase in channel/sweeping velocity. This increase in velocity may improve downstream movement of debris and fish. The new screens should be spaced a sufficient distance from the downstream exit channel to maintain the current exit channel width. A minimum distance of 5 ft was assumed for this analysis. Angled plates added to the upstream and downstream end of each screen leg would be used to provide smooth transitions at the upstream and downstream ends of the screens.

There is insufficient space available to install the 21 screens within the footprint of the existing fish screen channel. An unbalanced design with 9 screens on one side and 12 on the other was selected to achieve the required screening area as shown in Drawing Figure 3b in Appendix 1. This arrangement was selected to reduce construction impacts on existing infrastructure. Nine screens would be installed on the south side of the existing channel and the 12 remaining screens would be installed on the extended north side of the channel. The north side of the screen channel would be extended

approximately 30 ft upstream to accommodate the additional screens. The existing flat plate wedgewire screens would no longer be needed and would be removed. The flow distribution baffles would remain in place within the existing channel sections and baffles would be added to the extended north side of the screen channel.

The traveling water screens would extend above the existing work deck then angle back. This angle would allow the screens to extend over the plenum on the back side of the screens. A fixed brush along with gravity would remove debris from the descending side of the screens depositing it into the screened water plenum where it would be transported down the diversion canal. The existing brush cleaning system and associated support structure would no longer be needed and would be removed to accommodate the new screens.

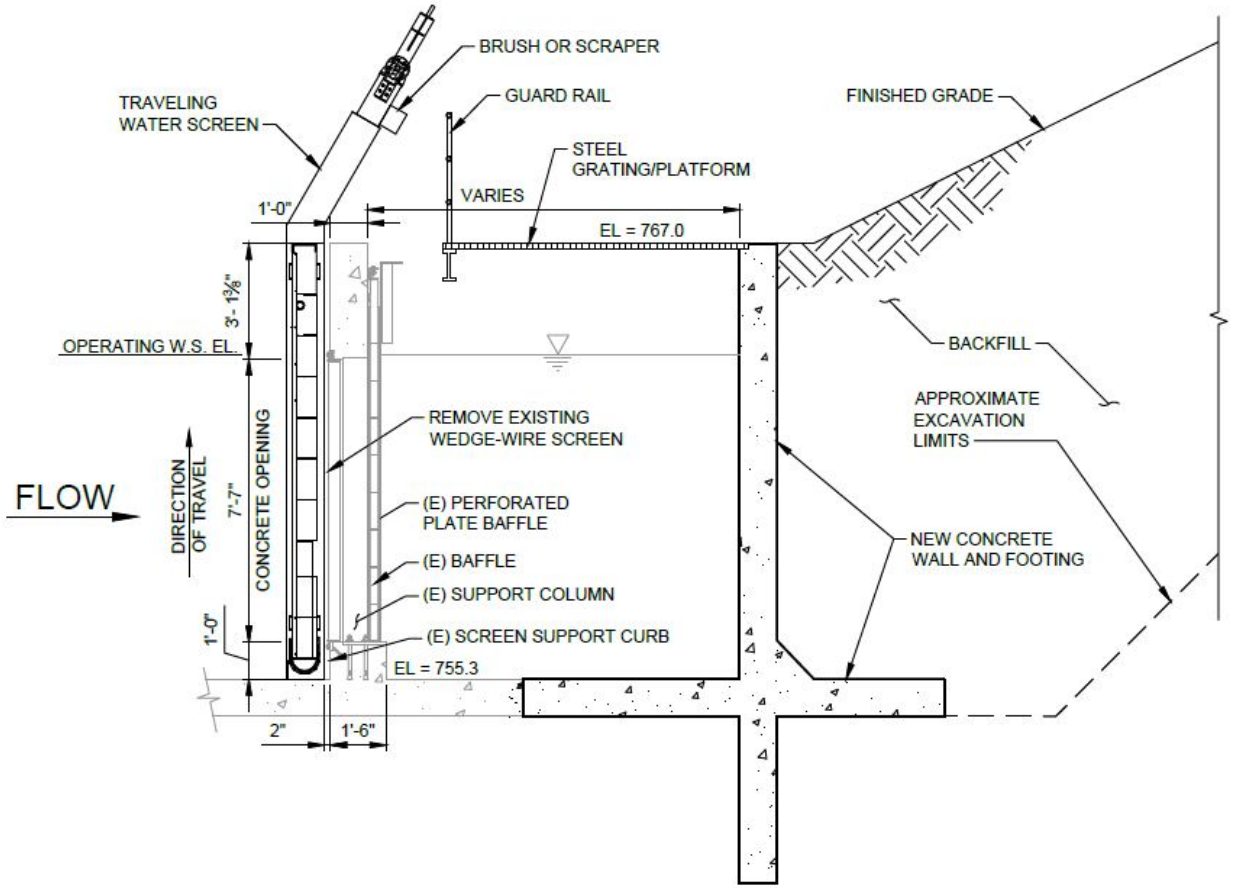


Figure 3-11: Traveling Water Screens at the Robles Diversion – Section View

3.3.3 Hydraulic Considerations

The reduced effective area and support requirements for the screens would require the fish screen to be enlarged to maintain existing screen approach velocities (~0.35 ft/sec). The Project Team selected an unbalanced screen approach with 9 screens on one side and 12 on the other to reduce the construction effort associated with expanding the screen structure. This unbalanced approach would result in more of the flow passing through the north side of the fish screen. The screened water plenum of the north leg would be widened to accommodate this extra flow. A detailed hydraulic design should be conducted to refine the design of the plenum.

3.3.4 Structural Considerations

This alternative features significant structural modifications to the Robles Diversion.

The existing wedgewire screens and a portion of the steel grating access platform would be removed. Approximately 140 ft (length) of the outside concrete walls and footing at the north side of the channel would need to be removed in order to widen the water plenum to accommodate the extra flow. Approximately 50 ft of the north concrete wall would also need to be removed to accommodate the new geometry. The extent of the structural demolition is shown in Drawing 3a in Appendix 1.

The new water plenum at the north side of the fish screen would be approximately 5 ft wider and would include a new concrete wall and footing. The new access platform would include new steel framing, grating, and guardrail. The extent of the structural construction is shown in Drawing 3b and 3c in Appendix 1.

3.3.5 Constructability Considerations

The construction work for this alternative includes the demolition noted above: removal of the existing flat plate screens, demolition of the concrete walls and footings at the north side, and partial removal of the steel access platform.

The construction work also includes excavation and new concrete construction at the north side. The existing top access road at the north side is at elevation 777.0 ft which is 10 ft higher than the top of the existing channel wall (elevation 767.0). Therefore, the excavation for the new concrete extension would be significant in order to create safe working slopes during construction. It would also require removing and replacing part of the access road at the top of the slope. Another option would be to use a shoring wall system to limit the extent of the excavation, but this is not recommended due to the long length of wall required.

New concrete walls and footings would be constructed; the new concrete would need to tie into the existing concrete structure. The new construction and tie-in with existing would include waterstops to prevent leakage. The new concrete walls would be backfilled and the site would be regraded for the new structure layout.

In addition to structural work and earthwork, the installation would also include electrical and instrumentation systems. The construction work would need to be done during a single dry season because the fish screen would need to be dewatered. The traveling screens could be long-lead items which could impact the project schedule. Pre-purchasing the traveling screens should be considered.

Adding electrical load for new screens will require evaluating the existing electrical service to determine if adequate power is available. This should be performed early in the preliminary planning and design process to identify any required improvements and determine likely cost for that work. For this analysis, it is assumed any electrical improvements will fall within the assumed allowance identified in the cost opinion.

3.3.6 Environmental and Permitting Considerations

Based on our understanding of existing communication protocol, CMWD should notify the Bureau of Reclamation (BOR) prior to proceeding with Alternative 3, which would require a substantial physical change to the system. Alternative 3 requires changes to the facility footprint and the method of screen cleaning. Sensitive species permitting and jurisdictional resources permits from the US Army Corps of Engineers (USACE), the Regional Water Quality Board (RWQCB), CDFW would be required. In addition, because this alternative would change the facility from using brush-cleaned, fixed vertical screens to brush-cleaned, traveling vertical screens, informal consultation with the Federal Agencies would be required.

In addition, the project would likely qualify for a CEQA Statutory or Categorical Exemption provided that the project does not result in significant unavoidable impacts. If, however, it is later determined the project would not qualify for exemption from CEQA (e.g., if the project is not considered an emergency project or the project falls under one of the

exceptions to being categorically exempt), Alternative 3 may require preparation of an Initial Study (IS) and a Mitigated Negative Declaration (MND) or Environmental Impact Report.

3.3.7 Operation and Maintenance Needs

Operation of the traveling water screens would vary depending on the conditions at the fish screen. The screens should be rotated continuously when the project is diverting. When the diversion is turned out and no water is being diverted, the screens should be rotated for several minutes per week to ensure that they remain operational. Electrical costs will be incurred to rotate the screens.

Hydrolox screens are relatively low maintenance. The screens and brushes should be inspected after each diversion event and stuck debris or damaged components removed and replaced. A more thorough inspection including the bottom boot section should be conducted during the dry season when there is minimal water in the fish screen. In addition to the inspections, CMWD staff would also have to lubricate and perform manufacturer recommended maintenance on the screen.

Assuming that the traveling water screens are effective at keeping the screens clean and maintain high diversion rates, overall labor to maintain them should be less than required to operate and maintain the existing system.

3.3.8 Class 4 Cost Estimate

The table below summarizes the preliminary cost opinion for Alternative 3

Table 3-4: Preliminary Cost Opinion for Alternative 3 - Replace the Existing Fixed Screens System with Traveling Screens

Item	Description	Quantity	Unit	Unit Price	Amount
1	Mobilization/Demobilization (5% of subtotal)	1	LS	$ 298,600	$ 298,600
2	Site Work	1	LS	$ 36,000	$ 36,000
3	Earthwork and Access Road Repair	1	LS	$ 154,900	$ 154,900
4	Structural Modifications	1	LS	$ 520,000	$ 520,000
5	Traveling Water Screens	1	LS	$ 4,200,000	$ 4,200,000
6	Demolition	1	LS	$ 60,000	$ 60,000
7	Electrical (10%)	1	LS	$ 500,000	$ 500,000
8	Instrumentation and Controls (10%)	1	LS	$ 500,000	$ 500,000
	Subtotal				$ 6,270,000
	General Conditions (10%)				$ 627,000
	Construction Cost Opinion				$ 6,897,000
	Escalation to Midpoint of Construction (4.5%)				$ 310,000
	CEQA/Permitting				$ 150,000
	Design, Construction Management, & Administrative Costs (35%)				$ 2,414,000
	Contingency (30%)				$ 2,069,000
	Total (Rounded)				$ 11,900,000

The opinion of probable construction cost presented here is only an opinion of possible construction costs for budgeting purposes. This opinion is limited to the conditions existing at issuance and is not a guarantee of actual price or cost. Uncertain market conditions such as, but not limited to, local labor or contractor availability, wages, other work, material market fluctuations, price escalations, force majeure events and developing bidding conditions, etc. may affect

the accuracy of this estimate. MKN & Associates, Inc., is not responsible for any variance from this budgetary opinion of construction cost or actual prices and conditions obtained. The opinion of probable construction cost is based on the concept plans prepared for the District; addition or subtraction of design elements will impact the final project cost.

3.3.9 Timeline for Design and Construction

The Project Team considered the time required for design, permitting, and construction in developing a feasible implementation schedule as summarized below:

Table 3-5: Alternative 3 Timeline for Design and Construction		
Task or Phase	**Duration**	**Comments**
Prototype Development and Testing	9 months	It is assumed prototype development will require 6 months and implementation/testing will require up to 3 months during wet weather
Plans and Specifications	9 months	It is assumed plans and specifications can be completed 9 months after end of prototype testing.
CEQA Compliance	0-6 months	Assume CEQA compliance will begin approximately 3 months after design begins, following the conclusion of consultation with USFWS and NMFS. Project may qualify for a statutory or categorical exemption, in which case no compliance time is required.
Resource Agency Permitting	6-12 months	It is assumed informal consultation with USFWS and NMFS will be required. Other resource agency permits will likely be required from RWQCB, USACE, and CDFW.
Bid Advertisement	2 months	
Major Equipment Procurement	4-5 months	By District prior to bid phase
Construction (Field Work)	9 months	
Estimated Duration	**32-41 months**	

Prototype testing will be limited to diversion periods. If CMWD is not able to get a prototype in place before the rainy season, then there may be a year delay before testing can occur.

The District should consider lead time for the traveling screens when determining construction schedule. Based on discussions with one of the vendors, it was estimated a submittal would require 4 weeks with another 12 to 16 weeks for delivery. In order to maximize the available construction window during the dry season, it is recommended the District consider either 1) pre-purchasing or 2) procuring the equipment before the contractor is selected and then assigning the purchase agreement to the contractor. This will save considerable time during construction.

3.3.10 Prototype Testing

A prototype test of a traveling screen system should be conducted prior to a full scale installation. This study would focus on the ability to maintain traveling water screens at the site and their ability to lift debris to the clean side of the screen.

Prototype testing would require the purchase of a single traveling water screen and the installation of the screen support structure. Using a single full size screen for the test would have a higher initial cost then a smaller screen, but the new screen would be compatible with a full scale installation if this option moves forward. One or more of the existing screen panels would be removed to accommodate the traveling water screen and screen support structure. The test screen should be placed at the upstream end of the existing screen to reduce interference with the brush cleaning system. The test screen would extend farther into the channel than the existing flat plate screens, therefore cowlings on the upstream and downstream ends of the test screen would be needed to provide a smooth transition between the test screen and the existing screen. A new limit switch would be needed to prevent the existing brush from hitting the test screen. The cost and effort to test a prototype traveling water screen may be high, but it could be conducted without any major structural modifications to the existing fish screen.

This prototype screen would be visually monitored when the fish screen is in use to determine if it remains cleaner than the brush cleaned section. Debris cleaned off the test screen would be collected and characterized to determine the type of debris that can be effectively removed from the fish screen. If debris is not being effectively lifted to the descending side of the screen, a brush on the ascending side or spray wash could also be tested.

Developing design details and schematics will allow the District to develop a detailed cost opinion for the prototype, but an order of magnitude estimate of $200,000 to $300,000 is considered appropriate for assembly and installation of a prototype as described above. The budget should be refined during design of the prototype system.

3.4 Alternative 4: Independent Auxiliary Water Supply for Fish Ladder to Work in Tandem with Improved Brush System

The fish ladder auxiliary flow pipeline diverts up to 121 cfs of screened water to the fish ladder entrance structure. This flow could be conveyed to the fish ladder through an alternate pipeline directly from the river or the canal upstream of the existing fish screen. Moving the auxiliary water system from the screened water supply would effectively either reduce the required maximum inflow through the existing fish screen by approximately 20% or allow an additional 121 cfs to be directed to the Robles Canal. Reducing the flow through the screen would reduce the rate at which debris accumulates on the screen.

3.4.1 Variants Considered

<u>Screened vs. Unscreened</u>

The auxiliary water system passes through a diffuser before entering the fishway. This diffuser is necessary to prevent fish from trying to follow the auxiliary water system upstream instead of swimming though the fish ladder. Passing downstream migrating fish through the diffuser is not expected to be a fish friendly option and would not meet NMFS

criteria for a downstream bypass. A fish screen meeting NMFS criteria is expected to be necessary as part of any modified auxiliary flow system.

Traveling Water Screens vs. Cylindrical Wedgewire

Traveling water screens, similar to those detailed as part of Alternative 3, or submerged cylindrical wedgewire screens can be used to screen the auxiliary flow system. Traveling water screens are designed to be placed in front of an open plenum to provide even flow distribution through the screens. Cylindrical wedgewire screens are designed with internal flow modifiers that provide even flow through the screens while allowing the screens to be affixed to pipes. This is advantageous for Alternative 4 because the pipes would allow for better control of the flow and would require less extensive modifications than a traveling water screen option. Based on these factors an auxiliary water system with cylindrical wedgewire screens was selected as the preferred option.

Cleaning System

Two cleaning systems are available for cylindrical wedgewire screens: an air-burst or a brush cleaning system. The air-burst system operates by releasing a high pressure burst of air at the bottom of the screens that pushes debris away from the screen face. The water disturbance created by an air burst is shown on Figure 3-5. Brush cleaned screens consist of fixed internal and external brushes, and rotating screen cylinders as shown on Figure 3-12. As the screen rotates, the brush removes debris from the surface. The brush cleaning system allows all the screens to be cleaned simultaneously and continuously. The ability to clean the screens continuously is assumed to be necessary to maintain the screen under the debris loading conditions at the Robles Diversion, therefore brush cleaned screens were selected.

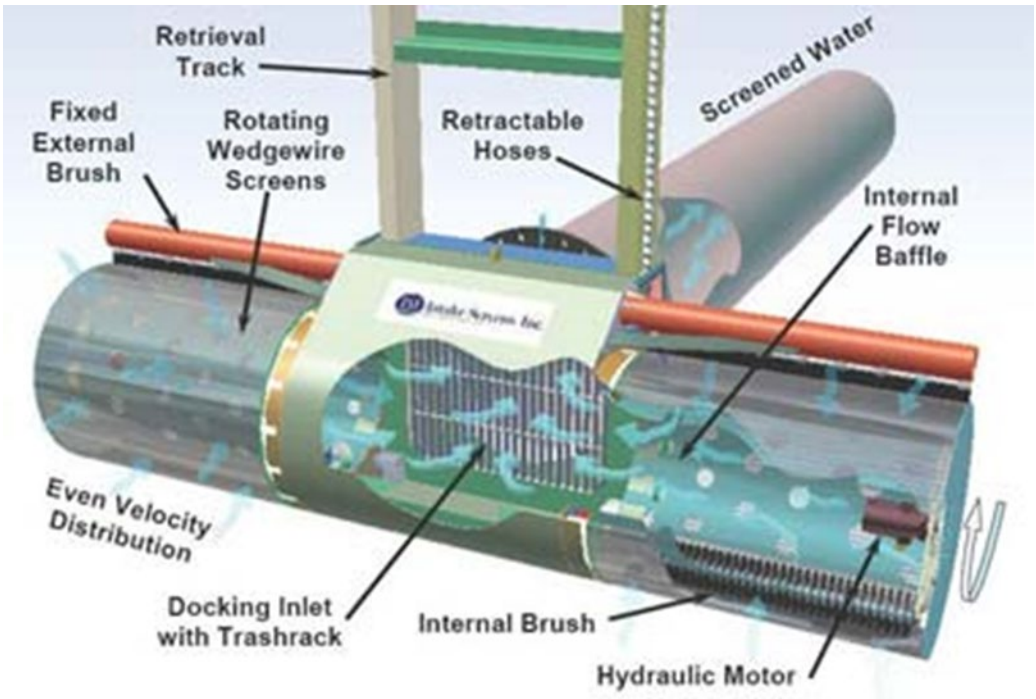


Figure 3-12: Brush Cleaned Cylindrical wedgewire Screen (Courtesy ISI)

3.4.2 Selected Configuration for Feasibility Assessment

The Alternative 4 design concept is presented in Drawings 4a and 4b in Appendix 1.

Wedgewire screens for the Robles auxiliary water system would be designed to screen 121 cfs of water. Using design information from ISI, the Project Team selected four, ISI T-42-66 screens with a design approach velocity of less than 0.33 ft/sec. These screens are 42 inches in diameter with two 66 inch long screening sections mounted to a 60 inch manifold resulting in a total length of 192 inches.

Several feet of sediment was deposited in the proposed screen deployment area during the February 2019 storm. The Project Team included several design features to help improve the reliability of this alternative. Slightly larger diameter screens could be used for the Alternative 4 AWS pipeline, but the Project Team selected the smaller T-42-66 screens to allow the screens to be mounted higher in the water column while still meeting the screen submergence requirements. A redundant screen was also included in the design to allow one screen to be taken out of service for maintenance and to allow the system to operate at higher sediment bed levels while not exceeding the design velocity of the screens. Despite these measures, the Design Team remains concerned about the performance of Alternative 4 given the substantial volume and depth of sediment that accumulated in the diversion flume during the February 2019 storm.

The screens would be aligned in a single row along the southern wall of the diversion flume as shown on Figure 3-13. Each of the screens would be mounted to a set of vertical tracks anchored to the wall of the flume. These tracks would allow the screens to be lifted to the work deck when auxiliary water is not needed or the existing auxiliary water system is in use. An example of track mounted screens in a similar arrangement to what would be used at Robles Diversion is provided on Figure 3-14. A control system would be located on the work deck adjacent to the screens.

The existing southern wall of the diversion flume is curved and would be partially demolished, removed and replaced to accommodate the screen docks and piping. The screen dock would transition from the screen to a 3 ft diameter pipe with a valve. The valves would prevent flow into the system if a screen is removed. The valves at each 3 ft diameter pipe would also be used to control flow through the screens to meet the required AWS flow rate. The 3 ft diameter pipes would then transition into a manifold combining the flow from all four screens. The combined flow would travel though a 6 ft diameter pipe and outlet into the diffusion chamber.

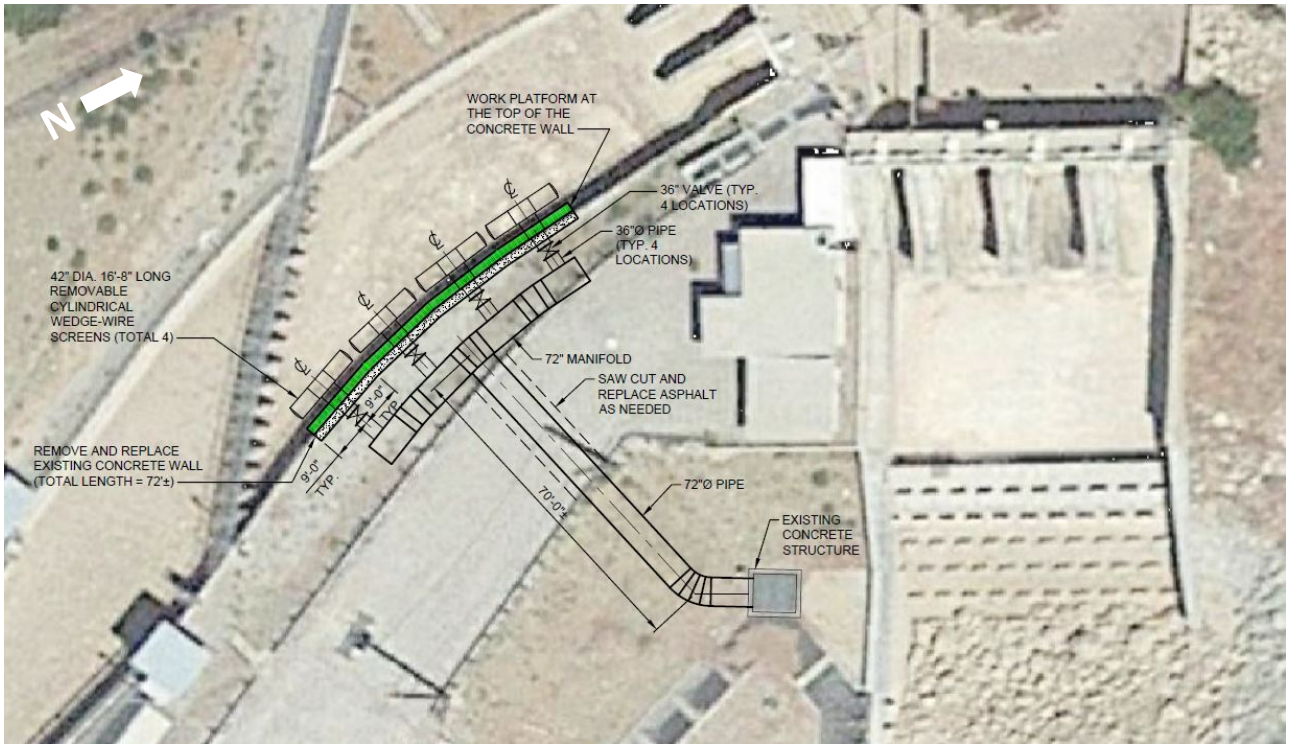


Figure 3-13: Auxiliary Flow System with Cylindrical Wedgewire Screens at Robles Diversion (Plan View)

Figure 3-14: Retrievable Cylindrical Wedgewire Screen at Salinas River Diversion Dam near Monterey, CA (Courtesy ISI)

3.4.3 Hydraulic Considerations

The upstream-most screen would be located approximately 50 ft downstream of the diversion flume headworks. This could lead to high turbulence and high sweeping velocities. These factors could result in non-uniform flow through individual screens and unbalanced flow through the entire screen system. The screen deployment location is on the inside of a bend in a known sediment deposition area. Excessive sediment deposition could result in occlusion of the screens. A hydraulic model of the flume and screens should be used to investigate the hydraulic and sediment conditions at the screens.

3.4.4 Structural Considerations

The existing concrete wall on the left side of the diversion flume would need to be modified or replaced to accommodate the cylindrical screens and bypass piping. The existing concrete wall is curved making it more difficult to anchor the screen guides. If the existing wall is retained, openings would be cut into the wall and supplemental reinforcing would be installed. The Project Team recommends that a portion of the concrete wall be replaced, rather than modifying the existing wall. A new concrete wall can be designed to resist the screen loading and the pipe penetrations can be cast into the new wall. The new concrete wall could be a series of four straight segments (one segment for each screen) to address the overall curved shape of the flume and provide a flat surface to anchor the screen guides. The superstructure above the concrete wall would include steel framing to support the hoist/lifting equipment and a steel platform for worker access.

3.4.5 Constructability Considerations

The construction work for this alternative includes replacement of a portion of the existing south concrete wall of the diversion flume and installation of new cylindrical screens and new bypass piping.

Approximately 72 feet of existing concrete wall would be replaced with a new concrete wall to accommodate the four cylindrical screens and four pipe penetrations. The bypass piping would include four 3 ft diameter pipes with four valves and a 6 ft diameter manifold. The manifold would likely not require concrete thrust blocks for restraint. The manifold would connect to a 6 ft diameter outlet pipe that would connect to the existing concrete structure. The new bypass piping would require demolition of the pavement and relatively deep excavation (10 ft to 20 ft deep).

The new concrete wall would tie into the existing concrete structure and the design would include waterstops to prevent leakage. The new concrete wall and bypass piping would be backfilled and the site would be restored, including replacement pavement. The construction work would need to be done during a single dry season because the diversion flume would need to be dewatered. The cylindrical screens and the 3 ft diameter valves could be long-lead items; therefore these items could impact the project schedule. Pre-purchasing these long-lead items should be considered.

3.4.6 Environmental and Permitting Considerations

Based on our understanding of existing communication protocol, CMWD should notify the Bureau of Reclamation (BOR) prior to proceeding with Alternative 4. Alternative 4 would change the facility footprint and the method of flow supply for the AWS for the fish ladder. Although the flow rate and discharge point would be the same, the Project Team considered that this combination of factors would cause Alternative 4 to have the most extensive permitting requirements. The permitting pathway for Alternative 4 is described in detail in a Biological Constraints Analysis, which is included as Appendix 3.

Sensitive species permitting and jurisdictional resources permits from USACE, RWQCB, CDFW would be required. In addition, because this alternative would change the flow routing for the AWS, at a minimum, informal consultation with NMFS would be anticipated. If NMFS determines the project is likely to adversely affect a listed species or critical habitat, in a manner or to an extent not previously considered in the 2003 Biological Opinion issued by NMFS for the construction and future operation of the Robles Fish Passage Facility, then NMFS will initiate formal consultation.

The project would likely qualify for a CEQA Statutory or Categorical Exemption provided that the project does not result in significant unavoidable impacts. If, however, it is determined in consultation with NMFS that the project would not qualify for exemption from CEQA (e.g., if the project is not considered an emergency project or the project falls under one of the exceptions to being categorically exempt), Alternative 4 may require preparation of an Initial Study (IS) and a Mitigated Negative Declaration (MND) or Environmental Impact Report.

3.4.7 Operation and Maintenance Needs

The cylindrical wedgewire screens would only be operated when auxiliary water is needed in the fishway. The remainder of the time the screens would be raised above the work deck. When diverting auxiliary water, the screens should be rotated continuously. The screens should be rotated for several minutes per day if they are in the lower position and submerged but auxiliary water is not being diverted. The screens would not be rotated when in the upper position. An electric drive was assumed for cost estimating purposes.

Once the screens are lifted to the upper positon they can be inspected and stuck debris or damaged components removed and replaced. This includes inspecting both the internal and external brushes and screen rotating surface. In addition to the inspections CMWD staff would also have to lubricate and perform manufacturer recommended maintenance on the screen drive units.

Any maintenance on the auxiliary water screens would be in addition to the maintenance on the existing fish screen.

3.4.8 Class 4 Cost Estimate

The table below summarizes the preliminary cost opinion for Alternative 4.

Table 3-6: Preliminary Cost Opinion for Alternative 4 -New Auxiliary Water Supply

Item	Description	Quantity	Unit	Unit Price	Amount
1	Mobilization/Demobilization (5% of subtotal)	1	LS	$ 97,700	$ 97,700
2	Structural Modifications	1	LS	$ 5,000	$ 5,000
3	Site Work	1	LS	$ 18,600	$ 18,600
4	Channel Wall Replacement	1	LS	$ 130,000	$ 130,000
5	T-Screens	1	LS	$ 890,000	$ 890,000
6	Piping and Slide Guide	1	LS	$ 570,000	$ 570,000
7	Electrical (10%)	1	LS	$ 170,000	$ 170,000
8	Instrumentation and Controls (10%)	1	LS	$ 170,000	$ 170,000
	Subtotal				$ 2,051,000
	General Conditions (10%)				$ 205,000
	Construction Cost Opinion				$ 2,256,000
	Escalation to Midpoint of Construction (4.5%)				$ 102,000
	CEQA/Permitting				$ 150,000
	Design, Construction Management, & Administrative Costs (35%)				$ 790,000
	Contingency (30%)				$ 677,000
	Total (Rounded)				$ 4,000,000

The opinion of probable construction cost presented here is only an opinion of possible construction costs for budgeting purposes. This opinion is limited to the conditions existing at issuance and is not a guarantee of actual price or cost. Uncertain market conditions such as, but not limited to, local labor or contractor availability, wages, other work, material market fluctuations, price escalations, force majeure events and developing bidding conditions, etc. may affect the accuracy of this estimate. MKN & Associates, Inc., is not responsible for any variance from this budgetary opinion of construction cost or actual prices and conditions obtained. The opinion of probable construction cost is based on the concept plans prepared for the District; addition or subtraction of design elements will impact the final project cost.

3.4.9 Timeline for Design and Construction

The Project Team considered the time required for design, permitting, and construction in developing a feasible implementation schedule as summarized below:

Table 3-7: Alternative 4 Timeline for Design and Construction		
Task or Phase	Duration	Comments
Plans and Specifications	9 months	It is assumed a prototype would not be implemented, but that a hydraulic model would be used to develop the design and that performance could be inferred by operating the existing channel at a reduced flow rate.
CEQA Compliance	0-6 months	Assume CEQA compliance will begin approximately 3 months after design begins, following the conclusion of consultation with USFWS and NMFS. Project may qualify for a statutory or categorical exemption, in which case no compliance time is required.
Resource Agency Permitting	6-12 months	It is assumed informal consultation with USFWS and NMFS will be required. Other resource agency permits will likely be required from RWQCB, USACE, and CDFW.
Bid Advertisement	2 months	
Major Equipment Procurement	4-5 months	By District prior to bid phase
Construction	9 months	
Estimated Duration	26-35 months	
Prototype testing is limited to hydraulic modeling and field observation of the existing screen performance at a reduced flow rate. If there is insufficient flow during the rainy season, then there may be a year delay before field observations can occur.		

The District should take the lead time for the screens into consideration. Manufacturing, testing, and delivery is estimated by the manufacturer at 16 weeks after approved submittals have been received. In order to maximize the available construction window during the dry season, it is recommended the District consider either 1) prepurchasing or 2) procuring the equipment before the contractor is selected and then assigning the purchase agreement to the contractor. This will save considerable time during construction.

3.4.10 Prototype Testing

Prototype testing of cylindrical wedgewire screens at Robles Diversion would require substantial structural modifications to the diversion flume and is not considered feasible. However, CMWD would be able to test the effect of reducing the flow through the fish screen on cleaning efficacy and reliability in lieu of prototyping cylindrical screens. Auxiliary water is still expected to be needed during testing, resulting in 121 cfs less flow available for the Robles canal.

If reducing the flow through the fish screen results in a marked improvement in cleaning and reliability then a hydraulic model study would be needed to verify the feasibility of installing wedgewire screens in the proposed location.

3.5 Supplemental Actions

The following supplemental actions are recommended in addition to the above alternatives:

- Monitor head differential across screens
- Routinely restore the forebay
- Routinely remove calcification deposits from exclusion screens
- Install a remote monitoring system

These supplemental actions were not developed as part of the feasibility study, but are briefly described in the following sub-sections.

3.5.1 Monitor Head Differential across the Screens

CMWD monitors the water level on the upstream side of the screens, but not on the downstream side. This modification would add pressure transducers or down-looking acoustic water level sensors on the downstream side of the screens and would allow the water surface differential across the screens to be measured. This modification would not have a direct effect on the screen cleaning performance or diversion flow rates, but could be integrated into the Supervisory Control and Data Acquisition (SCADA) system to support regular operations, and would provide data that could help to assess the effectiveness of changes to the screen system.

3.5.2 Routinely Restore the Forebay

The forebay frequently fills with sediment. Routinely restoring the forebay upstream of the canal gates would help to address the natural tendency of the river to train toward the left, away from the canal intake and reduce the volume of grasses and plant matter in the immediate vicinity of the intake. Although sediment deposition in the v-screen channels had not been identified as a problem by CMWD at the outset of this study, routine forebay restoration would encourage settlement of sediments upstream of the diversion.

During the course of this study a storm occurred and debris, including sands and gravels, filled the forebay upstream of the canal gates and filled the diversion flume and fish screen channel downstream of the intake gates. The sediment accumulation completely impeded water withdrawal. This was unprecedented, and has been attributed to the loss of hillslope vegetation due to the Thomas Fire. The diversion flume and fish screen channel were excavated under an emergency action to allow diversion to resume. The February 2019 event demonstrates the importance of routinely restoring the forebay under the new, post-fire conditions.

3.5.3 Routinely Remove Calcification Deposits from Exclusion Screens

Calcification deposits on the back side of the screen occlude the open area, increase head loss and restrict the capacity of the screens to divert flow. CMWD should inspect the back sides of the screens during non-diversion season and if calcification deposits are observed, remove the screens to manually clean them on site or remove them from site for

chemical cleaning. At the time of cleaning the screen panels should also be inspected for structural deficiencies such as corrosion and erosion.

CMWD removed the calcification deposits on February 9, 2019. The effectiveness of this measure will be documented after the next storm events.

3.5.4 Install a Remote Monitoring System

A remote monitoring system would allow the screen operators to monitor the condition and operation of the screens remotely. This would allow faster response time when determining when to turn in or turn out and allow the operators to initiate and monitor the screen cleaning system without an operator present at the site.

4.0 Summary of Alternatives

The four alternatives represent a range of complexity, cost, implementation timeline, and anticipated effectiveness. During the screening-level assessment, each measure was qualitatively assigned a rating of "good", "moderate" or "poor" for a range of evaluation criteria that the Project Team developed in collaboration with CMWD. This evaluation procedure was repeated for the four alternatives developed in this feasibility study, considering the improved understanding of them that has been gained through their further development.

Table 4-1 provides an assessment of each alternative's merits based on the identified criteria. The criteria are described below, and the table is color-coded to reflect the relative performance of each alternative based on engineering judgment and information provided in Section 3.0. The list of evaluation criteria provided below includes all criteria that were considered during the screening-level assessment; some of these criteria do not apply (or would have equal results across all alternatives) and have been removed from the evaluation of feasibility.

Potential for Improved Performance – The potential for improved performance is a qualitative assessment of the likelihood that the alternative will increase the volume of flow that can be diverted to Lake Casitas.

Operational Simplicity – Operational simplicity describes the level of operator action that would be required to successfully run the system. This considers operation during diversion as well as routine inspection and maintenance.

Precedents – This criterion assesses whether there are known precedents for the same or similar operations. All of the technologies selected for the feasibility study have precedents; therefore this criterion has been removed for the feasibility study phase of evaluation.

Permitting Requirements – This criterion considers the likelihood that a measure would trigger new permit requirements, formal or informal consultation with NMFS, or reopening of the Biological Opinion (BiOp). The BiOp specifically calls for debris removal by automated brushes, by hand, or mechanical removal (during the dry season, whenever possible); therefore changes to the system away from these mechanisms would likely trigger informal consultation, at a minimum.

Potential for Negative Biological Impacts – The potential for negative biological impacts is considered for fisheries and non-fisheries resources. None of the technologies selected for the feasibility study would be expected to impart negative biological impacts beyond temporary impacts associated with construction-phase disturbance. Although there is variation in the level of construction-phase impact between the alternatives, this criterion has been removed from the feasibility study phase of evaluation.

Implementation Complexity – The implementation complexity is a measure of how readily implementable a measure is. This criterion considers design and construction, and is primarily assessed by considering how long it would take to implement a concept.

Construction Outage – All of the alternatives selected for the feasibility study could be implemented during the typical non-diversion periods, i.e., construction would not require diversion operations to be shut down. This criterion has been removed for the feasibility study phase of evaluation.

Capital Cost – The capital cost is the cost of initial procurement and construction. It is generally a one-time cost.

Operation and Maintenance Cost – The operation and maintenance cost includes routine operations, and periodic inspection and maintenance. This is generally an on-going cost.

Ability to Prototype – Depending on the magnitude of the change and the degree of performance uncertainty, it may be beneficial to prototype test the concept prior to full implementation. This criterion considers the feasibility, complexity and assumed cost associated with prototype testing the alternative.

Table 4-1
Summary of Alternatives: Evaluation Matrix

Relative Rank
First
Second
Third
Fourth

	Potential for Improved Performance	Operational Simplicity	Permitting Requirements	Implementation Complexity	Capital Cost	Operation and Maintenance Cost	Ability to Prototype
Alternative 1: Improve Existing Brush Screen Cleaner	Improvement expected, but other alternatives would be more effective.	The components would be no more complex to operate and maintain than the existing system.	No anticipated permitting requirements.	6 - 8 months	$15,000 - $30,000	Power cost is not expected to increase significantly	Changes are readily implementable and could be tested on a single side of the fish screen channel.
Alternative 2: Fixed Backspray + Alternative 1	Improves upon Alternative 1, but would not reduce the hydraulic or debris load on the fish screen channel	The pumps, nozzles and filter system are new components that would require routine monitoring and maintenance.	No change to facility footprint. Permits may be required to discharge pump filter backwash into the channel. Informal consultation with NMFS should be anticipated.	21 - 29 months	$2,480,000	Power cost and operator attention are expected to be significant. Additionally, the filtration system will require routine maintenance including replacement of sand or other media	A prototype consisting of a single gang of 6 backspray pipes installed behind two screen panels, a pump and a filter could be installed without substantial changes to the existing facility.
Alternative 3: Traveling Water Screens	Substantial increase in cleaning rate and removing debris from the fish screen channel offers best opportunity for improvement.	There would be new motors and controls to maintain, but expectation is that this would be relatively infrequent.	Change to facility footprint would trigger requirements for RWQCB, USACE and CDFW permits. Sensitive species permitting would be required. Informal consultation with NMFS should be anticipated.	32-41 months	$11,900,000	Power cost will be higher under this alternative.	A prototype test would require the purchase of a single traveling water screen and the installation of the screen support structure. Modest changes to the existing system, but no major structural modifications would be required.
Alternative 4: Dedicated AWS Supply + Alternative 1	Improves upon Alternative 1, and reduces the flow rate that must pass through the existing fish screen channel.	A second, independent screen system for the AWS supply would need to be monitored and maintained.	Change to facility footprint would trigger requirements for RWQCB, USACE and CDFW permits. Change to fish ladder AWS flow supply is a material difference from the original design. Consultation with NMFS should be anticipated.	26-35 months	$4,000,000	Raising and lowering the screens into position will require additional power cost but impact will be relatively minor compared to the other alternatives.	This alternative could not be prototype tested. However, the effect on the existing fish screen system could be estimated by observing the performance with the flow rate reduced to 500 cfs from 621 cfs.

5.0 Conclusions and Recommendations

5.1 Conclusions

This report presents four alternatives to improve diversion efficiency into the Robles Canal. Based on the high-level feasibility study, all of the alternatives appear to be feasible to construct; however, there are clear trade-offs between the alternatives with respect to anticipated performance, ease of implementation, permitting requirements, and cost. CMWD will need to consider how each of these considerations fits the needs and resources of the District. The Project Team recommends that CMWD proceed with implementation of Alternative 1 in the near-term, and that CMWD staff monitor the changes to project operations and diversion effectiveness prior to making a decision about the next alternative to implement. The gap in performance between the modified system and CMWD's goals should inform the decision about which additional alternative may provide the best results.

The Project Team additionally recommends that all of the identified supplemental actions be implemented in the near-term. If the newly-observed problem of channel clogging by mass influx of sediment persists after the forebay is restored, CMWD may want to study measures specifically targeting sediment management. The alternatives presented in this study were focused on addressing problems caused by debris.

By its scope, this study was conducted as a high-level development and comparison of alternatives. Most of the measures included in Alternative 1 require little or no formal engineering and implementation could begin immediately. Alternatives 2, 3 and 4 have been developed as high-level concepts only. Additional design refinement is recommended if any of these options are carried forward. Alternatives 2 through 4 will require more extensive design, including hydraulic, structural, mechanical, electrical and controls. CMWD may want to consider beginning to advance the design or to begin planning for prototype testing of one or more of these alternatives. Alternative 3 assumes that the existing screen approach velocity (0.35 ft/sec) is maintained, however if the approach velocity can be increased to 0.4 ft/sec, consistent with NMFS criteria, then traveling water screens could possibly be installed without expanding the footprint of the fish screen. A potential drawback of this approach is that it does not provide any margin for variability along the screen channel, and there would be a risk of exceeding criteria in some locations. In addition, changing the accepted design velocity would have a higher chance of triggering formal consultation requirements. Alternative 4 is the only alternative for which there remains a degree of uncertainty about general technical feasibility. This is due to the proximity between the canal gates and the intake for the dedicated AWS system. If CMWD is considering Alternative 4 as a preferred alternative, the Project Team recommends that it be numerically modeled to verify that the required AWS flows could be achieved.

5.2 Next Steps for Implementation

The Project Team strongly recommends prototype testing of one or more alternatives prior to full implementation. Depending on time and budget constraints, CMWD is interested in prototype testing more than one alternative at the same time. For example the improvements to the existing system a backspray system, and a traveling screen could be tested concurrently to directly compare the performance of Alternatives 1, 2 and 3. Alternative 4 could be prototype tested by reducing the flow extracted through the existing screens by 121 CFS, the flow required to supply the fish ladder system.

The implementation schedule for Alternative 3 was used to develop an overall schedule for the proposed improvements, since it represents the longest duration for design and construction. Based on the need to perform testing during wet weather, and the requirement to construct new facilities during dry weather to reduce cost and permitting constraints, the implementation schedule is expected to require 3 to 4 years. The major steps are summarized below in the Gantt chart (Figure 5-1). Efforts will include prototype development and testing, design, CEQA compliance, resource agency permitting, bidding, and construction.

Task Name	Duration	Start	Finish
Development of Prototype Test Plan	40 days	Thu 4/25/19	Wed 6/19/19
Informal Consultation with Bureau of Reclamation	31 days	Thu 6/20/19	Thu 8/1/19
Prototype Test Apparatus - Final Design	40 days	Fri 7/5/19	Thu 8/29/19
CMWD Review	4 days	Fri 8/30/19	Wed 9/4/19
Revision to Plan	6 days	Thu 9/5/19	Thu 9/12/19
Bidding/Procurement of Prototype Systems	30 days	Fri 9/13/19	Thu 10/24/19
Installation of Prototype Systems	48 days	Fri 10/25/19	Tue 12/31/19
Testing and Monitoring	75 days	Wed 1/1/20	Tue 4/14/20
Plans and Specifications	180 days	Wed 4/15/20	Tue 12/22/20
CEQA Compliance	120 days	Wed 7/8/20	Tue 12/22/20
Resource Agency Permitting	262 days	Wed 12/23/20	Thu 12/23/21
Bid Advertisement	45 days	Fri 12/24/21	Thu 2/24/22
Major Equipment Procurement	100 days	Wed 8/18/21	Tue 1/4/22
Construction	182 days	Fri 2/25/22	Mon 11/7/22

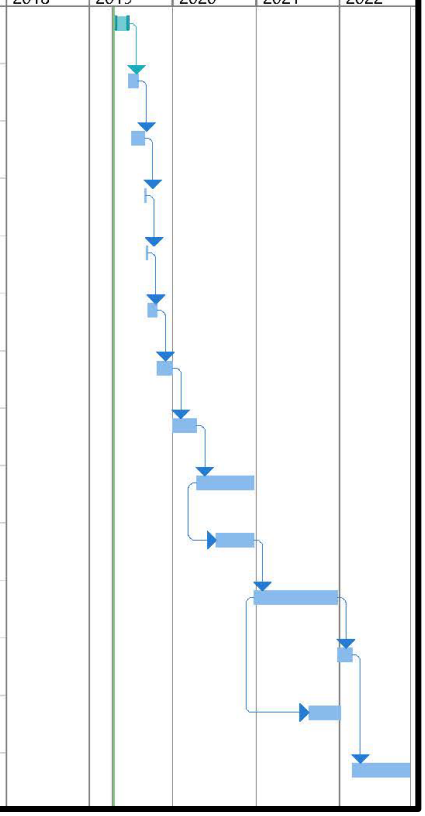


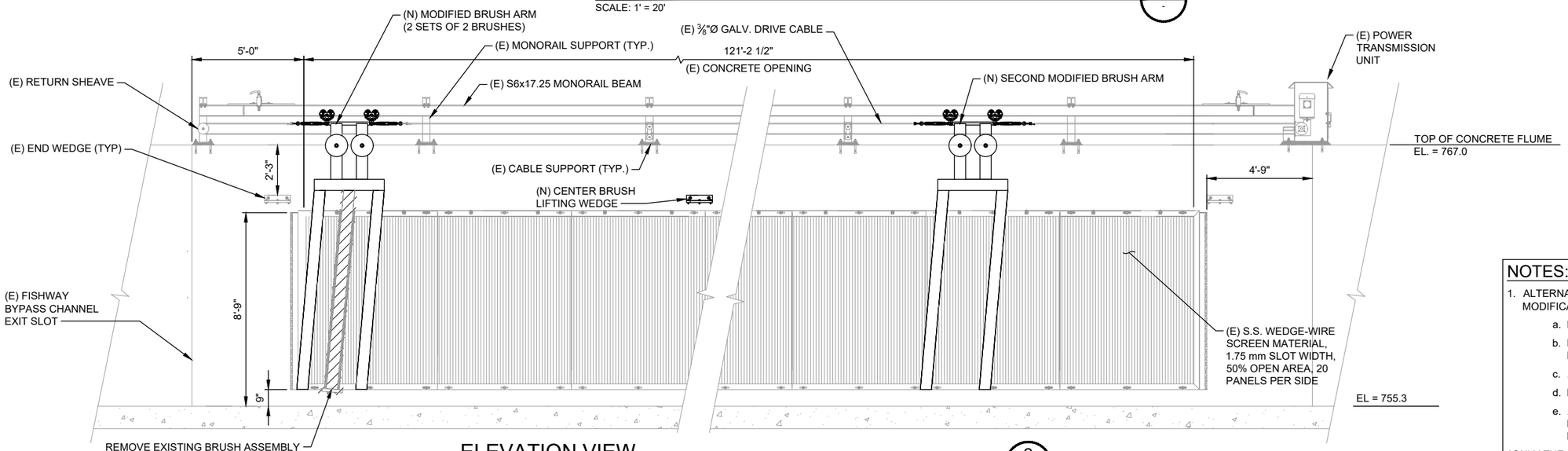
Figure 5-1: Preliminary Implementation Schedule

Appendix 1: Concept Drawings

SITE PLAN

SCALE: 1' = 20'

1



ELEVATION VIEW

SCALE: 3/16" = 1'-0"

2

NOTES:

1. ALTERNATIVE 1 INCLUDES THE FOLLOWING MODIFICATIONS:
   a. REMOVE PLASTIC BRUSH COVERS
   b. REPLACE SHEAVE TRACTION LINERS WITH NEW MATERIALS
   c. ADD A CABLE TENSIONER
   d. INCREASE THE BRUSH SPEED
   e. ADD A SECOND BRUSH ARM AND MODIFY BRUSH ARM DESIGN TO INCREASE THE SPACE BETWEEN THE BRUSHES

*ONLY THE SECOND BRUSH ARM OPTION IS SHOWN IN THE DRAWING

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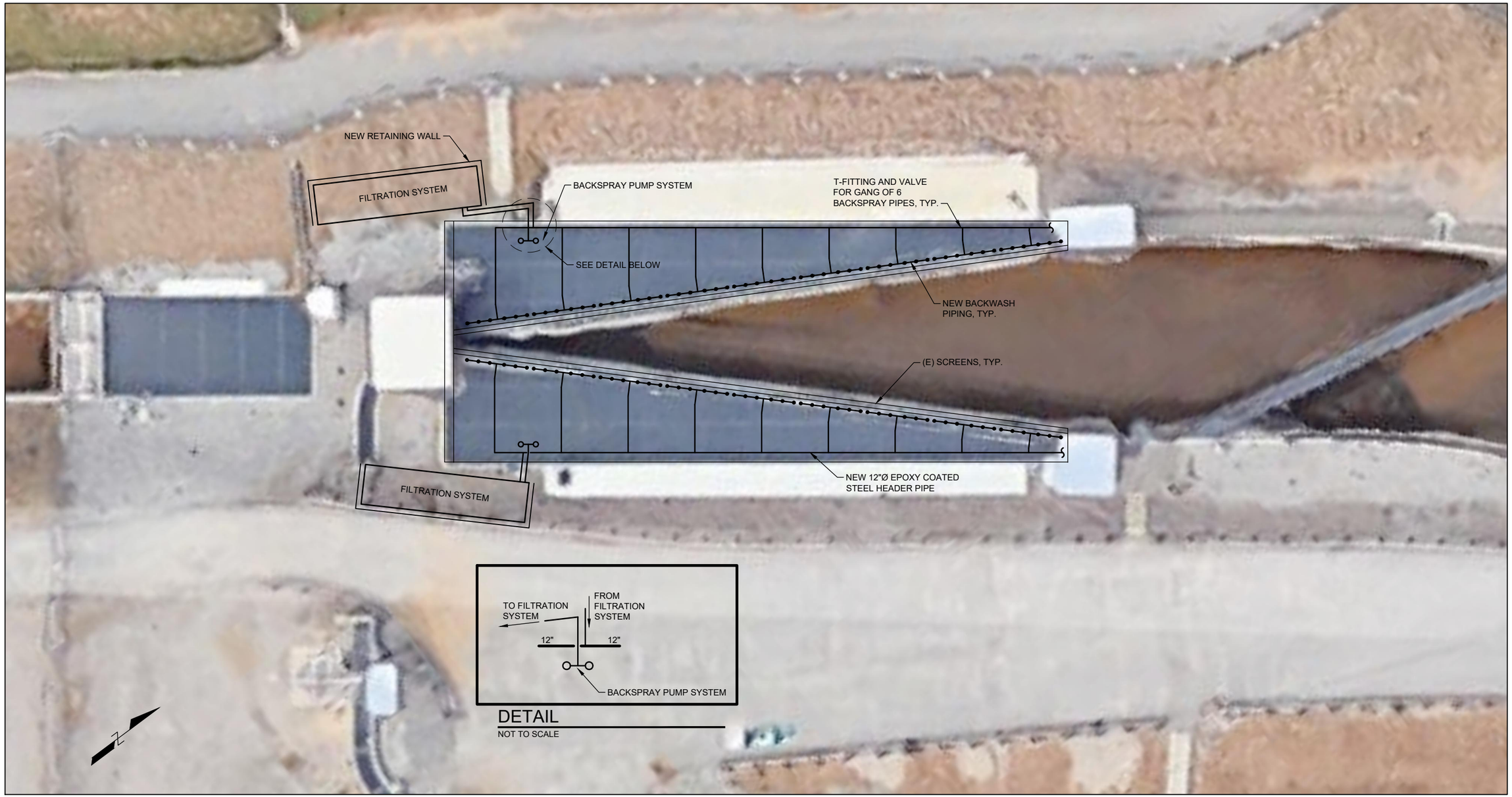
Robles Diversion Fish Screens Alternatives Feasibility Study

Alternative 1
Improve Existing Brush Cleaning System

FIGURE
1



DETAIL
NOT TO SCALE

SITE PLAN
SCALE: 1' = 20'

1
-

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Robles Diversion Fish Screens
Alternatives Feasibility Study

Alternative 2
Fixed Manifold Backspray System - Site Plan

FIGURE
2a

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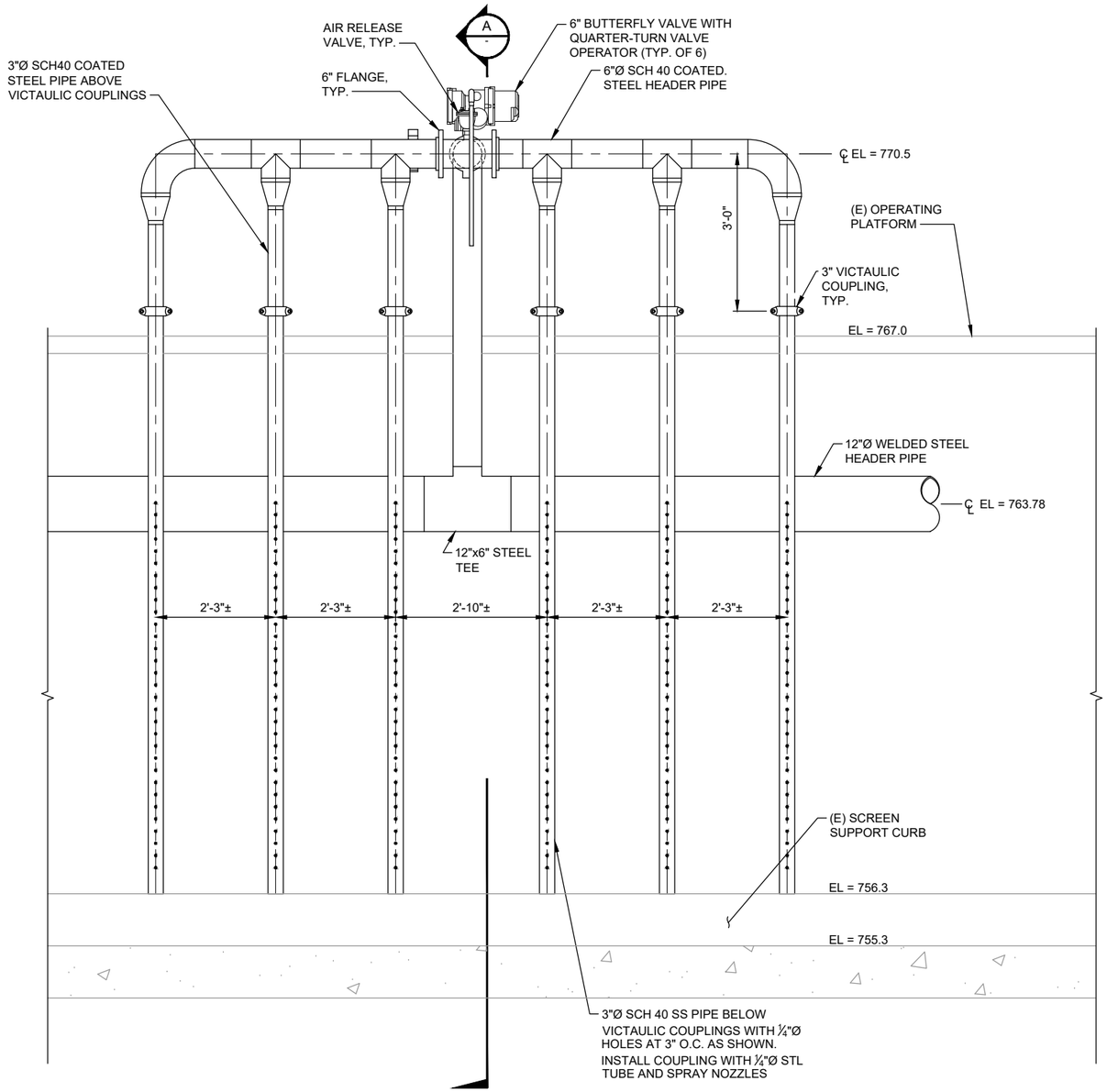
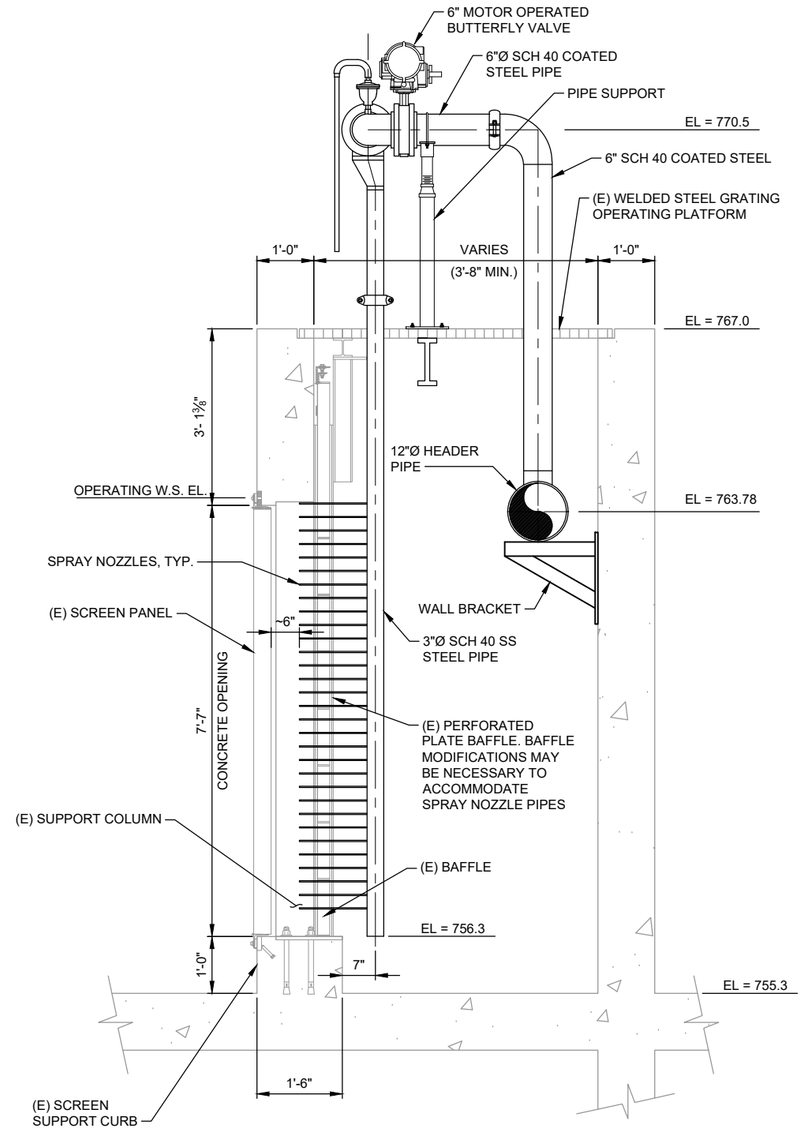


ELEVATION 1

SCALE: 3/8" = 1'-0"



SECTION A

SCALE: 3/8" = 1'-0"

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Robles Diversion Fish Screens
Alternatives Feasibility Study

Alternative 2
Fixed Manifold Backspray System - Section & Elevation

FIGURE
2b

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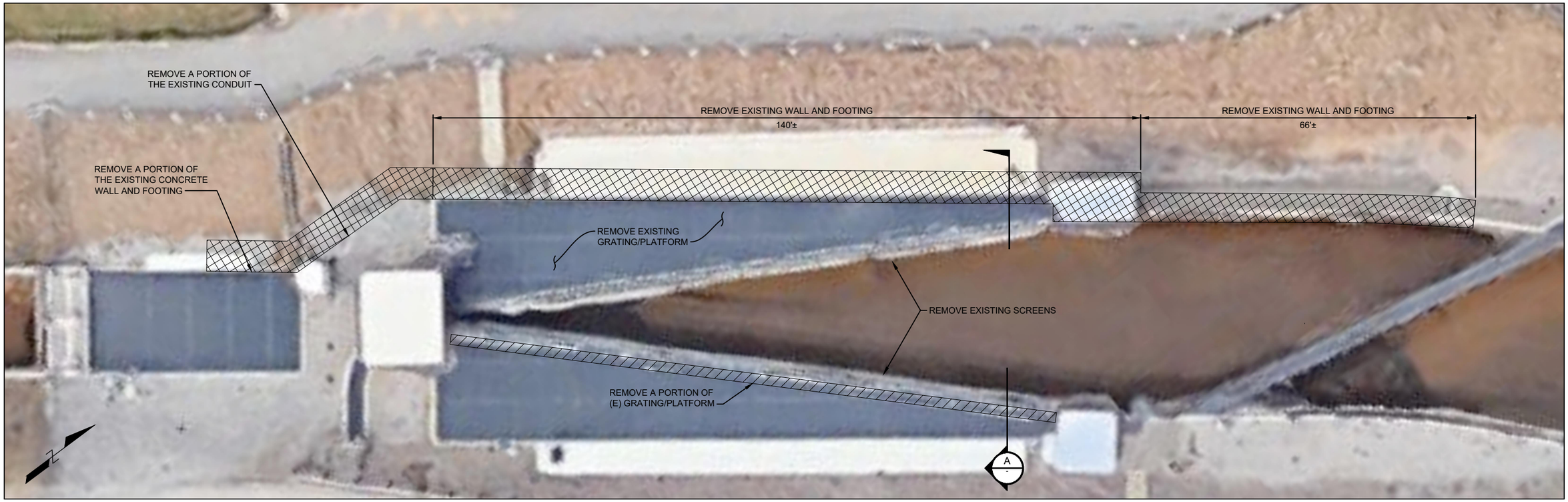
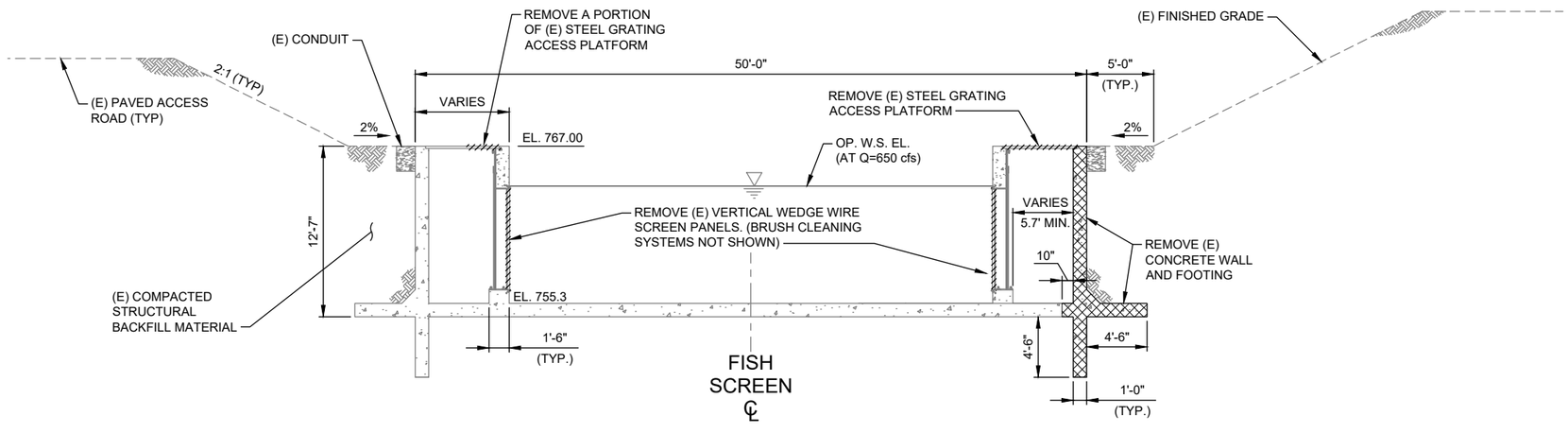


DEMOLITION PLAN

SCALE: 1' = 20'

1
-



DEMOLITION SECTION (LOOKING DOWNSTREAM)

NOT TO SCALE

A
-

LEGEND

CONCRETE DEMOLITION

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Robles Diversion Fish Screens
Alternatives Feasibility Study

Alternative 3
Traveling Fish Screens - Demolition Plan and Section

FIGURE
3a

DWG: \\Mkn01\projects\Casitas\Casitas-2018-004 Robles Diversion Fish Screens Alternatives\300 Engineering\301 CAD\Exhibits\ALT 3a - Demo Plan & Section.dwg USER: JimF
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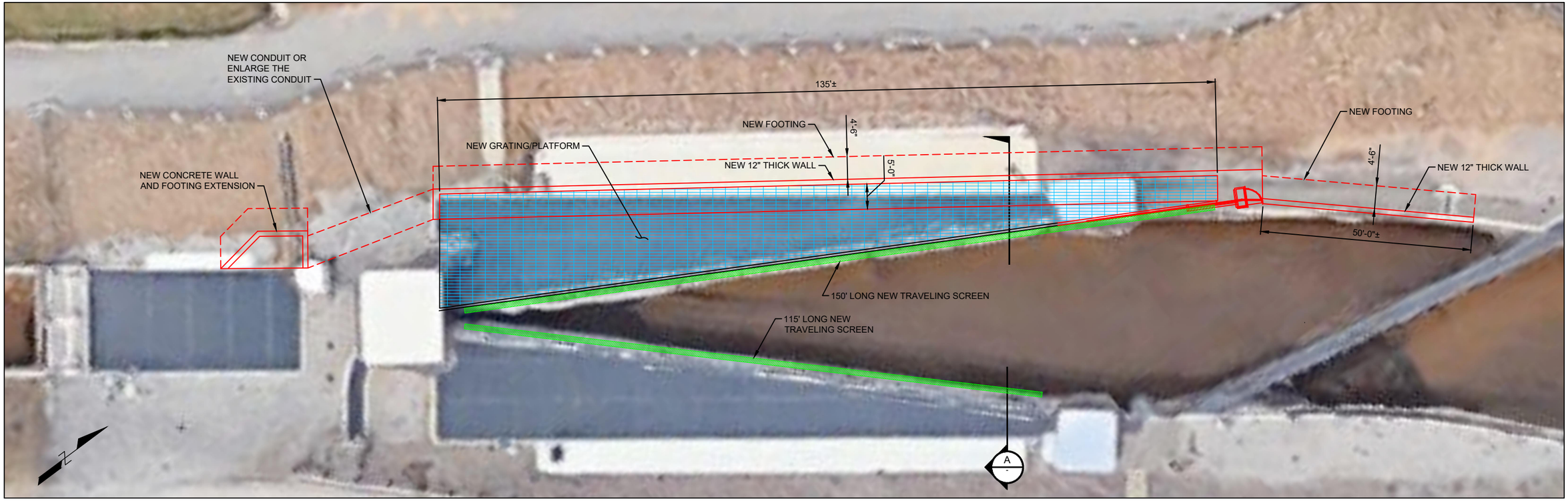
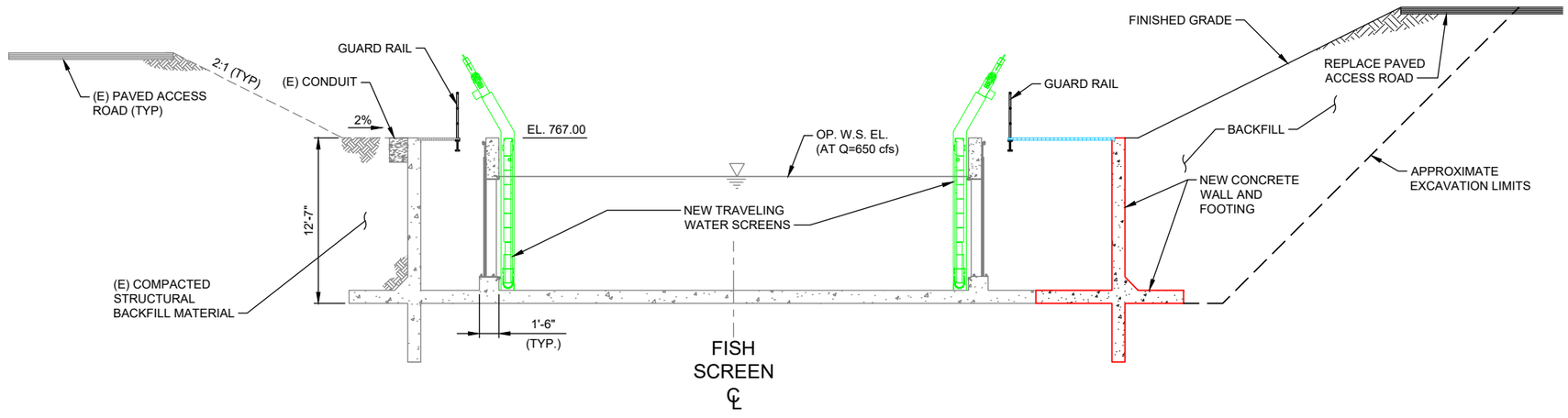


PROPOSED SITE PLAN

SCALE: 1' = 20'

1
-



SECTION (LOOKING DOWNSTREAM)

NOT TO SCALE

A
-

LEGEND

- NEW CONCRETE
- NEW TRAVELING WATER SCREEN
- NEW GRATING/PLATFORM

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Portland, OR 97205
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mkn
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ARROYO GRANDE, CA 93421 (805) 904-6530

Robles Diversion Fish Screens
Alternatives Feasibility Study

Alternative 3
Traveling Fish Screens - Plan and Section

FIGURE
3b

DWG: \\Mkn01\projects\Casitas\Casitas-2018-004 Robles Diversion Fish Screens Alternatives\300 Engineering\301 CAD\Exhibits\ALT 3b - Site Plan.dwg USER: JimF
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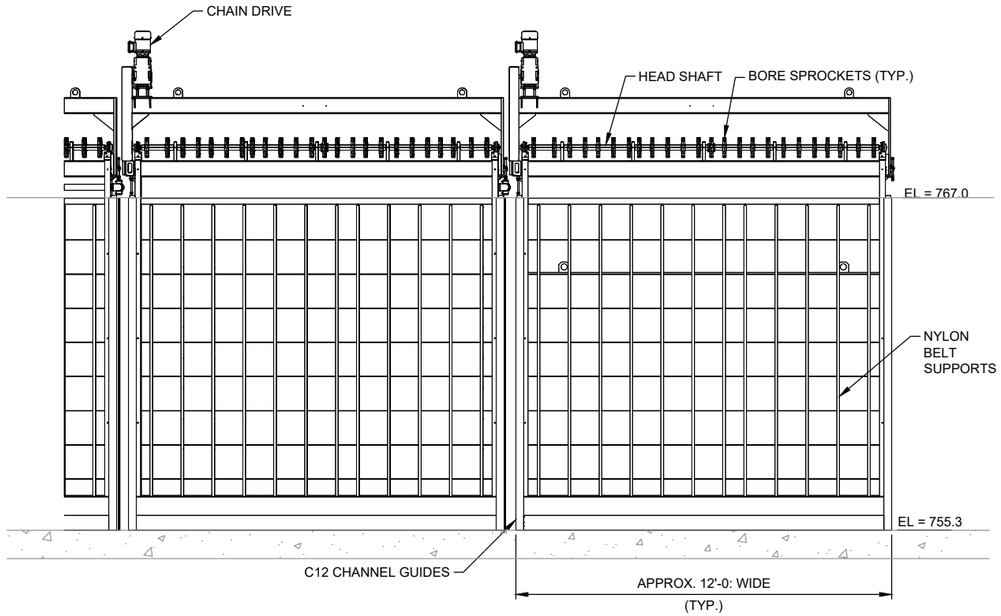
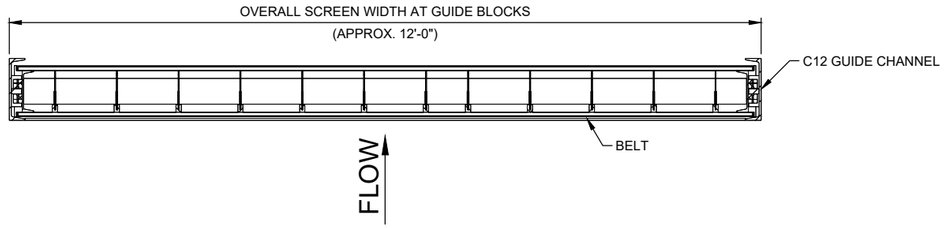


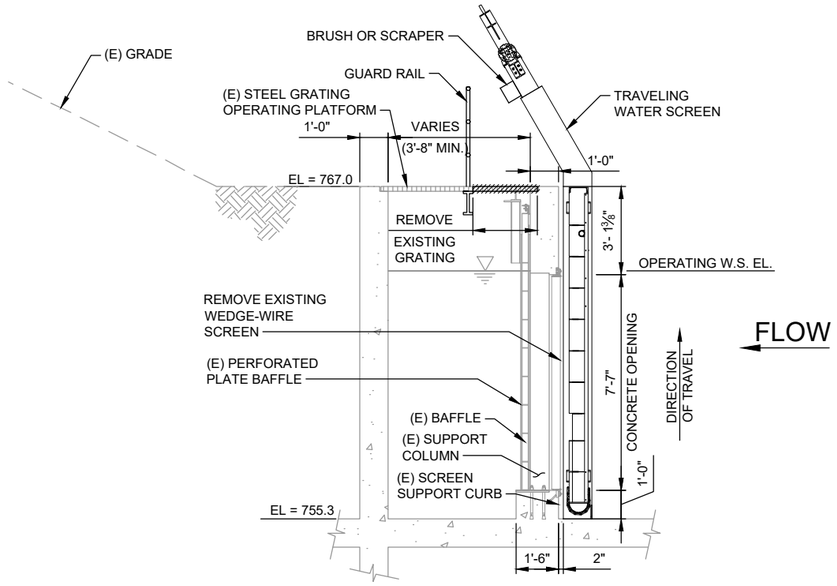
ELEVATION
NOT TO SCALE

1
-



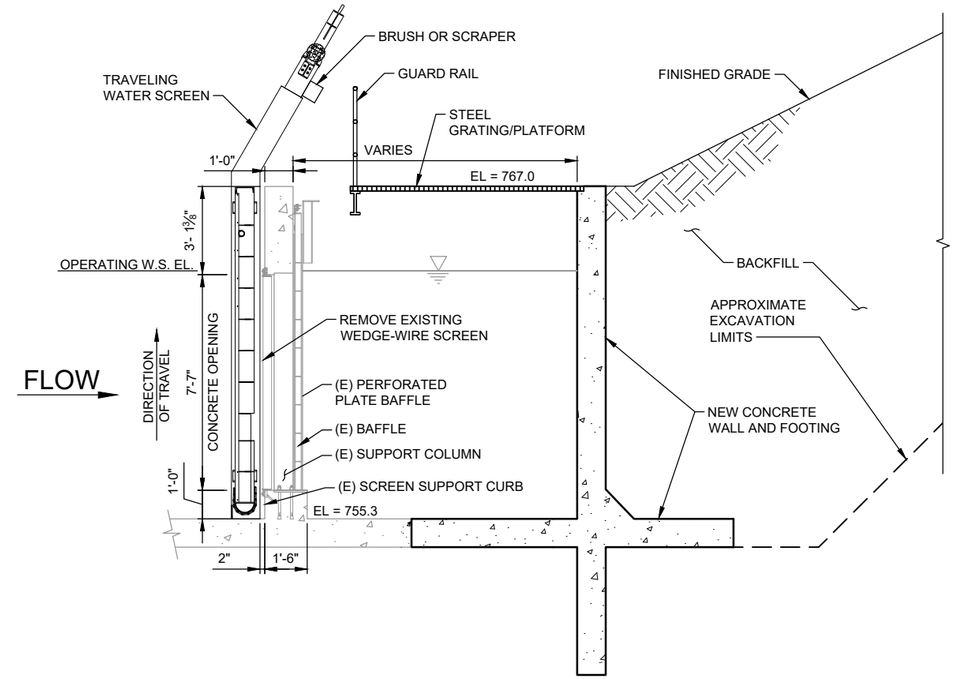
SCREEN - PLAN VIEW
NOT TO SCALE

2
-



LEFT SIDE SECTION (LOOKING DOWNSTREAM)
SCALE: 3/16" = 1'-0"

3
-



RIGHT SIDE SECTION (LOOKING DOWNSTREAM)
SCALE: 1/4" = 1'-0"

4
-

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Robles Diversion Fish Screens
Alternatives Feasibility Study

Alternative 3
Traveling Fish Screens

FIGURE
3c

DWG: \\Mkn01\projects\Casitas\Casitas-2018-004 Robles Diversion Fish Screens Alternatives\300 Engineering\301 CAD\Exhibits\ALT 3c- Elevation & Section.dwg USER: JimF
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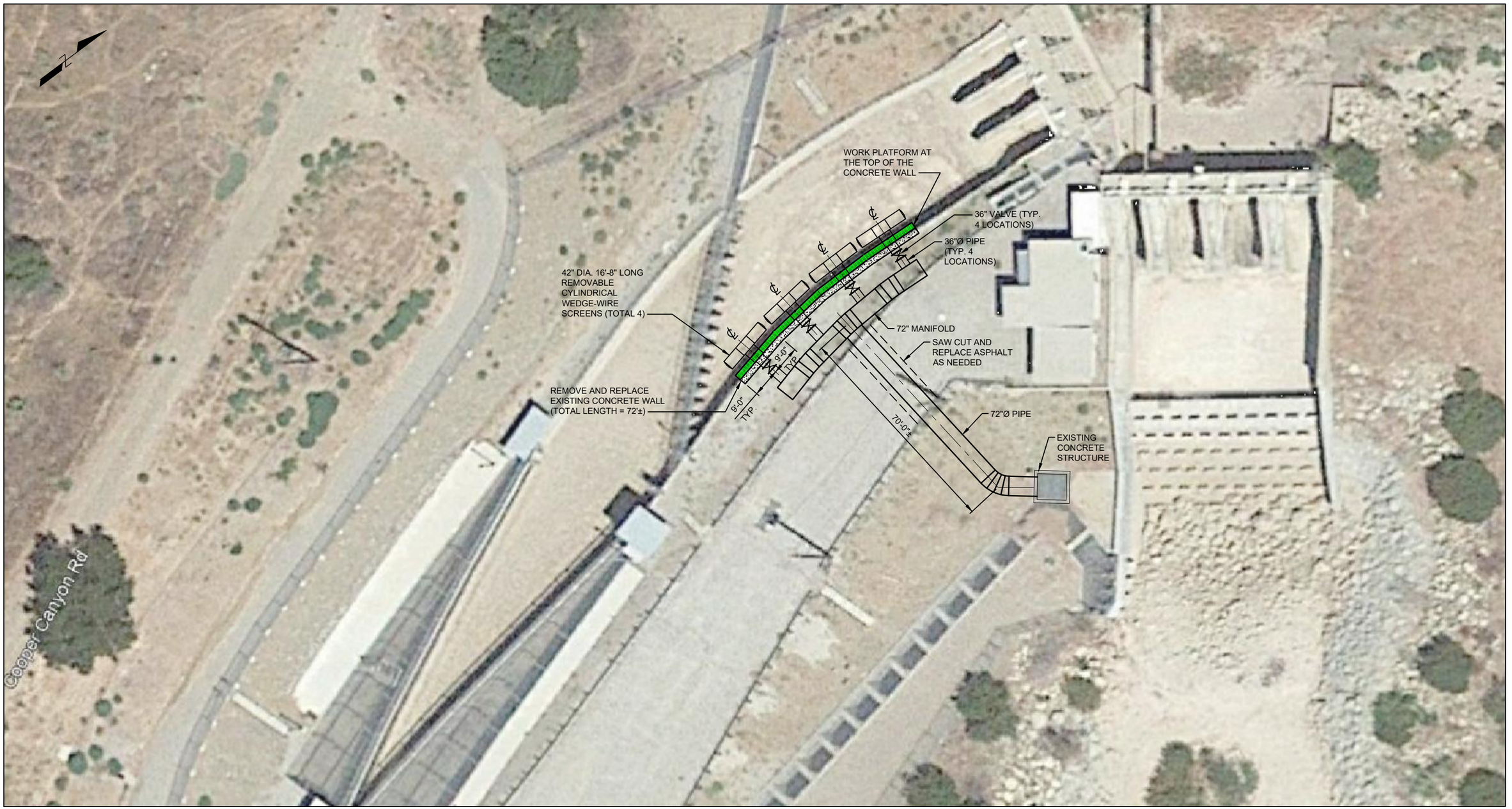

SITE PLAN

SCALE: 1' = 30'

1

-

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Robles Diversion Fish Screens
Alternatives Feasibility Study

Alternative 4
New Auxiliary Water Supply - Site Plan

FIGURE

4a

DWG: \\Mkn01\projects\Casitas\Casitas-2018-004 Robles Diversion Fish Screens Alternatives\300 Engineering\301 CAD\Exhibits\ALT 4a - Site Plan.dwg USER: JimF
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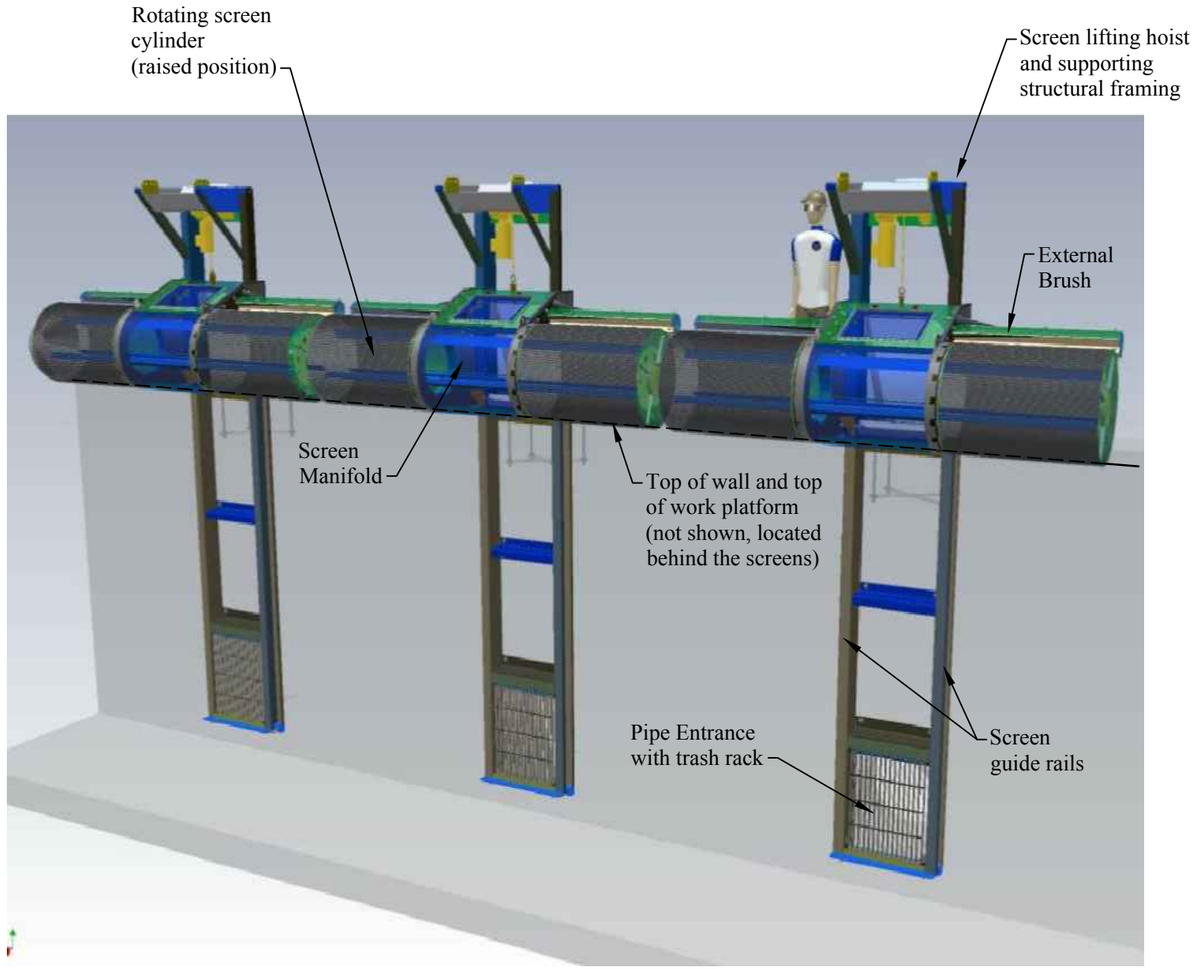
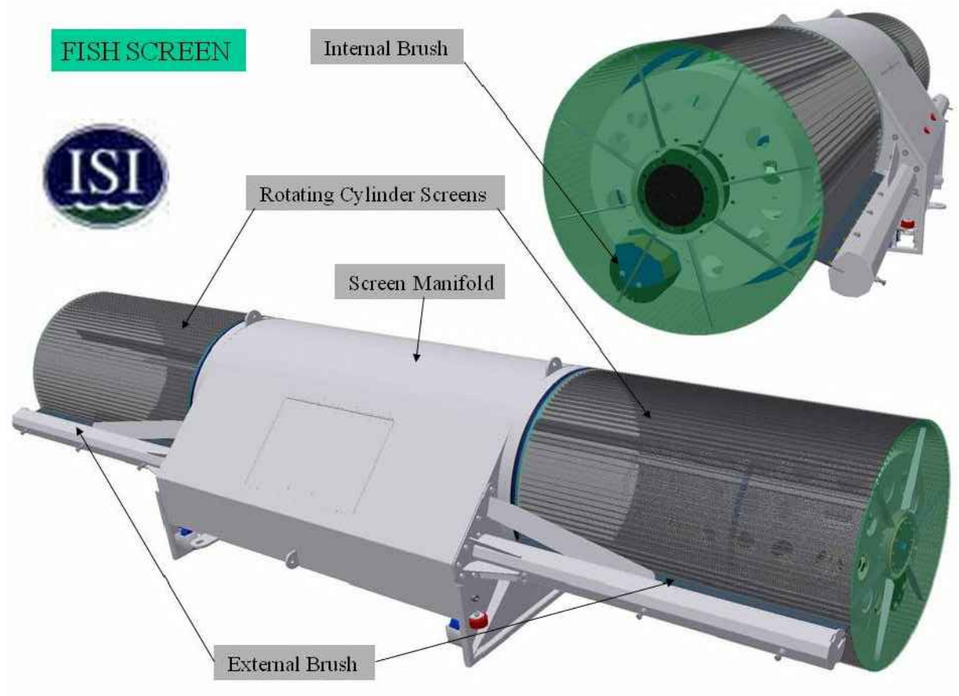


ELEVATION
NOT TO SCALE
1
-



REMOVABLE WEDGE-WIRE SCREEN DETAIL
NOT TO SCALE
2
-

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Robles Diversion Fish Screens
Alternatives Feasibility Study

Alternative 4
New Auxiliary Water Supply Details

FIGURE
4b

Appendix 2: Reference Projects

Project Name: Grain Camp Diversion
Project Owner/Operator/Manager: United States Fish and Wildlife Service (USFWS)
Location: Blitzen River, OR
Design Flow Rate: 303 cfs
Relevance to Robles Diversion Alternatives: Brush-cleaned V-screen diversion channel. Chain drive. Includes upstream fish passage.

Project Name: A Canal
Project Owner/Operator/Manager: United States Bureau of Reclamation (USBR)
Location: Klamath River, OR
Design Flow Rate: 1,150 cfs
Relevance to Robles Diversion Alternatives: V-screen diversion channel. Cable drive. Two brush arms per trolley. ESA-listed species.

Project Name: Stayton Salem Diversion
Project Owner/Operator/Manager: Santiam Water Control District
Location: North Santiam River, OR
Design Flow Rate: 750 cfs (385 cfs actual)
Relevance to Robles Diversion Alternatives: V-screen diversion channel with perf plate, not wedgewire. Cable drive. Larger sheave diameter. Metal sheave. Two trolleys per side. Two brush arms per trolley. Salmon and steelhead (ESA listed)

Project Name: Cowlitz Falls North Shore Fish Collector
Project Owner/Operator/Manager: Tacoma Power
Location: Cowlitz River, WA
Design Flow Rate: 500 cfs
Relevance to Robles Diversion Alternatives: Flat panel screens with water backwash. Hydrolox traveling water screens. Salmon and steelhead.

Project Name: NF Sprague Screen
Project Owner/Operator/Manager: Klamath Watershed Partnership
Location: North Fork of the Sprague River, OR
Design Flow Rate: 77 cfs
Relevance to Robles Diversion Alternatives: Flat panel screen with Chain Drive. Multiple brush arms.

Project Name: Round Butte Selective Withdrawal Structure
Project Owner/Operator/Manager: Portland General Electric
Location: Deschutes River, OR
Design Flow Rate: Present-day operation = 3,000 cfs; design capability = 6,000 cfs through the fish screen
Relevance to Robles Diversion Alternatives: Chain drive. Two brush arms per side. Salmon and steelhead

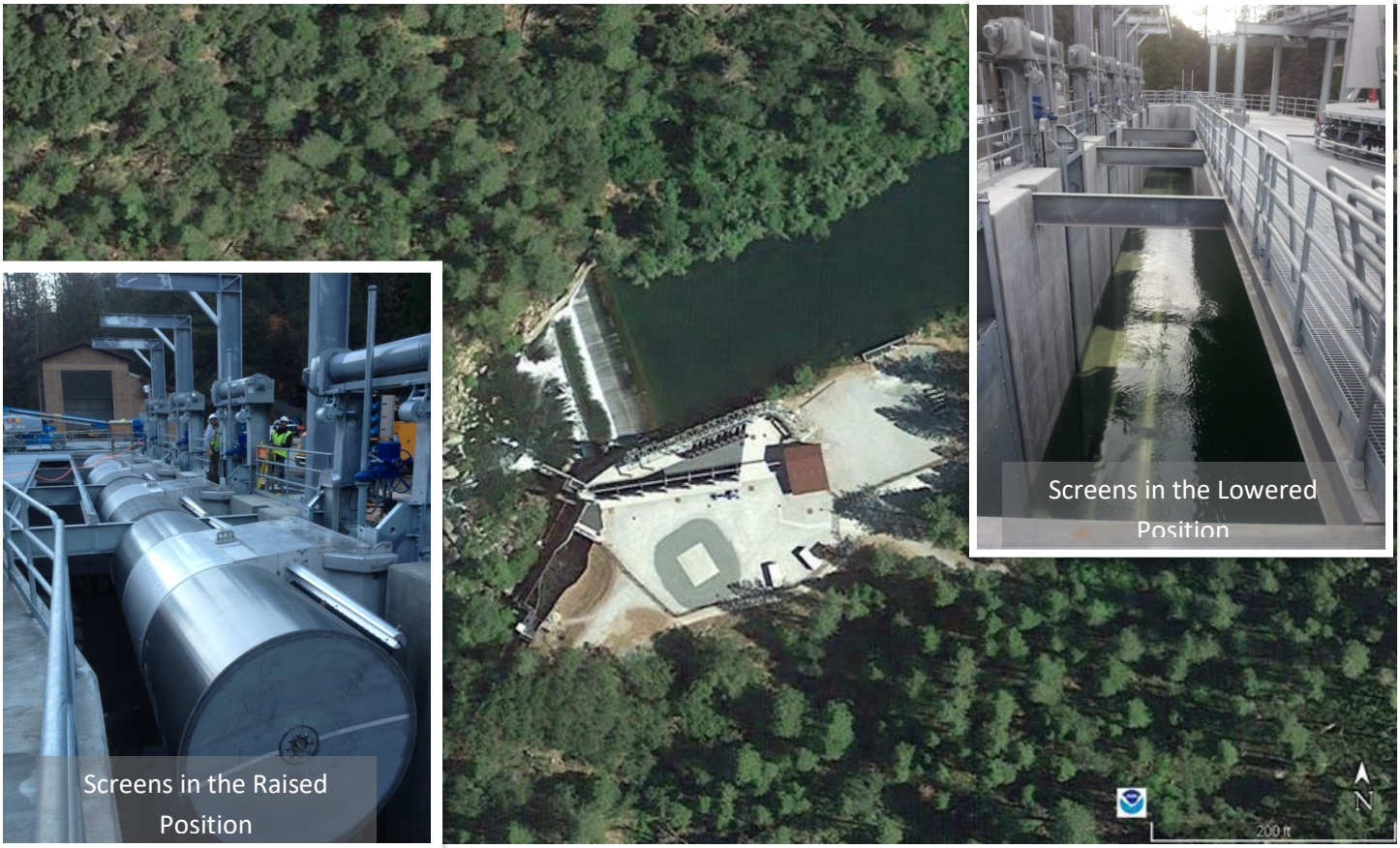
Chain Drive and Brush Trolley

Project Name: Salinas River Diversion Dam
Project Owner/Operator/Manager: Monterey County Water Resources Agency
Location: Monterey, CA
Design Flow Rate: 50 cfs
Relevance to Robles Diversion Alternatives: Retrievable brush cleaned cylindrical wedgewire screens. Steelhead

Cylindrical Wedgewire Screens

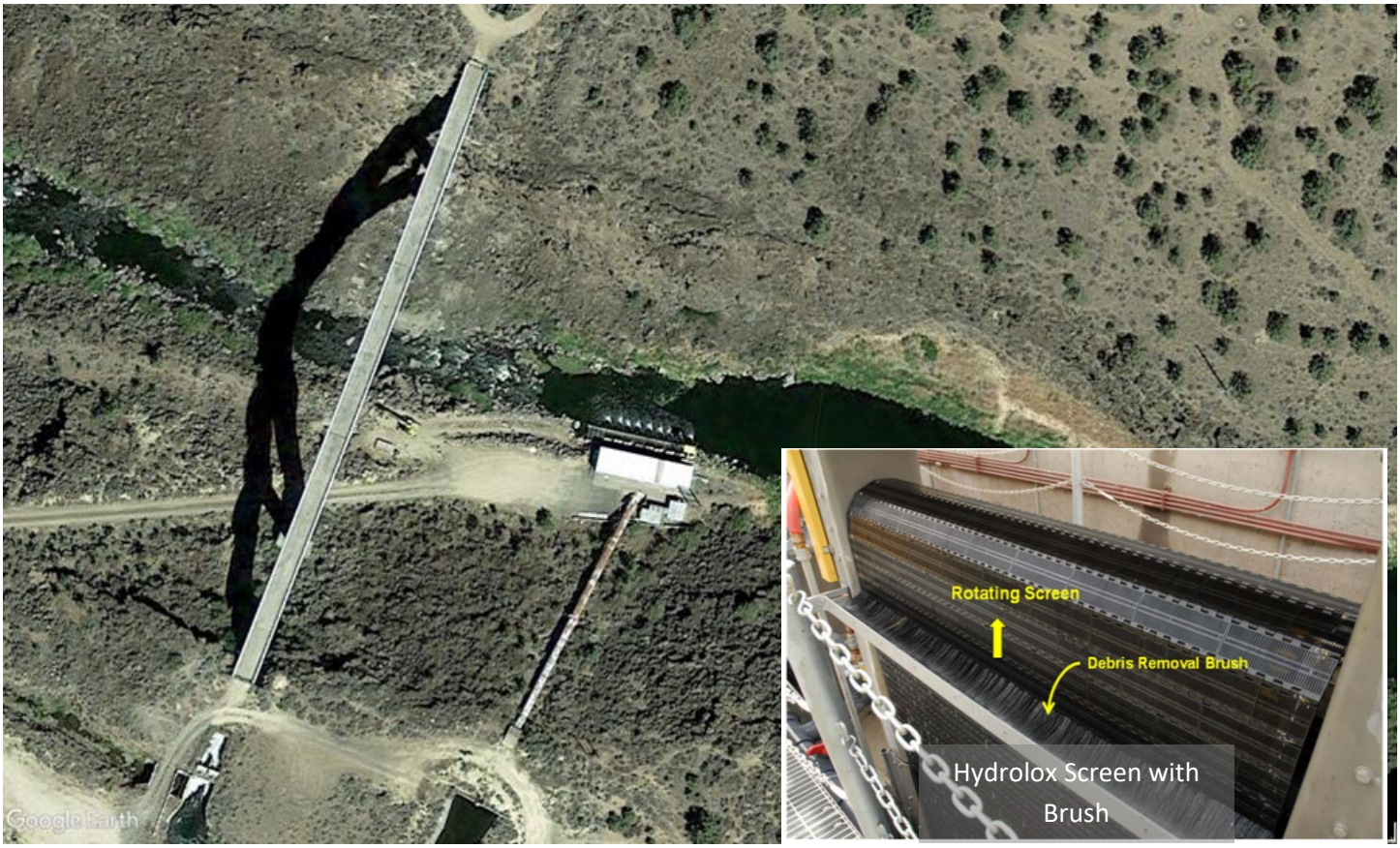
Screens in the Raised Position

Project Name: Stanislaus Tunnel
Project Owner/Operator/Manager: PG&E
Location: Sand Bar Dam, CA
Design Flow Rate: 550 CFS
Relevance to Robles Diversion Alternatives: Retrievable brush cleaned cylindrical wedgewire screens. Located in constructed channel



Project Name: Ray Canal-Little Wind
Project Owner/Operator/Manager: Wind River Irrigation Project
Location: Little Wind River, WY
Design Flow Rate: 350 cfs
Relevance to Robles Diversion Alternatives: Hydrolox screens angled towards a bypass

Project Name: Crooked River Pumping Plant
Project Owner/Operator/Manager: North Unit Irrigation District
Location: Crooked River, OR
Design Flow Rate: 200 cfs
Relevance to Robles Diversion Alternatives: Brush cleaned hydrolox screens



Project Name: Chester Hydropower Project
Project Owner/Operator/Manager: Fall River Rural Electric Cooperative and the Fremont-Madison Irrigation District
Location: Henry's Fork of the Snake River, ID
Design Flow Rate: (15, 11ft x 11ft screens split between 2 diversions)
Relevance to Robles Diversion Alternatives: Hydrolox screens angled to a bypass, no additional cleaning system.

Dewatered Canal with Hydrolox Screens

Project Name: San Antonio Creek Spreading Grounds Project
Project Owner/Operator/Manager: Ventura County Watershed Protection District (VCWPD)
Location: San Antonio Creek
Design Flow Rate: 30.3 cfs
Relevance to Robles Diversion Alternatives: Automatic backspray for the intake structure screen, approved by CDFW and NMFS.

Appendix 3: Biological Consideration and Constraints Analysis

Rincon Consultants, Inc.

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March 7, 2019
Project No: 18-06836

MKN Associates
Attn: Michael K. Nunley
530 Paulding Circle, Suite B
Arroyo Grande, CA 93420
Via email: mnunley@mknassociates.us

Subject: **Casitas Municipal Water District Robles Fish Screens Alternatives Feasibility Study, Biological Considerations and Constraints Analysis**

Dear Ms. Aranda:

Rincon Consultants, Inc. (Rincon) is pleased to submit the following Environmental Considerations and Constraints Analysis for the Fish Screens Alternatives Feasibility Study.

Casitas Municipal Water District (CMWD) operates the Robles Diversion Dam (Robles Diversion), which includes a fish passage and screening system that was installed in 2004. The Robles Fish Passage Facility (Facility) is located on the Ventura River, 2 miles downstream of Matilija Dam, in unincorporated Ventura County, California (34.464820°N, -119.291107°W). The project is in the Matilija U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). The Robles Diversion allows Ventura River flows to be diverted into the Robles Canal, which transports the flows to Lake Casitas for storage and ultimately municipal use.

Diverted water from the Ventura River passes through the Diversion Canal Headworks and into the Diversion Flume. Downstream of the Diversion Flume the water flows through the Fish Screen Channel and is screened via a Fish Screen Structure (V-screen system) (Figure 2). The V-screen system consists of two banks of fish screens, one on the east and one on the west side of the Facility and is located approximately 160 feet downstream of the Diversion Canal Headworks and Diversion Flume . Flow that is diverted to the Robles Canal must pass through a fish screen system that excludes fish from the Robles Canal. Once the screened water enters the canal, most of the screened water is conveyed to Lake Casitas, however, a portion of the screened water is re-routed from the canal to an auxiliary pipe to provide additional attraction flow at the fish ladder entrance gates to facilitate passage of adult steelhead through the diversion facility and upstream. The Robles Diversion is designed to take up to 671 cubic feet per second (cfs) from the river. At the maximum diversion rate, the flow would be distributed as follows:

- Fish ladder = 50 cfs
- Fish ladder auxiliary flow pipeline = 121 cfs
- Robles canal = 500 cfs

Following the Thomas Fire that occurred in December 2017, the volume of flow that could be diverted at Robles became limited due to blockage of the screen by debris and rapid wear of the screen cleaning equipment. The Fish Screen Channel and Diversion Flume, which runs approximately 295 feet (ft) from

the downstream end of the V-screen upstream to the Diversion Canal Headworks (Figure 2), received significant debris load during the two storm events in 2018. CMWD has implemented several incremental modifications to improve the screen cleaning performance, but is still not able to effectively divert water when the river flows and debris loads are high. The screen cleaning system is unable to keep the screens clear during high flow conditions when there is substantial debris in the river. When debris clogs the fish screens the headloss across the screens becomes high and the volume of flow that can be drawn through the screens and into the canal is reduced. In this scenario, CMWD can either withdraw water at a lower flow rate than the system is designed for, or CMWD staff can shut the system down to manually clean the screens and increase the withdrawal capacity. In both scenarios, the total volume of water diverted to Lake Casitas is less than the maximum allowed. Debris blockage on the fish screens during the peaks of big storms and even during normal diversion operations has resulted in reduced diversion rates, frequent shut downs for manual cleaning, or no water diversion during small magnitude and short duration storms.

CMWD, with support from Michael K. Nunley & Associates, Inc. (MKN) and their subconsultants Alden Research Laboratory (Alden) and Rincon Consultants Inc. (Rincon), is evaluating options to achieve maximum diversion at the Robles Diversion across the greatest range of river flows.

A broad list of potential measures to increase diversion capacity were analyzed in a Technical Memorandum (MKN 2019), and discussed with CMWD on February 14, 2019. Based on the analysis and results contained in the Technical Memorandum, and subsequent discussions with CMWD, the following four Alternatives were selected for further development in the feasibility study phase:

- **Alternative 1:** Improve existing fixed screen system and associated brush cleaner system
- **Alternative 2:** Install a fixed manifold backspray system to work in tandem with improved brush system (Alternative 1)
- **Alternative 3:** Replace the existing fixed screen system with traveling screens
- **Alternative 4:** Reduce load on the existing screen system by suppling the fish ladder auxiliary flow separately from the screened V-channel flow. Intended to be used in combination with Alternative 1.

Alternative 4 was selected for further evaluation in this Environmental Considerations and Constraints Analysis since it would face more significant regulatory agency review than the other alternatives. Alternative 4 proposes to reduce the load on the existing screen system by supplying the fish ladder auxiliary flow separately from the screened flow. When the existing fish screen/fish ladder configuration is diverting its maximum flow volume, up to 171 cfs that passes through the V-screen system is returned to the river downstream. Of this, only 50 cfs is needed to return the juvenile fish to the river downstream and allow adult fish to migrate upstream via the fish ladder. The auxiliary pipeline carries 121 cfs of screened water to entrance of the fish ladder for additional attraction flow. If the 121 cfs for the auxiliary water supply was conveyed via a dedicated pipeline directly from the river upstream, an additional 121 cfs could remain in the canal at peak discharge. The new fish ladder auxiliary flow intake would be located in the Diversion Flume, downstream of the Diversion Canal Headgates, but upstream of the V-screen system. The new auxiliary flow intake would be screened and designed to meet NMFS' criteria. Construction of the pipeline would simply remove the fish ladder auxiliary flow from the screened water supply effectively increasing the diversion yield to Lake Casitas by up to 121 cfs (~20% increase). Therefore, no functional change in fish passage conditions are anticipated to occur as a result of the construction of a new fish ladder auxiliary flow pipeline since the purpose of the pipeline would be the

same as the current auxiliary flow system: to provide a direct supply of water from the river upstream to the fish ladder entrance gates for attraction flow.

The purposes of this Environmental Considerations and Constraints Analysis are to provide an evaluation of major and minor environmental constraints to inform project design of Alternative 4, and outline the expected regulatory pathway for environmental compliance. Specifically, this analysis contains a summary of biological resources issues that could result from implementation of Alternative 4, and identifies biological survey recommendations (both general and protocol-level), potential state and/or federal regulatory and coordination requirements, and general mitigation recommendations and opportunities.

Alternative 4 would result in impacts to jurisdictional aquatic resources regulated by the Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW), and avoidance of these areas would likely be infeasible. These impacts would require permits from the above-mentioned agencies prior to initiating work in jurisdictional areas. Additionally, this option has potential to result in impacts to listed species and critical habitat, and would require consultation under the federal Endangered Species Act. The project is not likely to impact protected trees or special status plant species.

Project Description: Alternative 4

Alternative 4 proposes to reduce the load on the existing system by providing a separate fish ladder auxiliary water supply (AWS). Currently, the fish ladder auxiliary flow pipeline diverts up to 121 cubic feet per second (cfs) of screened water to the fish ladder entrance structure. This flow could be conveyed to the fish ladder through an alternate pipeline directly from the Diversion Flume upstream of the existing Fish Screen Channel. At this time, it is assumed that it is not possible to supply the auxiliary water using unscreened flow directly from the Ventura River upstream of the Diversion Canal Headworks as the National Marine Fisheries Service (NMFS criteria) for fish bypass could not be met within the physical constraints of the site.[1] Therefore, direct supply of water diverted from the Diversion Flume area within the Facility could be via a screened pipe having a dedicated cylindrical T-screen with an integral cleaning system. Removing the fish ladder auxiliary flow from the screened water supply effectively would either reduce the required maximum inflow to the V-screen channel by up to 121 cfs (~20% reduction) or allow an additional 121 cfs to be directed to the Robles Canal, where it is then directed to Lake Casitas. Reducing the inflow will reduce the rate at which debris accumulates on the V-screens and improve the chances that the cleaner system will be able to manage the debris or reduce the number of times that the V-screens need to be shut down for cleaning. It will also reduce the hydrodynamic load on the brush cleaner as it moves upstream at the maximum diversion rate. Preliminary project design plans anticipate that approximately 3,600 square feet of excavation would be required on the eastern side of the Diversion Flume to install the dedicated auxiliary pipeline water

[1] The reason that unscreened flow can't be used, regardless of whether the intake end of the auxiliary flow pipeline is located upstream or downstream of the Diversion Canal Headworks gate is due to the fact that the auxiliary water pipe discharges into the fish entrance box, where it then must pass through a diffuser before reaching the Ventura River downstream. If unscreened flow and fish enter the pipeline intake, the fish would either have to pass through the diffuser, or would get stuck on the upstream side of the diffuser, neither of which would meet NMFS criteria for passage.

supply. A cleared pad located southeast of the Fish Screen Structure, approximately 50-100 feet from the Ventura River, would be suitable for equipment and materials staging.

Methods

The environmental considerations and constraints analysis for Alternative 4 consisted of a review of relevant background literature, a query of resource agency databases, and a biological reconnaissance survey. This included an evaluation of the project site to determine if any sensitive biological and/or cultural resources were present that would result in constraints for implementation of the project. The methods used in the literature review and field surveys are provided below.

Literature Review

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPAC) system (USFWS 2019a), and Critical Habitat Portal (USFWS 2019b), and the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2019) were queried to establish a list of special status species previously documented in the project vicinity. The online Inventory of Rare Endangered Vascular Plants of California, California Native Plant Society (CNPS 2019) was reviewed. The results of these queries were used to determine whether any special status species, sensitive habitat, or jurisdictional waters are known to occur on or adjacent to the project site. The CNDDB records search of California special status species, CNPS search of rare plants, and the USFWS IPAC and Critical Habitat data for federally threatened and endangered species are presented in Attachment B. Observations are reported within a five-mile radius surrounding the project. The USFWS National Wetlands Inventory (NWI) Wetlands Mapper (USFWS 2019c) was utilized to determine wetland resources in the project area, and the Natural Resources Conservation Service Web Soil Survey (NRCS 2019) was queried to determine soil map units in the project area.

Field Reconnaissance Survey

A biological reconnaissance field survey was conducted by Rincon biologist Jaime McClain and botanist Robin Murray on August 10, 2018. In addition, a follow-up survey was conducted on December 13, 2018 by Rincon biologist Lindsay Griffin, to document current existing conditions. Both surveys included the Facility, areas associated with the project and a 200-foot buffer surrounding the proposed area to be excavated (referred to as the impact area) (Figure 2). For the initial survey, the project site was accessed via a dirt road from Rice Road. A cleared pad is located southeast of the Fish Screen Structure, approximately 50-100 feet from the Ventura River, would be suitable for equipment and materials staging. The survey focused on sensitive flora and fauna species, including an assessment of the potential for special status species and/or habitats to occur.

Ms. McClain and Ms. Murray walked meandering transects throughout the survey area and visually inspected the area with binoculars. Drainage features and riparian habitat were noted. For the purposes of this report, the survey area includes the Facility, an upland staging site adjacent to the Fish Screen Structure, and a 200-foot buffer surrounding the impact area (area to be excavated on the east side of the Diversion Flume area) (Figure 2).

Results

A total of 13 special status plant species have been recorded from the project region. No special status plant species were observed within the survey area. Special-status plant species have specialized habitat requirements, including plant community types, soils, and other components. The concrete-lined Facility, driveways and disturbed areas used for staging sites generally lack these requirements. Based on the lack of suitable habitat within the survey area, no sensitive plants are expected to occur within the survey area.

Several plant communities and land cover types occur within the survey area. The Facility is hardscaped with concrete and metal and surrounded with a chain-link fence. The Facility is surrounded by gravel base and disturbed bare ground. Vegetation occurs within the concrete-lined Diversion Flume and Fish Screen Channel consisting of native cattails (*Typha* sp.). The habitat in uplands west of the Facility, beyond the chain-link fence is predominantly laurel sumac (*Malosma laurina*) scrub, a native California vegetation community. East of the Fish Screen Structure is a disturbed area that was created during Facility construction (it includes the soil deposition site) and contains a gravel base and scattered non-native species including Russian thistle (*Salsola* ssp.) and tocalote (*Centaurea melitensis*). A natural earthen berm borders a disturbed area on the eastern side. In addition, the eastern edge of this disturbed area borders a riparian strip comprised of individual coast live oak (*Quercus agrifolia*) and sycamore (*Platanus racemosa*) trees that occur along the west bank of the Ventura River. Residential properties and agricultural lands extend eastward from the east bank of the Ventura River floodplain. The Ventura River floodplain broadens downstream of Facility, to the west. The survey area is predominately characterized as disturbed due to the recent fire, but still supports remnant patches of laurel sumac scrub. A list of plants observed within the survey area is presented in Table 1 below.

Table 1 Survey Area Plant List

Scientific Name	Common Name	Origin
Amsinckia sp.	Fiddleneck	native
Avena barbata	slender wild oat	non-native
Baccharis salicifolia	Mulefat	native
Brassica nigra	black mustard	non-native
Brickellia californica	Brickelbush	native
Bromus madritensis	red brome	non-native
Centaurea melitensis	Tocalote	non-native
Corethrogyne filaginifolium	common sandaster	native
Cynodon dactylon	Bermuda grass	non-native
Datura wrightii	jimson weed	native
Eriodictyon crassifolium	yerba santa	native
Eriogonum fasciculatum	California buckwheat	native
Eucalyptus sp.	Eucalyptus	non-native
Foeniculum vulgare	Fennel	non-native
Galium aparine	Bedstraw	native
Gilia sp.	Gilia	native
Helianthus annuus	slender sunflower	native
Hirschfeldia incana	short podded mustard	non-native
Lepidospartum squamatum	scale broom	native
Malosma laurina	laurel sumac	native
Mentzelia sp.	blazing stars	native
Navarretia atractyloides	holly leaf navarretia	native
Quercus agrifolia	coast live oak	native
Salix lasiolepis	arroyo willow	native
Salsola ssp.	Russian thistle	non-native
Salvia mellifera	black sage	native
Schismus arabicus	Arabian schismus	non-native
Stipa miliacea	smilo grass	non-native
Typha sp.	Cattail	native
Xanthium strumarium	Cocklebur	native

A total of 13 special status animal species have been recorded from the project region based on database records. Special status wildlife species typically have specific habitat requirements that include vegetation communities, elevations, topography, and availability of primary constituent elements (i.e., space for individual and population growth, breeding, foraging, and shelter). During the field surveys, no federal or state listed species were observed or otherwise detected within the survey area. However, seven special status wildlife species were determined to have a moderate potential to occur in the survey area:

- Steelhead – Southern California DPS (*Oncorhynchus mykiss irideus*). Federally endangered, State Species of Special Concern
- California red-legged frog (*Rana draytonii*). Federally threatened, State Species of Special Concern
- Western pond turtle (*Emys marmorata).* State Species of Special Concern
- San Bernardino ringneck snake (*Diadophis punctatus modestus*). State Special Animal
- Coast patch-nosed snake (*Salvadora hexalepis virgultea).* State Species of Special Concern
- Coast horned lizard (*Phrynosoma blainvillii*). State Species of Special Concern
- Two-striped garter snake (*Thamnophis hammondii*). State Species of Special Concern

The survey area occurs within southwestern willow flycatcher (*Empidonax traillii extimus;* [SWFL]) critical habitat, although the survey area does not have the Primary Constituent Elements (PCEs) needed for SWFL. PCEs required for SWFL include dense riparian vegetation not present in the survey area due to the recent fire. The federally and state endangered least Bell's vireo (*Vireo belli pusillus*) is known to occur in the Ventura River watershed. Due to the recent fires, the survey area lacks dense riparian habitat capable of supporting least Bell's vireo, and the potential for occurrence of the species is low. Although the species has been recorded in the Ventura River watershed, the project would have no effect on the species since the habitat within the survey area does not provide habitat that would support it.

The hoary bat (*Lasiurus cinereus*) has a low potential to occur in the survey area. Suitable foraging habitat for the species occurs within the survey area adjacent upland laurel sumac scrub habitat west of the Facility. Impacts could occur if project activities occur adjacent to maternity roosts during the breeding season, because unlike adult bats, juvenile bats are unable to escape impacts. However, as a winter migrant the hoary bat does not commonly form maternity roosts in California. The proposed project does not include removal or trimming of trees or vegetation, therefore, the project has been designed to avoid impacts to the species' roosting habitat. In addition, the hoary bat requires a permanent water source. Water is present within the Ventura River above and below the Facility. Project activities could impact foraging bats if nighttime work occurs, as the species is nocturnal and forages at night. Foraging bats are expected to evade impact areas with the onset of disturbance.

The survey area provides suitable habitat for wildlife species that commonly occur in semi-rural, residential areas. However, the Facility is surrounded by a chain-link fence, and suitable habitat for most wildlife does not occur within the Facility and immediate surrounding area. The wildlife species detected onsite are common, widely distributed, and adapted to living in proximity to human development. Common avian species detected on or adjacent to the site include Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhyncos*), acorn woodpecker (*Melanerpes formicivorus*), California quail (*Callipepla californica*), and house finch (*Haemorhous mexicanus*). Other wildlife species observed include western fence lizard (*Sceloporus occidentalis*), western brush rabbit (*Sylvilagus bachmani*), and California ground squirrel (*Otospermophius beecheyi*).

Attachment C provides representative site photographs taken during the field surveys.

Federal and State Listed and Fully Protected Species

Steelhead – Southern California Distinct Population Segment (DPS) (Oncorhynchus mykiss Irideus): Federally Endangered, State Species of Special Concern

The CNDDB lists one sensitive natural community in the nine quadrangles that surround the survey area (Attachment B). This mapped community, Southern California steelhead stream, reflects the Ventura River within the study area. Ventura River is designated Southern California DPS steelhead (steelhead) critical habitat, and the survey area does include several of the Primary Constituent Elements (PCEs) needed for steelhead. PCEs required for steelhead include adequate fresh water to support a migration corridor and access to spawning sites, both which are present within the survey area during average to above average rain years. While the species occurs in areas above the Facility, their access to the Ventura River above the Facility has been limited in recent years because of extended drought. However, as of this writing more than 19 inches of rainfall has been recorded during the 2018/2019 rain season; therefore, it is likely that southern California steelhead could be present within the project site if adequate freshwater is available to support a migration corridor and access to spawning sites. As favorable hydrologic conditions appear likely, this analysis conservatively assumes that the species occurs within the survey area. Fish passage monitoring conducted by CMWD at the diversion has detected 11 steelhead adults passing the facility with the last detection occurring in 2010.

California Red-legged Frog (Rana Draytonii: Federally Threatened, State, Species of Special Concern

Dispersal or movement of California red-legged frog (CRLF) within the watershed may have occurred in the 2018 and 2019 rainy season following high flow events. The upstream portion of the Ventura River (above the Facility) may provide suitable habitat for aquatic and semi-aquatic species including CRLF, although none were observed. CRLF critical habitat occurs less than one-mile from the project site and the Diversion Flume area provides marginal aquatic breeding habitat for the species, consisting of permanent sources of standing freshwater. There is one record from 1999 for CRLF in the watershed above Matilija Lake, approximately 3 miles from the Facility (CNDDB 2019), however, a single CRLF tadpole was reportedly found in 2010 approximately one mile downstream of the diversion during steelhead surveys conducted by Normandeau and Associates. Multiple records for this species were recorded in the San Antonio Creek watershed in 2016, some as close as about 4 miles from the survey area (CNDDB 2019). However, the CRLF in San Antonio Creek would have had to traverse considerable distance (approximately 2 miles, greater than is commonly recognized for this species) and move upstream to reach the Diversion Flume and Fish Screen Channel. This journey would be difficult to accomplish and there is little likelihood that CRLF reached and now occupy the Facility. However, given the recent catastrophic fire event and the subsequent rainstorms, CRLF dispersal or movement within the watershed may have occurred following the 2018-2019 rain season within reaches of the river that typically do not provide favorable habitat for CRLF. High river flows during these rain storms could have transported CRLF of all life stages downstream from known populated areas higher in the Ventura River watershed. Therefore, the species may occur in the impact area and could be affected by the project.

Special Status Terrestrial Species

Western Pond Turtle (Emys Marmorata): State Species of Special Concern

Dispersal or movement of western pond turtle (WPT) within the watershed may have occurred in the 2018 and 2019 rainy season following high flow events. The upstream portion of the Ventura River (above the Facility) may provide suitable habitat for WPT, although none were observed. The WPT is thoroughly aquatic and is commonly found in ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. The species requires basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometers from water for egg-

laying. Three separate sightings of WPT were recorded in April 2010 and 2013 at the confluence of Ventura River and Matilija Creek, approximately 1.5 river miles upstream of the Facility (CNDDB 2019). High river flows, following the Thomas Fire, could have transported turtles downstream from populated areas higher in the Ventura River watershed. Therefore, the species may occur in the study area and within the Diversion Flume and Fish Screen Channel area. WPT are highly aquatic, and would be expected to survive in the Diversion Flume and Fish Screen Channel, and could be affected by the project if they are present in areas where excavation is planned to occur.

Special Status Reptile Species

San Bernardino ringneck snake, coast patch-nosed snake, coast horned lizard, and two-striped garter snake have a moderate potential to occur in natural habitats in the survey area, however, no suitable habitat occurs within the proposed impact area. These species have been known to occur within the Ventura River, and documented occurrences of the species have been recorded within 5 miles of the Facility. Therefore, the species may occur in the survey area, but would not be expected to occur within the impact area and would not be affected by the project.

California Fish and Game Code and Migratory Bird Treaty Act

The survey area contains potentially suitable nesting habitat for birds protected under California Fish and Game Code Section 3503 and the Migratory Bird Treaty Act (MBTA). The survey was conducted outside of the usual breeding and nesting season for resident and migratory birds. No active nests or birds exhibiting breeding behavior (e.g., courtship displays, copulation, vegetation or food carries, presence of fledglings, or territorial displays) were observed within the survey area. Tall eucalyptus trees that occur approximately 100 feet north of the Facility could support nesting raptor species, however no large stick nest structures were observed in the trees. The project is not anticipated to affect nesting bird or raptor species since no vegetation would be removed that could support nesting birds. Pre-construction surveys would most likely be required prior to construction activities. Construction should be scheduled outside of the nesting season (typically February 1 through August 31) for special status birds, if possible, to avoid potential permit limitations.

CEQA Compliance Analysis

The project would be required to comply with the California Environmental Quality Act (CEQA). Based on our understanding of the project, Alternative 4 could potentially qualify for a Statutory Exemption from CEQA under Emergency Projects if the project is considered “emergency repairs to publicly or privately owned service facilities necessary to maintain service essential to the public health, safety, or welfare” (CEQA Guidelines Section 15269(b)). CEQA Guidelines Section 15269(b) defines emergency repairs as repairs that “include those that require a reasonable amount of planning to address an anticipated emergency.” Rincon believes the project could be considered an emergency project based on our understanding the project is required to ensure adequate amounts of water are conveyed to Lake Casitas for use as potable water as a matter of public health, safety, and welfare.

Alternative 4 would likely also qualify for a Class 3 Categorical Exemption from CEQA. Per CEQA Guidelines Section 15303,

> *Class 3 consists of 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.

CEQA Guidelines Section 15303(d) states "water main, sewage, electrical, gas, and other utility extensions, including street improvements, of reasonable length to serve such construction" can qualify for a Class 3 Categorical Exemption. For the project to be categorically exempt from CEQA, the project cannot cause/result in any of the Exceptions listed in CEQA Guidelines Section 15300.2. Specifically, a project cannot be categorically exempt from CEQA if the project would result in: a significant cumulative impact, a significant effect of the environment due to unusual circumstances, damage to scenic resources within a highway officially designated as a state scenic highway, and/or a substantial adverse change in the significance of a historical resource. The project also cannot be located on a site that is listed as a hazardous waste site pursuant to Section 65962.5 of the Government Code.

Rincon recommends CMWD, as the CEQA lead agency, pursue an exemption from CEQA using both the aforementioned Statutory Exemption (under Emergency Projects) and the Class 3 Categorical Exemption. If, however, it is later determined the project would not qualify for exemption from CEQA (e.g., if the project is not considered an emergency project or the project falls under one of the exceptions to being categorically exempt), Alternative 4 will require preparation of an Initial Study (IS) and a Mitigated Negative Declaration (MND) or Environmental Impact Report. Based on preliminary evaluation, a MND would likely be appropriate, as all potential impacts currently appear mitigable to a less than significant level. CEQA documentation would be supported by necessary environmental technical studies. Anticipated key issues for CEQA compliance would likely be limited to biological resources and water quality (during construction).

CMWD would be the lead agency under CEQA for the project (Public Resources Code Section 21067) and would therefore be responsible for complying with CEQA. CEQA compliance documentation would be approved by CMWD and could be relied upon by other local or State agencies from which permits/approvals are required.

Resource Permitting Analysis

Construction of the fish ladder auxiliary flow pipeline is not expected to result in an increased Facility footprint in the Ventura River; however, the Facility itself is located on the Ventura River. All excavation associated with installation of the pipeline would be performed on the east side of the existing concrete-lined Diversion Flume area, upstream of the V-screens. Approximately 3,600 square feet of excavation would be required to implement Alternative 4. Ventura River is subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW because it is a tributary to the Pacific Ocean, a navigable water. Therefore, permitting for jurisdictional waters is anticipated. If the project would be initiated as an "emergency project", emergency permit applications would be prepared.

This section details the role of a range of outside agencies potentially involved in the environmental regulatory process for the project, as well as the permitting processes that could apply.

Jurisdictional Resources Permitting

U.S. Army Corps of Engineers

Alterations to Waters of the U.S. (non-wetland waters over which the USACE has jurisdiction) may take place if Alternative 4 is pursued. Therefore, a Clean Water Act Section 404 Permit would be required from the USACE. In this case, the project would likely qualify for coverage under Nationwide Permit 7 (NWP 7, Outfall Structures and Associated Intake Structures), which authorizes activities related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted by, or otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act). A formal Jurisdictional Delineation would be required. Compensatory mitigation is required as part of this Nationwide Permit per the Compensatory Mitigation for Losses of Aquatic Resources Final Rule (33 CFR Part 332), commonly referred to as the "mitigation rule." Compensatory mitigation is typically only required if there's a permanent loss of waters(i.e. loss of acreage or loss of depth within the Diversion Flume area as a result of fill).

Compensatory mitigation for loss of aquatic resources may be satisfied with the purchase of credits from an approved mitigation bank or an in-lieu fee program. Mitigation banks and in-lieu fee programs are generally the preferred options for mitigation because they consolidate resources and involve more financial planning and scientific expertise. The Ojai Valley Land Conservancy has a USACE-approved in-lieu fee mitigation program in place for the Ventura River and credits typically range between $170,000 to $200,000 per acre. Implementation of Alternative 4 is not likely to result in permanent loss of waters since the new screens associated with the intake end of the auxiliary flow pipeline have been designed to hang into the Diversion Flume area.

A typical timeframe to obtain coverage under a nationwide Section 404 Permit is 4-6 months following submittal. The typical cost for preparation and submittal of a Nationwide Permit Pre-Construction Notification is between $4,000 and $6,000. This assumes the Section 7 consultation[2] for this project has been handled by the Bureau of Reclamation (BOR) already.

Regional Water Quality Control Board

The USACE's authorization of the project under Nationwide Permit 7 would require issuance of a Section 401 Water Quality Certification by the Los Angeles Regional Water Quality Control Board. The typical timeframe to obtain a 401 Certification is 4-6 months following submittal. The typical cost for preparation and submittal of a 401 Certification application is between $4,000 and $6,000.

California Department of Fish and Wildlife (CDFW)

The CDFW issues Lake or Streambed Alteration (LSA) Agreements when project activities have the potential to impact intermittent and perennial streams, rivers, or lakes. Based on the nature of the project, it is likely an LSA would be required if Alternative 4 is pursued. The typical cost for preparation and submittal of a LSA Agreement Notification is between $4,000 and $6,000. For projects in fish-

[2] Section 7 consultation would be for the construction of the prefer alternative and shouldn't open up and require modifications to the current Biological Opinion for operations and maintenance at the Robles Diversion facility.

bearing streams, the LSAA will be reviewed by CDFW's fisheries biologists and possibly passage engineers, which adds time and cost.

Endangered Species Permitting

Based on a California Natural Diversity Database query and brief reconnaissance site visits performed on August 10, 2018 and December 13, 2018, it is Rincon's determination that there is the potential for incidental take of species listed under the federal Endangered Species Act within the proposed project area. Therefore, the project would be subject to permitting for potential impacts to federal-listed species. Although the survey area does not provide high quality breeding habitat for California red-legged frog (CRLF, *Rana draytonii*, federally threatened), the potential of the species to use Ventura River as a transitory corridor cannot be excluded. A protocol CRLF survey is recommended given the presence of water and vegetation in the Diversion Flume, Fish Screen Channel, and forebay and the known presence of CRLF in the watershed. For a project of this size, the typical cost of a CRLF protocol survey and associated report is $20,000. Since steelhead have been detected in the immediate diversion area, construction at the diversion could cause incidental take of endangered steelhead. Construction activities scheduled during the dry season could avoid or substantially reduce effects to steelhead.

If project implementation is determined to potentially result in impacts to federal-listed species, permits from resource agencies will be required prior to modifying potential endangered species critical habitat within the project area. There are multiple ways to accomplish this permitting process, which vary in the time required and potential cost. Based on project details and timing, informal consultation with agencies may aid in identifying the best option.

United States Fish and Wildlife Service and National Marine Fisheries Service

CMWD should coordinate with BOR regarding changes to the diversion screen or operating system. The 2003 Biological Opinion was issued by National Marine Fisheries Service (NMFS) to the BOR for the construction and future operation of the Robles Fish Passage Facility. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately. The consultation would be handled between BOR and NMFS, although technical information about the proposed changes would likely be requested from CMWD.

Rincon expects that CMWD/BOR would enter into informal consultation with both NMFS and USFWS to determine whether or not the action would affect federally listed species or designated critical habitat as a result of construction of the fish ladder auxiliary pipeline within the concrete-lined Diversion Flume area. Section 7 of the federal ESA provides endangered species "take" coverage when a "federal nexus" occurs, or when two different federal agencies (USACE and USFWS for example) are involved. Early (informal) coordination is recommended to facilitate the Section 7 consultation process. If a listed species is present and an action may affect it, consultation may be required. If the Federal agency determines a project is likely to adversely affect a listed species or critical habitat, the agency initiates formal consultation. The ESA requires consultation be completed within 90 days. The regulations allow

an additional 45 days for the NMFS and USFWS to prepare a biological opinion (BO). The analysis of whether or not the proposed action is likely to jeopardize the continued existence of the species is contained in a BO. If a jeopardy determination is made, the BO must identify any reasonable and prudent alternatives to move the project forward. The following provides the general requirements and associated tasks, as well as estimated timing and potential costs associated with Section 7 consultation.

- Would provide federal endangered species coverage and impacts to BOR jurisdiction for potential impacts to federally protected species
- Major tasks: Assembly of background materials, Biological Assessment and assistance with consultation
- Need project design plans prior to application
- Timeframe: 6 to 9 months
- Cost: ~ $8,000 - $10,000 (assumes no additional studies (i.e. hydrological studies, etc.) would be required by NMFS)

California Department of Fish and Wildlife

A Section 2081 Incidental Take Permit is required when there may be potential impacts to state listed wildlife species. No state listed species are expected to be present within the impact area. If a listed species is present and an action may affect it, consultation may be required. The following provides the general requirement and associated tasks, as well as estimated timing and potential costs associated with permit acquisition.

- Required for potential impacts to state protected wildlife species
- Major tasks: Assembly of background materials and assistance with consultation
- Need project design plans prior to application
- Timeframe: 6 to 12 months
- Cost: ~ $5,000 - $7,500 (assumes one pre-construction survey and report for nesting birds, and implementation of buffers to avoid potential "take" of nesting birds).

Protected Trees

The Ventura County Tree Protection Ordinance requires a permit be obtained for the removal, alternation, or encroachment into the tree protection zone (TPZ) of a protected tree. Protected trees are defined as oaks (*Quercus)* and sycamores (*Platanus*) over 9.5 inches in circumference (3-inch diameter at breast height [dbh]) (or 6.25 inches circumference [2-inch dbh] for multi-stemmed oaks). In the unincorporated non-coastal zone, this ordinance protects most native tree species over 9.5 inches in circumference (3-inch dbh). Heritage Trees (any species of tree with a single trunk of 90 or more inches in girth [28.6-inch dbh] or with multiple trunks, two of which collectively measure 72 inches in girth [23-inch dbh] or more) and Historical Trees (any tree or group of trees identified by the county or a city as a landmark, or identified on the federal or California Historic Resources Inventory to be of historical or cultural significance, or identified as contributing to a site or structure of historical or cultural significance) are also protected.

Ministerial tree permits are generally allowed if the tree interferes with public utility facilities, as certified by a qualified tree consultant. However, a discretionary permit is required for impacts to heritage or historical trees, impacts to more than 6 protected trees or more than 4 protected oaks or sycamores, and must include an arborist report by an International Society of Arboriculture (ISA)

certified arborist. Mitigation is also generally required for impacts to protected trees. Mitigation can involve a range of options, including on-site or off-site tree replacement, off-site land acquisition for the purpose of tree protection, or in-lieu fee paid directly to the County. The cost of mitigation can vary, depending on the degree of tree impacts required mitigation. Implementation of Alternative 4 is not anticipated to result in impacts to protected trees.

Conclusions and Recommendations

Alternative 4 would result in impacts to jurisdictional aquatic resources regulated by the USACE, RWQCB, and CDFW, and avoidance of these areas would likely be infeasible. These impacts would require permits from the abovementioned agencies prior to initiating work in jurisdictional areas. Additionally, this option has potential to result in impacts to listed species and critical habitat, and would require consultation under the federal Endangered Species Act. The project is not likely to impact protected trees or special status plant species. Therefore, while some biological resources would be avoided, implementation of Alternative 4 would result in substantial permitting and mitigation costs, and potential delays due to initiation of consultation with the Federal agencies as a result of its limitations for avoidance of many sensitive biological and jurisdictional resources.

In addition to the permit conditions required by the resources agencies (USACE, RWQCB, and CDFW), recommendations for mitigation measures to reduce impacts to biological resources resulting from implementation of Alternative 4 are summarized below.

BIO-1 CRLF Pre-Construction Survey

Prior to ground disturbing activities within the Diversion Flume area, flows will be re-routed through the spill gate, and CMWD or their contractor(s) or representative(s) will conduct surveys to ensure there are no CRLF in the Facility. Per USFWS guidance (USFWS 2005), because site specific conditions may warrant modifications to the timing of survey periods for CRLF, approval for modified survey from USFWS must be obtained by CMWD, their contractor(s), consultants, or representative(s) prior to conducting the planned surveys.

a. If CRLF is detected during the project, the observer shall notify the USFWS and CDFW biological staff within one work day of the detection and further consultation with the agencies will be conducted to determine the course of action before proceeding with work.

BIO-2 Steelhead Pre-Construction Survey

For avoidance of effects to steelhead, and before flows to the Diversion Flume and Fish Screen Channel are stopped, as deemed appropriate by the CMWD Fisheries Program Manager, CMWD's staff will conduct a "bank" and/or snorkel survey at the Facility for *O. mykiss* prior to action to dry the Diversion Flume and Fish Screen Channel. If *O. mykiss* are observed, further consultation with NMFS will be conducted to determine the course of action before proceeding with work.

BIO-3 Pre-Construction Wildlife Surveys

Within one week prior to the commencement of project activities, a qualified wildlife biologist shall conduct pre-construction surveys in all impact areas (Diversion Flume, staging area, and access route) with focus on special status species including San Bernardino ringneck snake, coast patch-nosed snake, coast horned lizard two-striped garter snake, western pond turtle and hoary bat.

A qualified biologist will conduct a survey within the impact area locations and document existing conditions and search for special-status species. If San Bernardino ringneck snake, coast patch-nosed snake, coast horned lizard two-striped garter snake, western pond turtle are found in harm's way, individual animals shall be relocated to similar habitat away from construction activities, at least 200 feet from impact areas.

BIO-4 Nesting Bird Season Avoidance

To avoid disturbance of nesting and special-status birds, including raptor species protected by the MBTA and CFGC 3503, activities related to the project including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season for migratory birds (February 1 through August 31), if practicable.

BIO-5 Nesting Birds

If project activities must begin during the breeding season, then a pre-construction nesting bird survey shall be conducted no more than seven days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot inside the impact area, including a 100-foot buffer (300-foot for raptors), and in inaccessible areas (e.g., private lands) from afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground-disturbing activities shall occur inside this buffer until the avian biologist has confirmed that breeding/ nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

BIO-6 Night Construction Avoidance

Night-time work should be avoided as feasible, to avoid impacts to bats and other wildlife in the area.

BIO-7 Disturbance Area

Areas of temporary disturbance shall be minimized to the extent practicable.

BIO-8 Staging Equipment

Staging and laydown areas shall be unvegetated areas and previously disturbed sites.

BIO-9 Pollutant Management

All vehicles and equipment shall be in good working condition and free of leaks. The contractor shall prevent oil, petroleum products, or any other pollutant from contaminating the soil or entering a watercourse (dry or otherwise). When vehicles or equipment are stationary, mats or drip pans shall be placed below vehicles to contain fluid leaks.

BIO-10 Material Storage

Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage. Material storage shall be at least 100 feet from flowing water that could come in contact with Ventura River. Any material/spoils from project activities shall be located and stored 100 feet from potential jurisdictional areas as practicable. Construction materials and spoils shall be protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

BIO-11 Tracking Loose Material

Implement Best Management Practices (BMPs) to prevent the off-site tracking of loose construction and landscape materials such as sweet sweeping, vacuuming, and rumble plates, as appropriate.

BIO-12 Pollution Prevention

Prevent the discharge of silt or pollutants off of the site when working adjacent to potentially jurisdictional waters. Install BMPs (i.e., silt barriers, sand bags, straw bales) as appropriate.

BIO-13 Site Materials and Refuse Management

All food related trash shall be disposed of in closed containers and removed from the project area each day during the construction period. Construction personnel shall not feed or otherwise attract wildlife to the construction area. At project completion, all project-generated debris, vehicles, building materials, and rubbish shall be removed from the impact area.

BIO-14 Re-fueling and Maintenance

All re-fueling, cleaning, or maintenance of equipment will occur at least 100-feet from potentially jurisdictional waters.

BIO-15 Responding to Spilled Materials

Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned, and any contaminated materials properly disposed. For all spills, the project foreman or other designated liaison will notify the Casitas Municipal Water District immediately.

Additional Alternatives

Three additional Alternatives (1-3) have been proposed that may reduce overall project costs and pre-project planning timelines. The following three alternatives were proposed in the Technical Memorandum for consideration:

- **Alternative 1:** Improve existing fixed screen system and associated brush cleaner system
- **Alternative 2:** Install a fixed manifold backspray system to work in tandem with improved brush system (Alternative 1)
- **Alternative 3:** Replace the existing fixed screen system with traveling screens

Project details regarding Alternatives 1–3 are provided below:

Alternative 1: Improve Existing System

Alternative 1, Improve Existing System provides a number of readily-available measures that could be relatively readily implemented and tested. This alternative is not likely to achieve the desired levels of diversion on its own, but could provide a measurable increase in the volume of flow that is diverted while other alternatives are more thoroughly evaluated, designed and funded. In addition, an improved existing system could serve as a component of a more comprehensive diversion improvement strategy, i.e., depending on the improvements achieved, the improved existing system in combination with Alternative 2 (backspray system) or Alternative 4 (reduce load) might meet CMWD's diversion goals. It has been noted in the Technical Memorandum that implementing the Alternative 1 improvements in the near-term may also help CMWD justify making extensive changes, such as Alternative 3, if it appears that the existing system will not meet CMWD's goals even with improvements and in combination with other alternatives.

All of the envisioned improvements could be prototype tested in a single screen bay or on only one side of the screen channel in order to directly observe the relative improvement.

Alternative 2: Install a Fixed Manifold Backspray System

A fixed manifold backspray system would work in tandem with the improved brush screen cleaner system. The backspray system was considered superior to the other considered screen cleaner measures (vertical comb and suction cleaner) because there are precedents for similar screen channel facilities with backspray systems and the biological effects of backspray systems have been accepted by NMFS. It is likely that informal consultation with USFWS and NMFS would be necessary to determine whether or not the backspray system would affect federally listed species or designated critical habitat. Changes to the structure are expected in order to fit the backspray system into the area behind the screens, and the piping and controls for the system will require substantial design; however, the overall facility footprint would remain the same. If potable water is used for the backspray system (not anticipated), then permits could be required to address "discharge" of potable water into the Ventura River (Regional Board Standard Form 200), and the California Department of Fish and Wildlife (CDFW) may require that the water be treated for chlorine. In addition, the project would likely qualify for a CEQA Statutory or Categorical Exemption provided that the project does not result in significant unavoidable impacts. If, however, it is later determined the project would not qualify for exemption from CEQA (e.g., if the project is not considered an emergency project or the project falls under one of the exceptions to being categorically exempt), Alternative 2 may require preparation of an Initial Study (IS) and a Mitigated Negative Declaration (MND) or Environmental Impact Report.

Considerable effort would need to be expended to prototype test a backspray system, but it would be possible to implement this concept over a few screen panels in a test prior to retrofitting the full facility.

Alternative 3: Replace the Existing Fixed Screen System with Traveling Screens

Alternative 3 is a standalone alternative that has a relatively high likelihood of success; however, it is also expected to be costly. A belt type (Hydrolox is one example) traveling screen system would operate continuously during diversion of water. Each screen panel would be individually cleaned, greatly reducing the length of time that the screens can accumulate debris. The debris could be brushed off the descending side of the screens and directly deposited into the plenum behind the screens where it would be conveyed to the canal. Alternatively, a spray or brush system and collection trough could be used at the top of the screens to remove debris from the screen and keep it out of the canal, or the

debris could be brushed or sprayed back into the Fish Screen Channel. The screen area would need to be increased to accommodate the reduction in flow area associated with the traveling screen mechanical systems, which may result in the need to initiate informal consultation with NMFS. CMWD may need to obtain permits from the resources agencies (USACE, RWQCB, and CDFW) if the project will impact jurisdictional areas. In addition, the project would likely qualify for a CEQA Statutory or Categorical Exemption provided that the project does not result in significant unavoidable impacts. If, however, it is later determined the project would not qualify for exemption from CEQA (e.g., if the project is not considered an emergency project or the project falls under one of the exceptions to being categorically exempt), Alternative 2 may require preparation of an Initial Study (IS) and a Mitigated Negative Declaration (MND) or Environmental Impact Report.

Electrical costs would be incurred to operate the system, but if cleaning is effective, the labor cost reduction may balance or outweigh the power cost.

The traveling screen alternative was selected over the other alternative screen systems because it is expected to have lower civil costs than a rotating drum screen, and is likely to be more effective than paired vertical screens, floor screens or cylindrical T-screens for this application. In addition, there are precedents for traveling screens that have been accepted by NMFS for use in similar applications.

It would be possible to install and prototype test a traveling screen system in one or more bays prior to retrofitting the full facility, but the cost and effort to do so may be relatively high.

Table 2 presents a summary of Rincon's recommended approaches for CEQA compliance and resource permitting.

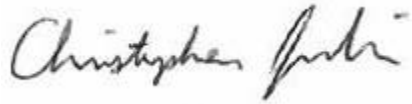
Table 2 Biological Resources Options Analysis (see Attachment D)

Options	Jurisdictional Resources Permits Required	Sensitive Species Permitting	Tree Permit Required	Required CEQA Pathway and Documents for Permitting
Alternative 1	▪ No jurisdictional permits anticipated	Not anticipated	Not anticipated	▪ Statutory or Categorical Exemption ▪ Not anticipated
Alternative 2	▪ Regional Board Standard Form 200 ▪ Additional resources agency permits may be required if installation of the back spray system results in changes to the Facility structure (i.e. increases in Facility footprint to install new back spray system)	Not likely; however informal consultation with NMFS may be required in addition to consultation with CDFW to determine if treatment for chlorine is required.	Not anticipated	▪ Statutory or Categorical Exemption ▪ If CEQA exemption is not feasible, then an IS-MND / EIR may be required (depending on potential for significant unavoidable impact) ▪ Not anticipated unless the project would require changes to the Facility structure.
Alternative 3	▪ USACE 404 Permit ▪ RWQCB 401 Certification ▪ CDFW LSA Agreement ▪ Potential compensatory mitigation required for temporary and permanent impacts	Yes	Not anticipated	▪ Statutory or Categorical Exemption ▪ If CEQA exemption is not feasible, then an IS-MND / EIR may be required (depending on potential for significant unavoidable impact) ▪ Biological Resources Assessment ▪ Biological Assessment (Federal- listed Species) ▪ Jurisdictional Delineation Report
Alternative 4	▪ USACE 404 Permit ▪ RWQCB 401 Certification ▪ CDFW LSA Agreement ▪ Potential compensatory mitigation required for temporary and permanent impacts	Yes	Not anticipated	▪ Statutory or Categorical Exemption ▪ If CEQA exemption is not feasible, then an IS-MND / EIR may be required (depending on potential for significant unavoidable impact) ▪ Biological Resources Assessment ▪ Biological Assessment (Federal- listed Species) ▪ Jurisdictional Delineation Report

We appreciate the opportunity to assist CMWD with this assignment. If you have questions about this analysis, please contact us.

Sincerely,
Rincon Consultants, Inc.

Lindsay D. Griffin
Senior Biologist/Project Manager



Christopher Julian
Principal/Regulatory Specialist

Attachments

Attachment A Figures
Attachment B CNDDB Special-Status Species Table
Attachment C Representative Site Photographs
Attachment D Tasks to be Conducted for Alternative 4 Project Completion

References

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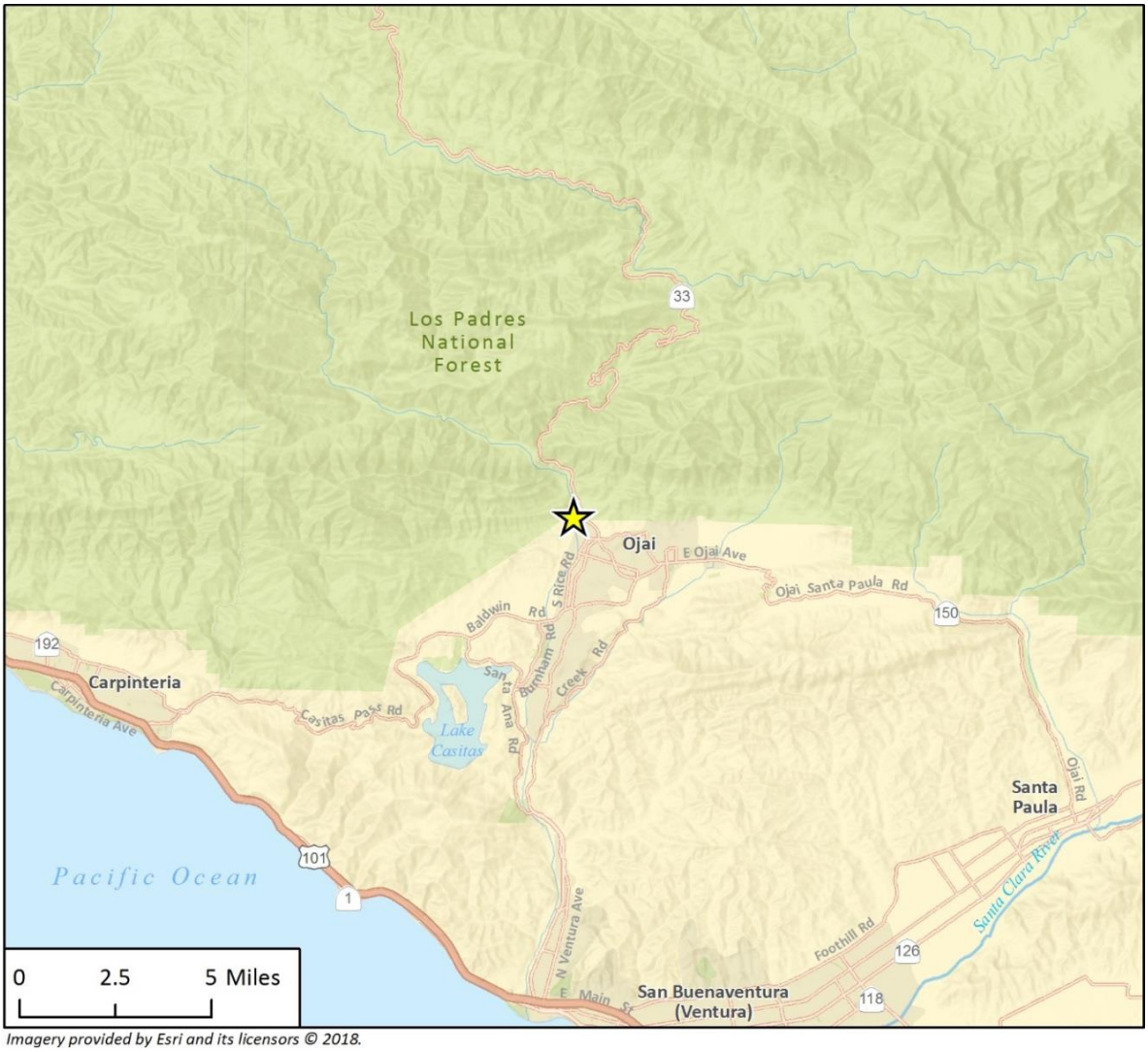
Attachment A

Figures

Figure 1 Regional Project Location



Project Location

N

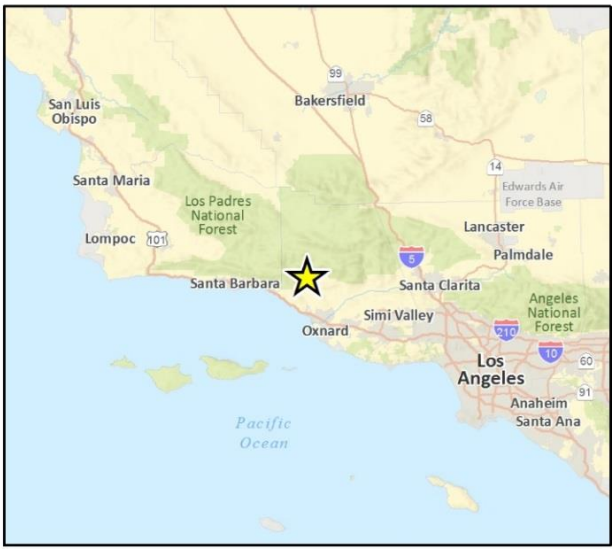


Figure 2 Alternative 4 Project Location

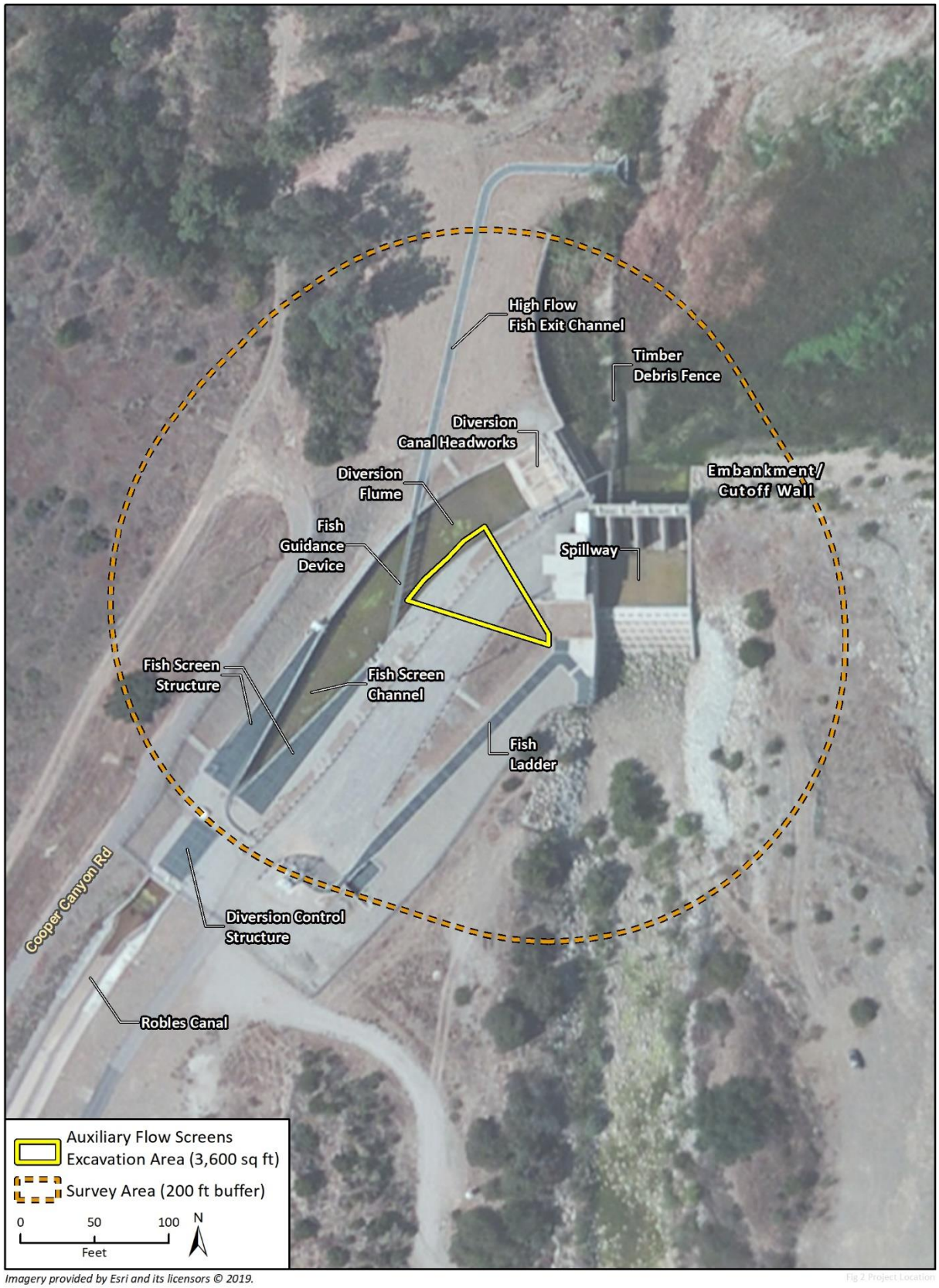


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Fig 2 Project Location

Attachment B

CNDDB Special-Status Species Table

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Survey Area	Habitat Suitability/ Observations
Plants and Lichens				
Astragalus didymocarpus var. milesianus Miles' milk-vetch	None/None G5T2/S2 1B.2	Coastal scrub. Clay soils. 50-385 m. annual herb. Blooms Mar-Jun	Not Expected	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the survey area.
Calochortus fimbriatus late-flowered mariposa-lily	None/None G3/S3 1B.3	Chaparral, cismontane woodland, riparian woodland. Dry, open coastal woodland, chaparral; on serpentine. 270-1435 m. perennial bulbiferous herb. Blooms Jun-Aug	Not Expected	CNDDB species record within a 1-mile radius of the project. Suitable habitat present upstream of the Facility, outside of the survey area.
Calochortus plummerae Plummer's mariposa-lily	None/None G4/S4 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m. perennial bulbiferous herb. Blooms May-Jul	Not Expected	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the survey area or impact area.
Fritillaria ojaiensis Ojai fritillary	None/None G2?/S2? 1B.2	Broadleafed upland forest (mesic), chaparral, lower montane coniferous forest, cismontane woodland. Usually loamy soil. Sometimes on serpentine; sometimes along roadsides. 100-1140 m. perennial bulbiferous herb. Blooms Feb-May	Not Expected	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the survey area.
Horkelia cuneata var. puberula mesa horkelia	None/None G4T1/S1 1B.1	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m. perennial herb. Blooms Feb-Jul(Sep)	Low	CNDDB species record within a 2-mile radius of the project. Marginally suitable habitat occurs within the survey area, but not within the impact area.
Imperata brevifolia California satintail	None/None G4/S3 2B.1	Coastal scrub, chaparral, riparian scrub, Mojavean desert scrub, meadows and seeps (alkali), riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-1495 m. perennial rhizomatous herb. Blooms Sep-May	Low	CNDDB species record within a 1-mile radius of the project. Marginally suitable habitat occurs within the survey area, but not within the impact area.
Layia heterotricha pale-yellow layia	None/None G2/S2 1B.1	Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Alkaline or clay soils; open areas. 90-1800 m. annual herb. Blooms Mar-Jun	Not Expected	CNDDB species record within a 2-mile radius of the project. No suitable habitat occurs within the survey area or impact area.
Monardella hypoleuca ssp. hypoleuca white-veined monardella	None/None G4T3/S3 1B.3	Chaparral, cismontane woodland. Dry slopes. 50-1280 m. perennial herb. Blooms (Apr)May-Aug(Sep-Dec)	Low	CNDDB species record within a 1-mile radius of the project. Marginally suitable habitat occurs within the survey area, but not within the impact area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Survey Area	Habitat Suitability/ Observations
Navarretia ojaiensis Ojai navarretia	None/None G2/S2 1B.1	Chaparral, coastal scrub, valley and foothill grassland. Openings in shrublands or grasslands. 275-620 m. annual herb. Blooms May-Jul	Not Expected	CNDDB species record within a 2-mile radius of the project. No suitable habitat occurs within the survey area.
Navarretia peninsularis Baja navarretia	None/None G3/S2 1B.2	Lower montane coniferous forest, chaparral, meadows and seeps, pinyon and juniper woodland. Wet areas in open forest. 1150-2365 m. annual herb. Blooms (May)Jun-Aug	Not Expected	CNDDB species record within a 2-mile radius of the project. No suitable habitat occurs within the survey area.
Nolina cismontana chaparral nolina	None/None G3/S3 1B.2	Chaparral, coastal scrub. Primarily on sandstone and shale substrates; also known from gabbro. 140-1275 m. perennial evergreen shrub. Blooms (Mar)May-Jul	Not Expected	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the survey area.
Sagittaria sanfordii Sanford's arrowhead	None/None G3/S3 1B.2	Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. 0-605 m. perennial rhizomatous herb (emergent). Blooms May-Oct(Nov)	Low	CNDDB species record within a 5-mile radius of the project. Marginally suitable habitat occurs within the survey area and impact area.
Sidalcea neomexicana salt spring checkerbloom	None/None G4/S2 2B.2	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub. Alkali springs and marshes. 3-2380 m. perennial herb. Blooms Mar-Jun	Not Expected	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the survey area or impact area.
Invertebrates				
Bombus crotchii Crotch bumble bee	None/None G3G4/S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*.	Not Expected	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the survey area or impact area.
Fish				
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	Endangered/None G5T1Q/S1	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	Moderate	Seasonally-suitable habitat present within the impact area when surface water flows are present upstream and downstream of the Diversion Flume and Fish Screen Channel. CNDDB species record within 1-mile radius downstream of the Diversion Flume and Fish Screen Channel.
Amphibians				
Rana draytonii California red-legged frog	Threatened/None G2G3/S2S3 SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Moderate	Marginally-suitable habitat present upstream of the Facility in the Ventura River. Suitable habitat may be present within the impact area. CRLF critical habitat present within a 1-mile radius of the project. CNDDB

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Survey Area	Habitat Suitability/ Observations
				species record within a 4-mile radius of the project.
Reptiles				
Diadophis punctatus modestus San Bernardino ringneck snake	None/None G5T2T3Q/S2?	Most common in open, relatively rocky areas. Often in somewhat moist microhabitats near intermittent streams. Avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous veg.	Moderate	CNDDB species record within a 3-mile radius of the project. Marginally suitable habitat occurs within the survey area, specifically associated with habitat in the forebay, upstream of the Diversion Canal Headworks.
Emys marmorata western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Moderate	Suitable habitat for egg-laying is present upstream of the Facility within the survey area. Portions of the Ventura River upstream and downstream of the Facility is suitable habitat for basking. CNDDB records the species within upstream portion of Ventura River and within a 1-mile radius of the project. The species could be present within the survey area.
Phrynosoma blainvillii coast horned lizard	None/None G3G4/S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Moderate	Suitable habitat occurs within the survey area, but not within the impact area. CNDDB records the species within a 2-mile radius of the project.
Salvadora hexalepis virgultea coast patch-nosed snake	None/None G5T4/S2S3 SSC	Brushy or shrubby vegetation in coastal Southern California. Require small mammal burrows for refuge and overwintering sites.	Moderate	Suitable habitat occurs within the survey area, but not within the impact area. CNDDB records the species within a 2-mile radius of the project.
Thamnophis hammondii two-striped gartersnake	None/None G4/S3S4 SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Moderate	Suitable habitat occurs within the survey area but not within the impact area. CNDDB records the species within a 2-mile radius of the project.
Birds				
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Not Expected	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the survey area or impact area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Survey Area	Habitat Suitability/ Observations
Gymnogyps californianus California condor	Endangered/ Endangered G1/S1 FP	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	Not Expected	California condor critical habitat present within a 5-mile radius of the project. No suitable nesting habitat observed within the survey area or impact area.
Vireo bellii pusillus least Bell's vireo	Endangered/ Endangered G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Low	The current post-fire conditions surrounding the Facility do not provide suitable habitat within the survey area or impact area. Overtime the survey area could provide suitable habitat if the density of riparian vegetation increases. Seasonality of the species should be taken into account to result in less than significant impacts. CNDDB records the species within a 2-mile radius of the project.
Mammals				
Chaetodipus californicus femoralis Dulzura pocket mouse	None/None G5T3/S3 SSC	Variety of habitats including coastal scrub, chaparral & grassland in San Diego County. Attracted to grass-chaparral edges.	Not Expected	CNDDB species record within a 2-mile radius of the project. No suitable habitat occurs within the survey area or impact area.
Lasiurus cinereus hoary bat	None/None G5/S4	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Low	CNDDB species record within a 2-mile radius of the project. Marginally suitable habitat occurs within the survey area, but not within the impact area.
Sensitive Natural Communities				
Southern California Steelhead Stream Southern California Steelhead Stream	None/None GNR/SNR	-	Present	Southern California Steelhead Stream within the survey area and impact area. The project is located on the Ventura River. Additional BMPs should be implemented when PCEs are present within the project.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Survey Area	Habitat Suitability/ Observations

[1] Notes:

FE = Federal Endangered

FT = Federal Threatened

SE = State Endangered

FP = CDFW Fully Protected

SSC = California Species of Special Concern

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B = Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.1 = Seriously threatened in California (> 80% of occurrences threatened/high degree and immediacy of threat)

.2 = Moderately threatened in California (20-80% occurrences threatened/ Moderate degree and immediacy of threat)

CDFW Rare

G1 or S1 = Critically Imperiled Globally or Subnationally (state)

G2 or S2 = Imperiled Globally or Subnationally (state)

G3 or S3 = Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 = Apparently secure, common and abundant

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Attachment C

Representative Site Photographs

Photograph 1. View looking north of Robles Fish Passage Facility V-screens (west side of the Fish Screen Channel) of debris material that has accumulated on the screens.

Photograph 2. View looking northwest standing at the downstream end of the Fish Screen Structure at the Fish Screen Channel.

Photograph 3. View looking northwest, while standing on the bridge over the spillway, of the forebay area and timber debris fence upstream of the Diversion Canal Headworks.

Photograph 4. View looking southwest down into the Diversion Flume area. The east side of the Diversion Flume would be excavated to implement Alternative 4.

Photograph 5. View looking north, of the paved road above the east side of the Diversion Flume and Fish Screen Channel area. Excavation would occur in this area to implement Alternative 4.

Photograph 6. View looking northeast, of the forebay area and timber debris fence upstream of the Diversion Canal Headworks. Standing water is present from the December 2018 storm events.

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Attachment D

Tasks to be Conducted for Alternative 4 Project Completion

Tasks to be Conducted for Alternative 4 Project Completion

Agency	Permits	Task	Applicant Submission Timing	Timeframe for Completion	Agency Contact	Fees
Initial Study – (Mitigated) Negative Declaration						
CEQA		▪ Prepare Categorical Exemption ▪ Prepare IS-MND (if necessary) ▪ Biological Resources Assessment ▪ Biological Assessment ▪ CRLF Protocol Survey ▪ Steelhead Survey ▪ Wildlife Survey ▪ Nesting Bird Survey (if nesting season cannot be avoided)		4-6 months including public comment period		CE: $3,000 - $5,000 CEQA IS-MND: $30,000 - $35,000 BRA: ~$7,500 BA: ~$7,500 CRLF: ~$20,000 SS: CMWD to perform survey WS and NBS: ~$1,500
Jurisdictional Resources Permitting						
USACE	404 permit/ Nationwide Permit (NWP) 7	Pre-Construction Notification (PCN) with general conditions (b) (1-7) Jurisdictional Delineation Report Compensatory Mitigation Instrument	As early as feasible	Approval - 30-45 days for District Engineer response Permit - 4-6 months completion following submittal	**Tel:** (213) 452-3633 **Mail:** Los Angeles District 915 Wilshire Blvd. Los Angeles, CA 90017	Rincon: $4,000-$6,000 JDR: ~ $10,000 CMI: ~$20,000
LARWQCB	401 Permit	Submit Application Form			**E-mail:** losangeles@waterboards.ca.gov (PDF for less than 10 MB) **Mail:** ATTN: Manager CWA Section 401 WQC Program 320 W. 4th Street, Suite 200 Los Angeles, CA 90013 (CD-RM for greater than 10 MB) **Tel:** (213) 576-6600 **Fax:** (213) 576-6640	Rincon: $4,000-$6,000 Agency: $1,638 deposit Annual Fee: $218 (low Impact, fill = ≤ 0.1 acre, and 300 linear feet for dredging

Agency	Permits	Task	Applicant Submission Timing	Timeframe for Completion	Agency Contact	Fees
CDFW	1600 (LSA) Standard Agreement	▪ Submit notification of LSA form ▪ Mitigation Plan (for temporary and/or permanent impacts)		30 days or more for long term agreement application 60 days for draft agreement	Regional Office 5 **Mail:** Attention: Lake and Streambed Alteration Program 3883 Ruffin Road San Diego, CA 92123 **Tel:** (858) 467-4201 **E-mail:** R5LakeandStreambed@wildlife.ca.gov	Agency: $596-$5,313, dependent on total cost to implement project https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=162284&inline Mitigation Plan ~$5,000 - $10,000[1]
Endangered Species Permitting (if required, based on ISBA)						
USFWS	ESA Section 7 Consultation with USACE	Early informal consultation Formal consultation: assembly of background materials, Biological Assessment (need project design plans)		90 days maximum Additional 45 days for USFWS Biological Opinion 6-9 months		$8,000-$10,000
CDFW	Section 2081 Incidental Take Permit	Submit permit application in any form (includes formal consultation with local Environmental Scientist)		6-12 months	Regional Office 5 **Mail:** 3883 Ruffin Road San Diego, CA 92123 **Tel:** (858) 467-4201 **E-mail:** AskR5@wildlife.ca.gov	TBD https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=146406&inline

[1] Costs associated with mitigation for impacts to jurisdictional waters will be dependent on final waters impacts. Cost not estimated.

Appendix 4: Site Visit and Kick-Off Meeting Summary

WATER - WASTEWATER - REUSE

P.O. Box 1604
Arroyo Grande CA 93421
805 904 6530 tel
www.mknassociates.us

Technical Memorandum

To: Julia Aranda, P.E.
Casitas Municipal Water District
From: Mike Nunley, P.E., MKN
Shari Dunlop, P.E., Alden Research Laboratory
Date: January 18, 2019

Re: **Robles Diversion Fish Screens Alternatives Feasibility Study**
Summary of December 13, 2018 Site Visit and Kick-Off Meeting

ATTENDEES

Casitas Municipal Water District: Julia Aranda (Engineering Manager), Scott Lewis (Fisheries Program Manager), Mike Gibson (Fish Biologist), Brian Taylor (Operations and Maintenance Supervisor), Mike Flood (General Manager)

Consultant Team: Mike Nunley (Project Manager), Chick Sweeney (Engineering Technical Specialist), Shari Dunlop (Hydraulic Engineer), Steve Howard (Biologist), Lindsay Griffin (Biologist/Permitting Specialist),

GENERAL

This document summarizes the kick-off meeting, site visit and initial brainstorming session held on December 13, 2018 for a project to increase the range of river flows over which the Robles Diversion can effectively divert water by improving the effectiveness of the screens and cleaning system to avoid or substantially reduce facility shutdowns. The document follows the sequence of discussion and includes all of the topics that were discussed. Where beneficial, additional description/photos have been provided to help convey the brainstormed alternatives and enhance the utility of this document.

PART 1 – OFFICE DISCUSSION, INTRODUCTION

An initial introductory discussion occurred at the Casitas Municipal Water District (CMWD) office prior to the site visit. The purpose of the discussion was to kick off the project with team introductions, review the project background and objectives, and obtain any needed safety information for the site visit.

Project Objectives

The fundamental objective of the project is to maximize the total volume of water that the Robles Diversion is able to supply to Lake Casitas over the greatest range of river flows. Due to a severe drought conditions in Southern California, Lake Casitas is currently only at 30% of its capacity. The Robles Diversion provides approximately 30 – 40% of the water supplied to the lake. Debris blockage on the fish screens during the

peaks of big storms and even during normal diversion operations, especially following the recent Thomas Fire, have resulted in reduced diversion rates, frequent shut downs for manual cleaning, or no water diversion during small magnitude and duration storms. This project will look specifically at improvements that can be made to the Robles Diversion fish screens and their associated screen cleaning system as a means to maximize diversion potential.

A secondary objective of this project is to provide sufficient description, analysis and cost data to support CMWD's anticipated grant funding requests to implement any recommended improvements.

Project Background

General **-** Flow that is diverted to the Robles canal must pass through a fish screen system that excludes fish from the canal. The fish screen system also includes a fish ladder to allow upstream migrating fish access to the river above the diversion. The fish screen system was installed in 2004. Prior to the fish screen installation, large debris was excluded from the canal by a coarse trashrack and fine debris passed through the canal to Lake Casitas. CMWD staff reported that the canal was not negatively affected by the passage of fine debris, and that full diversion was possible before the fish screens were installed.

The screen cleaning system is unable to keep the screens clear during high flow conditions when there is substantial debris in the river. When debris clogs the fish screens the volume of flow that can be drawn through the screens and into the canal is reduced. In this scenario, CMWD can either withdraw water at a lower flow rate than the system is designed for, or CMWD staff can shut the system down to manually clean the screens and increase the withdrawal capacity. In both of these scenarios, the total volume of water diverted to Lake Casitas is less than the maximum possible. The figures below illustrate the gradual reduction in flow withdrawal as the screens become clogged, the periods in which the diversion is shut down to allow manual cleaning, and the subsequent increase in withdrawal rate through the clean screens.

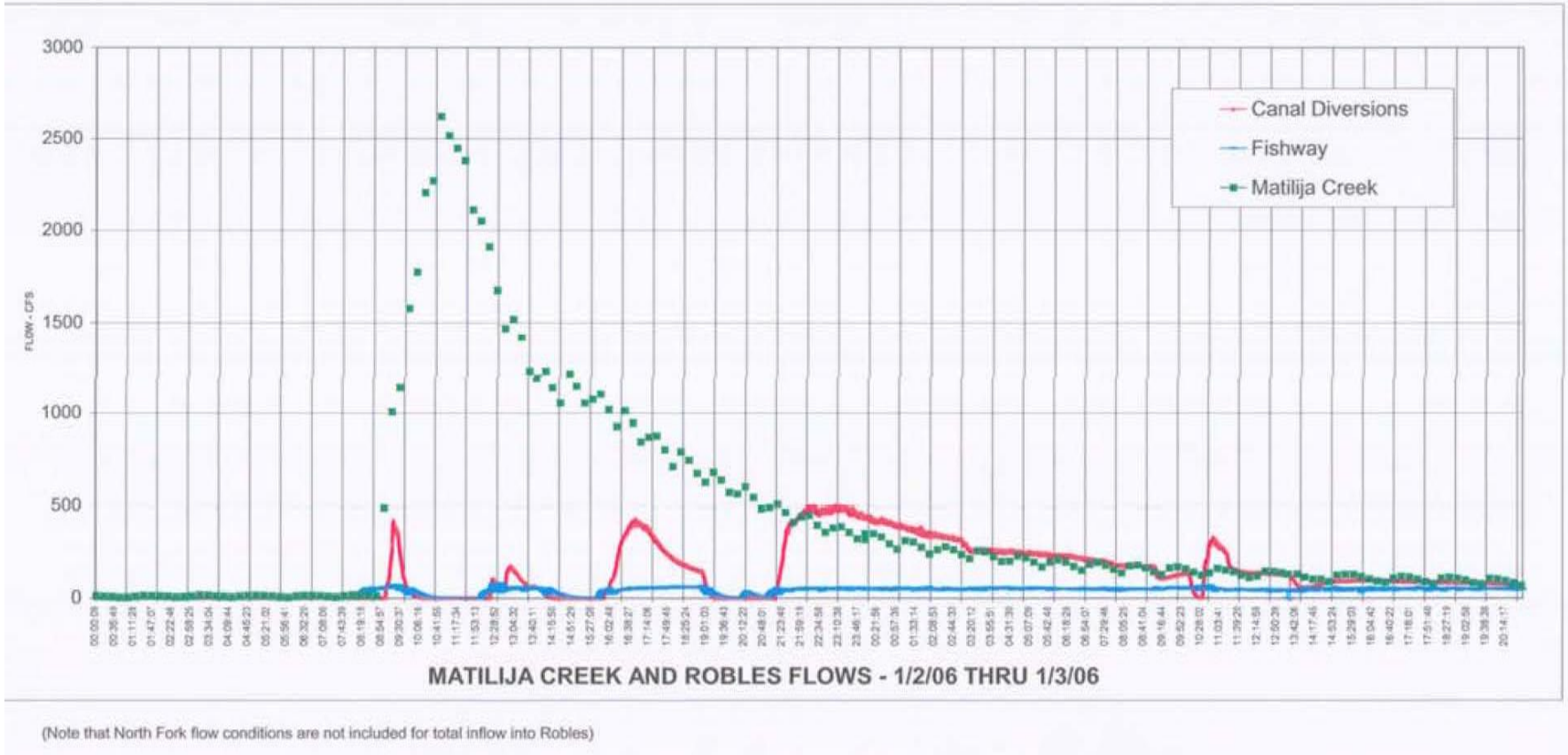


Figure 1. Storm Event of January 2 through 3, 2006

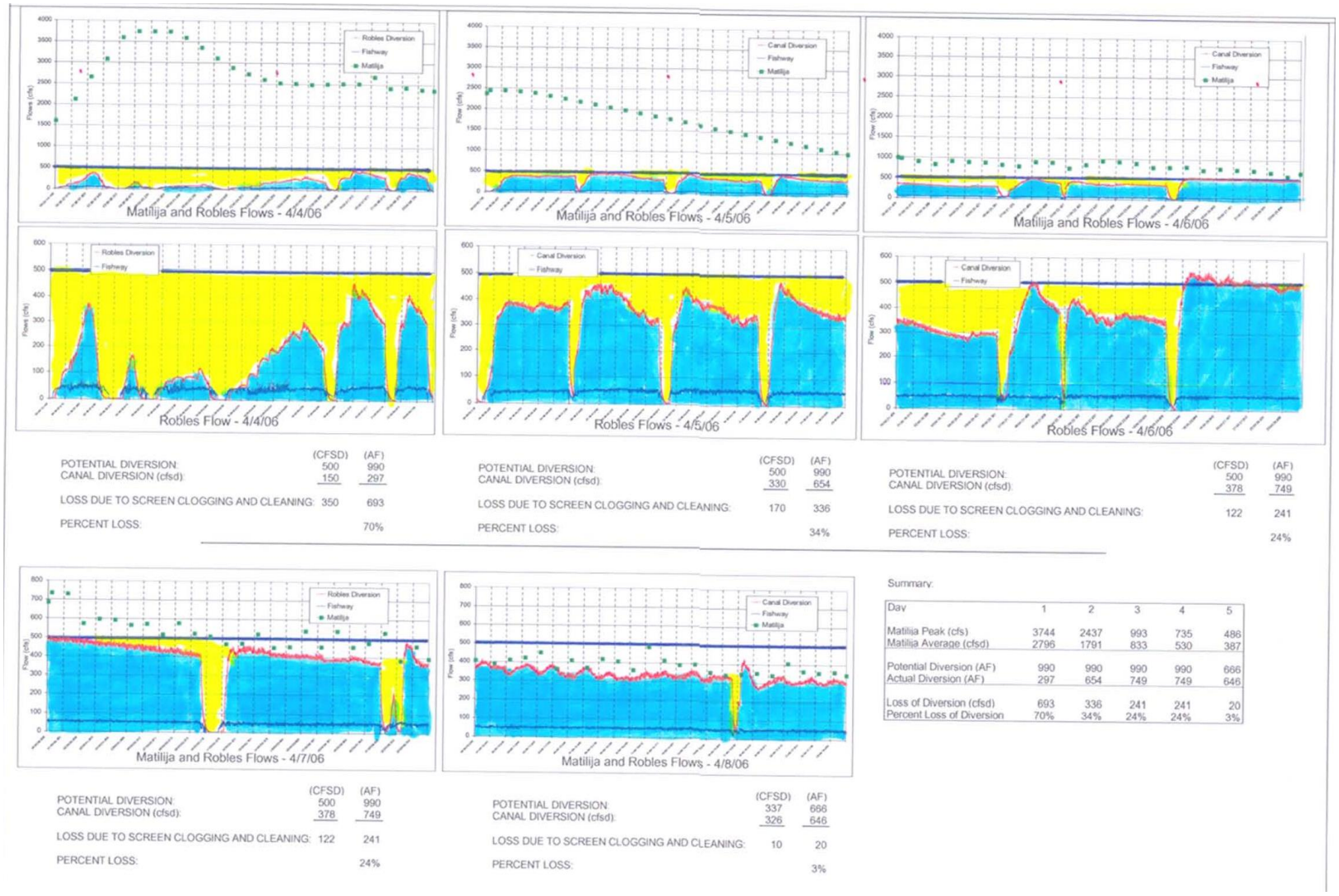


Figure 2. Storm Event of April 4 through April 8, 2006

Layout – The general project layout, moving from left to right (looking downstream, toward the spillway) includes an embankment/cutoff wall, a spillway, and the diversion canal headworks. Note that although the diversion headworks are on river right, the natural thalweg is on river left. CMWD has had problems maintaining the channel toward river right and would like to obtain a long-term permit to dredge the forebay on a regular basis. CMWD staff are aware of one (2005) and possibly two (2009) times that the forebay has been dredged.

A timber fence upstream of the fish screen system is used to exclude large debris from the immediate vicinity of the canal headworks and a coarse trashrack immediately upstream of the canal gates. CMWD staff report that they do not have problems cleaning the coarse trashrack. The coarse trashrack is cleaned by briefly shutting the canal gates, opening the spillway gate closest to the canal and manually pushing the debris to the spillway. Reducing the spacing of the bars, while still allowing fish passage, would not exclude the finer material that clogs the fish screens.

There is a fish guidance device located within the diversion flume structure, downstream of the canal entrance gates, but upstream of the fish screens. The intended operation of the fish guidance device is to close the louvers during high flow events and guide upstream migrant adult steelhead to an exit channel upstream of the diversion headworks to prevent potential fall back. The louvers were damaged during the first high flow events with the system in place. There is no cleaning system on the louvers and diversion must be shut down to close them; in practice they are rarely used.

The fish screen is made up of panels of vertical wedgewire screen material, with baffle panels located directly behind the screen panels. The wedgewire screen is sized to exclude juvenile salmonids from the flow that is diverted to the canal. The purpose of the baffle panels is to achieve a balanced through-screen flow distribution from the upstream to downstream end of the fish screen system and remedy any observed “hot spots”, i.e. locations in which the NMFS’ criteria for approach velocity is exceeded. A consultant collected data to document the approach and sweeping velocities in approximately 2008 or 2009, but the data have not been evaluated to confirm that the screens are balanced. The baffle system was replaced in 2017; NMFS did not request new proof of performance testing when they approved the new baffle system.

At the downstream end of the fish screens the remaining unscreened flow and downstream migrating fish are routed to the top of the adult fish ladder. Part of the screened flow from the downstream side of the fish screens is routed to the fish ladder attraction flow auxiliary pipeline. CMWD operates a Vaki Riverwatcher to monitor upstream migrant passage. The high debris load that is passed through the Vaki Riverwatcher is problematic because it results in false positive readings (mistakes debris for fish) and is a maintenance problem. The remaining screened flow, minus the auxiliary attraction flow, is passed to the canal and is conveyed to Lake Casitas.

Figure 3. Aerial Photo Showing Major Project Features

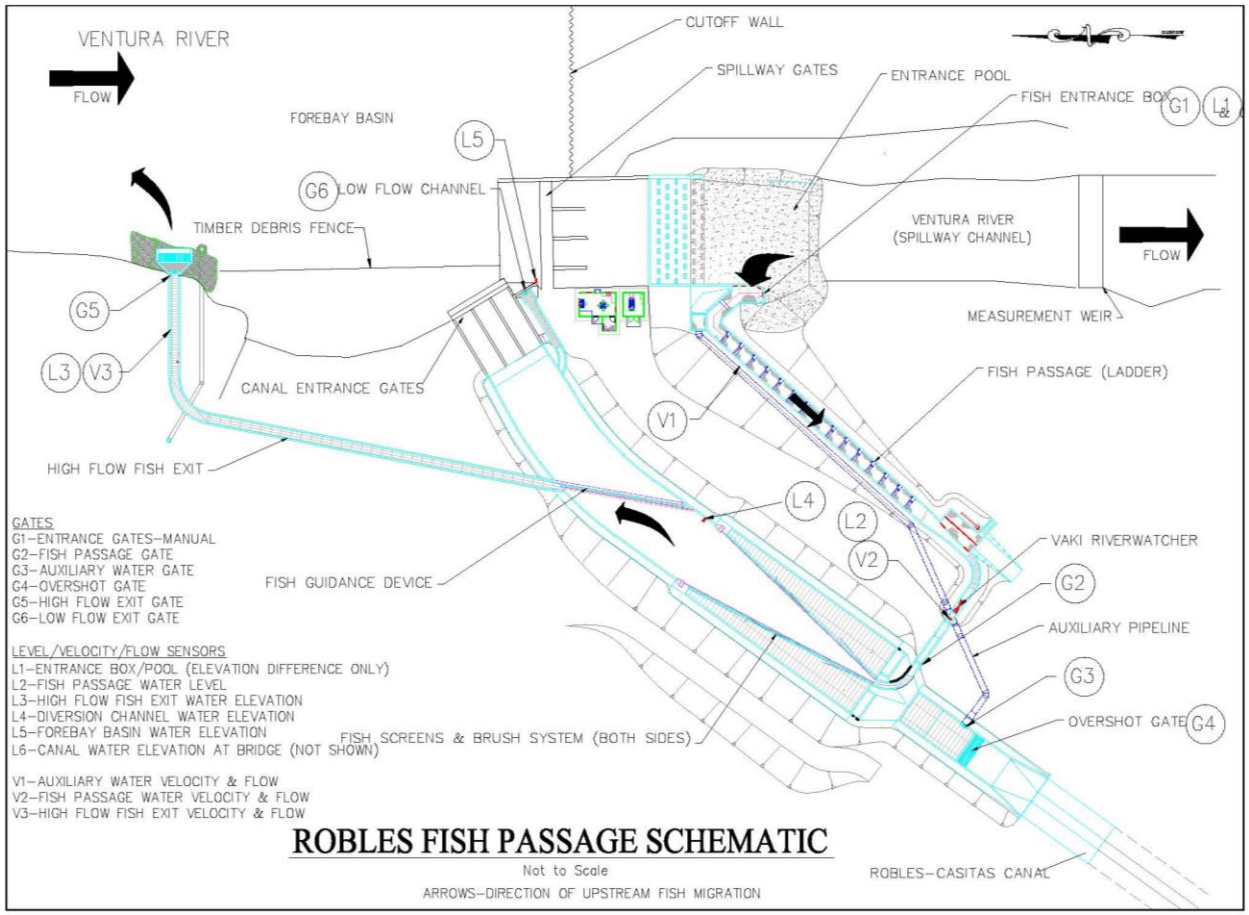


Figure 4. Robles Fish Passage Schematic

Figure 5. Timber Debris Fence Looking Upstream

Figure 6. Timber Debris Fence and Trashrack Looking Downstream

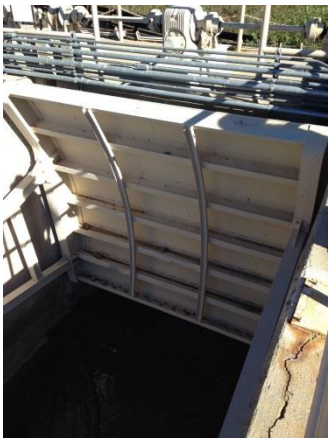


Figure 7. Canal Gate

Figure 8. Screen Panel

Figure 9. Baffle Panel

Figure 8. Vaki Riverwatcher

Figure 10. Vaki with Debris

Figure 2. Vaki with Debris

Diversion – The Robles Diversion is designed to take up to 671 cfs from the river. At the maximum diversion rate, the flow would be distributed as follows:

- Fish ladder = 50 cfs
- Fish ladder auxiliary flow = 121 cfs
- Robles canal = 500 cfs

Hydrology – A substantial proportion of the diverted flow is received during large flood events. These flood events are infrequent, and in some years may not occur at all. As a result, an inability to operate the Robles Diversion during the peaks of the storms results in a notable reduction in the volume of water that is stored in Lake Casitas. The peak of the storm is the best opportunity to divert large volumes of water that are not otherwise diverted for fish, but it poses the greatest challenge for operations due to debris clogging the screens. Another important opportunity for maximum diversions is during high water years when elevated

surface flows continue throughout the winter. Excessive clogging from fine debris can occur during these conditions substantially reducing diversion yields.

Note that when the river flow exceeds about 7,500 – 8,000 cfs the embankment/cutoff wall overtops.

Debris – Historically the debris that clogged the fish screens was composed primarily of standard vegetation (leaves, twigs, grasses) and filamentous algae. The 2017 Thomas Fire has added fire-related debris such as ash, fine charcoal, and sediment from hill-slope erosion, which has been observed to mix with organics to create a sticky matrix. In addition to the debris on the front side of the screens, CMWD has observed calcification on the back side of the screens, which reduces the screen capacity and restricts flow. Thus, even if the front sides of the screens appear clean, the flow capacity may be restricted due to the calcification on the back side. Sediment build up on the screen channel floor has not been observed to affect screen cleaner operation or diversion efficiency.

It is not known whether the fire-related debris will be a long-term or a short-term phenomenon; however CMWD staff indicated that any screen cleaning improvements should consider both the standard vegetation debris and fire-related debris, because the possibility of future fires in the area cannot be dismissed.

Figure 13. Typical Debris, Pre-Fire

Figure 15. Fire-Related Fine Debris

Figure 14. Grasses on Coarse Trashrack

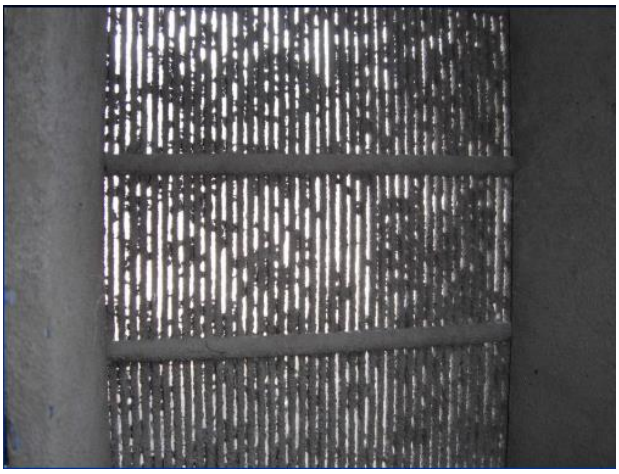


Figure 16. Calcification Deposits on Back Side of Screens

Measures Implemented to Date – In 2007 CMWD commissioned a study by MWH to provide recommendations to improve the Robles Fish Screen Cleaning System. This study produced 21 potential alternatives, several of which have been implemented.

The measures implemented to date include:

- Larger motor
- Stiffer brush bristles
- Angled brush
- Plastic brush arm covers to create eddy
- PLC reprogramming to allow both sides of the screen channel to be cleaned simultaneously
- Replaceable sheave system
- New baffles with larger openings

The implementation of the recommended measures has been incremental (brush improvements were first, baffle replacement was most recent) and the implemented measures have produced notable improvements in diversion efficiency. However, the Robles Diversion is still not able to divert at the highest flow rates, and the debris from the Thomas Fire has exacerbated the problem; therefore CMWD is investigating additional changes to the fish screen system.

In addition to the physical changes listed above, CMWD staff members have optimized, to the extent possible, the balance between cleaner speed and brush force (weights) versus system effectiveness and system wear.

Thomas Fire – The Thomas Fire burned much of the Matilija River watershed upstream of the Robles Diversion. CMWD staff report that as a result of the fire there is more debris arriving at the Robles Diversion and that the normal debris as well as fire-related debris are compromising the fish screens. Two large storms occurred following the Thomas Fire that drew further attention to the inadequacies of diversion operation. The storms occurred in January and March 2018 and both brought a lot of debris. CMWD did not divert any surface flow during the January storm due to excessive fire-related debris and the short duration of the storm. CMWD did divert during the March storm but the screens were substantially compromised by fire-related debris. . CMWD staff noted that after the Thomas Fire the screens would clog when flows exceeded about 200 – 250 cfs, likely because the brushes are not effectively removing the fire-related debris. The hydrodynamic drag load and/or debris load on the screen cleaner arms is so great that it destroys the screen cleaner cable drive sheave traction liners; the operators sometimes have to replace the sheave liners as many as three times per day. It is not known how the volume or characteristics of the debris will change after a year of post-fire revegetation in the watershed.

Figure 17. Drive System

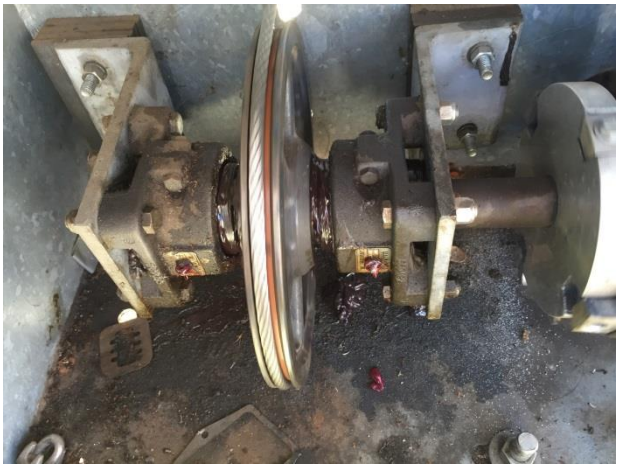


Figure 18. Drive Sheave

Operations – There is no fixed operating protocol for when to turn in or turn out during a storm. The operator is required to be onsite to make the decision and decides based on years of experience and observation of the debris load. During a storm, when the diversion is turned in, the screen cleaner is typically operated continuously. After the river flows for some time the water clears and then the diversion can be run up to a modest flow rate on the receding limb of the hydrograph without cleaning. CMWD operations staff noted that the left side typically clogs first and that the clogging typically starts at the upstream end.

Fish – The fish species of concern is the ESA-listed Southern California steelhead (*Oncorhynchus mykiss*). Other fish species are present and are observed in the system as well. The highest river discharge at which an adult steelhead has been documented to be present at the Robles Diversion facility is 70 cfs. There have been very few adult steelhead observed in the system since the implementation of the upstream migrant fish monitoring system.

PART 2 – SITE OBSERVATIONS

The attendees drove to the site along the canal road. Conditions were warm and sunny. Visibility was good. The river flow was approximately 6-7 cfs at the time of the site visit. CMWD staff operated both screen cleaners during the site visit and pulled one set of baffle panels to the operating platform for viewing. Access via a ladder was provided to observe the area behind the screens and baffles; however staff members who descended the ladder had to remain on the ladder because there was pooled water in the plenum.

<u>Observations</u>

- There is substantial sediment accumulation and vegetation growth in the river upstream of the diversion.
- There was no notable current in the forebay.
- The coarse trashrack clear spacing is 8.5”.
- The canal gates appear to be in generally good condition. Note crack in pier.
- The diversion flume has fine sediment deposition and substantial vegetative growth (cattails). This vegetative growth extends into the upstream portion of the fish screen structure.
- The screens were clean at the time of the site visit.

- The brush bristles appear to be about 4 inches long and relatively stiff.
- Each brush arm has two brushes. Based on the facility bid drawings, the original brush arms extended the full height of the screens. The brush arms have been replaced and the bottom of the new brush arms were not visible during the site visit. Action: Obtain drawings of the present-day facility features.
- The brush arm attaches at about the mid-point of the brush, vertically.
- The brushes are angled about 10 degrees downstream.
- The brush cleans in both directions (during upstream and downstream travel)
- It takes approximately 1 minute and 20 seconds for the brush to travel the length of the screen (in one direction).
- The top of the brush appears to apply more pressure than the bottom of the brush.
- There is potable water (6" diameter line) and power available. Note that the overhead power lines may preclude the use of a crane, or limit the type of crane that can be used. The fish screens were installed in 2004 before the power lines were present.
- There is reasonable flat area adjacent to the screen structure that could be used for laydown. However, CMWD staff noted that the grating over the plenum adjacent to the fish screens is only rated for pedestrian loading.

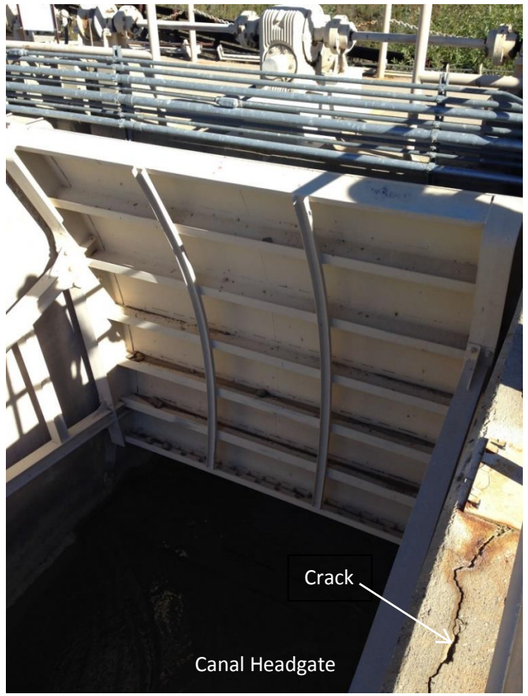
There are two access routes to the site: 1) via a narrow, paved, one lane road along the canal or 2) via a low-water river crossing to a gravel road to a paved two lane roadway.


Vegetation Upstream of Diversion


Vegetation in Diversion Flume
Downstream of Canal Gate


Vegetation in Channel Downstream of
Fish Guidance Device


Coarse Trashrack at Canal Headworks (8.5” Clear Spacing)



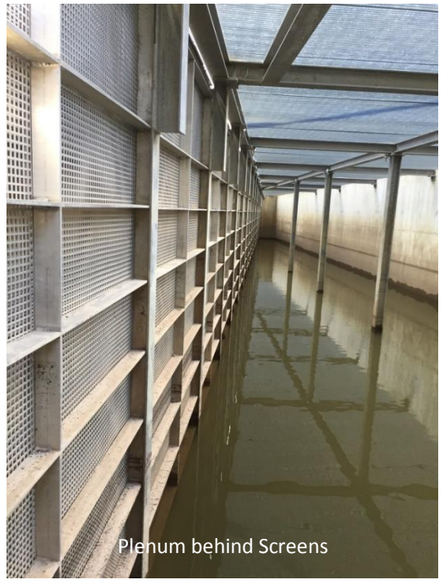
Canal Headgate


Wedgewire Screen Panels (Clean)

Figure 10. Site Visit Photo Summary, Sheet 1 of 2


Brush Arm with Two Brushes, Attached near Mid-Point, Brush Arm Angled Downstream


Baffle Panel


Plenum behind Screens


View from Downstream Side of Screen, Baffles in Foreground, Screen Behind


Note Space between Baffle Plates; Likely not Possible to Effectively Adjust Porosity


Access and Potential Laydown Area


Powerlines

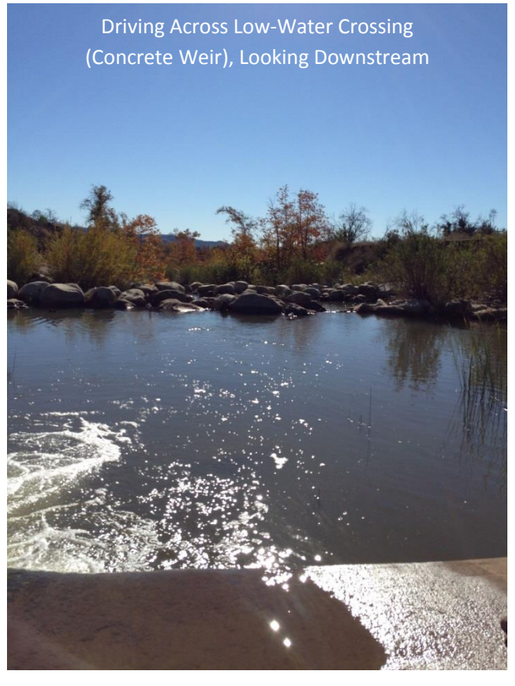

Driving Across Low-Water Crossing (Concrete Weir), Looking Downstream

Figure 11. Site Visit Photo Summary, Sheet 2 of 2

PART 3 – OFFICE DISCUSSION, ALTERNATIVES DISCUSSION AND BRAINSTORMING

Constraints

Space – The only space constraint for proposed modifications is that any work must be limited to the property boundaries. ACTION (MKN): Create a base map showing the primary features of the project, access routes, and property boundaries. CMWD can obtain and provide the property boundary map if needed.

Permitting – CMWD is very opposed to any action that could result in scrutiny or re-opening of the BiOp. Informal consultation with the agencies is okay, but anything that leads to a Section 7 consultation is cause for concern. ACTION (CMWD): Think through the strategy and timing for NMFS consultation. ACTION (RINCON): Work with design team and CMWD to ensure no new information is created to trigger reinitiating formal Section 7 consultation.

Operations – There are no operational constraints beyond adherence to the BiOp. Power at the site is not very reliable, but there is a generator and an auto-transfer switch.

Environmental – Do not want to re-open the BiOp; specifically do not want to risk more restrictive operation or downstream release requirements, or a new monitoring mandate.

Schedule - CMWD would like to implement plan and have improvements in place by January 2021, if possible.

Alternative Evaluation Criteria

Performance Potential – This is a valid criterion. Performance potential would be gauged by the range of river flows over which effective diversion is possible.

Operational Simplicity – This is a valid criterion. Positive consideration should be given to options that can be remotely monitored and operated, specifically being able to remotely start-up a cleaning system would be a benefit.

Precedents – This is a valid criterion. Functional precedents increase confidence about performance potential, cost, and operational simplicity. There are very few large, screened diversions in southern California.

Permitting – This is a valid criterion. The potential permit requirements will include Section 401 and Section 404 of the Clean Water Act, Section 106 Cultural Resources, and NMFS and California Department of Fish and Wildlife approval. CMWD staff noted that they have never had to go to the county for permits. There are no aesthetic considerations that CMWD staff members are aware of.

Construction Outage – This may be a valid criterion, but likely will not be a key differentiator. The canal is shut down for approximately 9 months per year, so any construction that can be completed in less than 9 months would not affect diversion. Typically the instream flow is passed via the fish ladder, but CMWD can use the spillway for instream flow releases with permission.

Cost (Capital, Operations and Maintenance) – This is a valid criterion. CMWD confirmed that capital costs are preferred over ongoing O&M costs because capital costs can be considered for grant funding and SRF loans.

Ability to Prototype – The meeting participants added this criterion. CMWD would be interested in testing potential changes in one or more screen bays, if possible, before committing to a full implementation. The importance of this criterion and the value of prototyping will depend on the cost and risk of an alternative.

Alternatives

The group reviewed and brainstormed a range of alternatives; these have been grouped into the following categories:

- Category 1a: Improve Existing System (Relatively Easy to Implement)
- Category 1b: Improve Existing System (More Complex, Require Analysis/Vetting)
- Category 2: Replace the Screen Cleaner System
- Category 3: Replace the Screens
- Category 4: Increase Total Screened Capacity/Add Redundancy/Reduce Load on Existing System
- Category 5: Supplemental Action

Category 1a: Improve Existing System (Relatively Easy to Implement) – These are changes that could be implemented by CMWD at any time and are already under consideration by CMWD or were recommended for testing by the meeting participants. The considered modifications include:

a) Replace the existing sheave (which has a polymer traction liner insert) with a hardened steel sheave – This modification could reduce the number of times the screen cleaner must be shut down to replace the sheave inserts. CMWD plans to implement and test this during the 2019 diversion season. CMWD intends to modify one side of the screen system with the hardened steel sheave and leave the other side as-is so that they can directly compare the effectiveness.
b) Add weight to the brush arm – This modification would increase the brush pressure and could improve the screen cleaner effectiveness. The screen cleaner currently operates with approximately 200 lb weight per brush arm. CMWD has qualitatively optimized the screen speed and weight vs. sheave wear and adding weight is currently not an option due to wear on the sheave inserts. With the steel sheave, there may be an opportunity to increase the weight without wearing out the sheave insert. With the hardened steel sheave, it may be possible to test the effect of added weight on screen cleaner performance. The existing motor capacity is sufficient for increased weight. The testing of added weight should be done after the testing of the hardened steel sheave alone, so that the effect of each measure can be individually assessed.
c) Add an adjustable cable tensioning pulley – This modification would address potential cable slippage due to the added weight. If slippage does not occur, the cable tensioning pulley would not be needed.
d) Replace the cable with a chain drive system – This modification could be implemented if the added weight is effective, but the cables experience excessive wear. This would not be as readily implementable as the first three modifications noted above, but is included here because it is related.
e) Replace one (or both) brushes on the brush arm with a scraper/wiper – This modification may be more effective in removing the “sticky” matrix that forms when the very fine fire-related ash mixes with other debris. The change would be relatively easy to implement and test.

f) Monitor water level differential across the screens – This modification would add pressure transducers or down-lookers on the downstream side of the screens. This will allow the pressure differential across the screens to be measured. Ideally the SCADA will also be updated to allow the operators to start the screens remotely. In addition to supporting regular operations, the pressure transducers would provide data that could help to assess the effectiveness of changes to the screen system.

Category 1b: Improve Existing System (More Complex, Require Analysis/Vetting) – These are changes that would require procuring new components or changing the mechanical systems, but would not fundamentally change the screens or associated structure. Modifications discussed and/or brainstormed during the meeting include:

a) Replace one of the two brushes per brush arm with an air or water sparger – This modification would use air or water to loosen and mobilize debris, in addition to a brush. Sparger systems exist; however a sparger arm would require mechanical system changes and thus is not readily implementable/testable.
b) Replace fixed brushes with a rotating brush (or brushes) – This modification may be more effective in mobilizing debris off of the screen than the fixed brushes. The concept was likened to the brushes used in a car wash. The potential for this concept to affect fish would need to be considered. The participants were not aware of installations with this type of brush system, thus it is not likely procurable off-the-shelf.

Category 2: Replace the Screen Cleaner System – These options would fundamentally change the screen cleaner system and the associated mechanical systems. Structural changes to the facility may also be required to accommodate these alternatives.

a) Replace the brush arm assembly with a horizontally aligned brush or comb that moves vertically – This modification would brush or scrape material to the top of the screens, where the material would either be collected and removed or deposited into the screened flow that passes into the canal. This could improve the screen cleaning effectiveness because the debris would not be available for re-deposition on screens downstream from the one/s being cleaned. The potential for this concept to affect fish would need to be considered.
b) Install a fixed manifold backspray system – A fixed manifold backspray system would be installed behind the screens and would be used in conjunction with a brush cleaner system on the front side of the screens. The valves and sequence of the backspray system operation would be coordinated with the timing of the brush system operation. The meeting participants noted that the potable water available at the site could be used for backspray under a general permit. Backspray systems are in use on NMFS' approved fish screen systems in the Pacific Northwest.

Figure 12. Backwash Carriage and Backwash System Piping (Cowlitz Fall Dam Fish Collection Facility)

c) Install a suction screen cleaner – A suction screen cleaner would operate like a vacuum, sucking material off of the screens.

Category 4: Replace the Screens – These options would replace the fixed, vertical wedgewire screens with a new type of screen. Alternatives discussed and/or brainstormed during the meeting include:

a) Travelling screens – Traveling screens consist of a screen panels that are connected to form a continuous belt. The screens rotate from the bottom to the top of the channel, carrying debris to the top. At the top, the screens are brushed or sprayed to remove debris. The debris is either collected at the top, or deposited into the screened flow and passed into the canal. Traveling screens require a greater total area than fixed screens with moveable cleaners. The attendees suggested that the additional screen area could be accommodated by extending the existing v-screen channel farther upstream or angling the screens from the vertical. The potential for this concept to affect fish would need to be considered. Traveling screens are in use on NMFS' approved fish screen systems in the Pacific Northwest.

Figure 13. Traveling Screen System: a) Close Up, b) Upstream, c) Downstream (Cowlitz Falls Dam Fish Collection Facility

b) Drum screens – Drum screens are screen-covered, horizontally oriented cylinders that slowly rotate to lift debris up and out of the water. The potential for this concept to affect fish would need to be considered. Rotary drum screens are in use on NMFS' approved fish screen systems in the Pacific Northwest and California.

Figure 14. Drum Screens at Roza Diversion (from USBR "Fish Protection at Water Diversions", 2006)

c) Paired vertical screens – Paired vertical screens have two sets of screen panel slots per bay. When the screens become clogged, a spare screen panel is dropped into place and the clogged panel is removed and manually cleaned. This system is in use in the gate wells of USACE hydropower facilities in the Pacific Northwest as part of their turbine intake screening systems. CMWD staff indicated that this option would not likely be feasible at Robles due to the rate at which debris accumulates during major floods.

d) Horizontal/inclined floor screens – Horizontal or inclined floor screens use the action of the flowing water to keep the screens clean. In some cases a screen cleaner is also required. They require approximately 5-10% of the flow to be returned to the river in order to effectively operate. Horizontal and inclined floor screens are in use on NMFS' approved fish screen systems in the Pacific Northwest and California.

Figure 15. Horizontal Floor Screen (from FCA Website)

e) Vibrating screens/sonic screen cleaners – This concept would have screens that vibrate to reduce the likelihood that debris would become affixed. The concept was likened to a Sonicare™ toothbrush. While an interesting idea, the participants are not aware of installations with this type of system.

f) T-screens – This concept would employ T-screens with integral back wash systems in place of the existing screen and cleaner system. Note that this concept was raised during a post-meeting discussion, specifically related to passive screening for the AWS flow, but it could also be considered for the full diversion.

Figure 16. Installation of Cylindrical Tee Screens, East Unit Pumping Plant, WA (from USBR "Fish Protection at Water Diversions", 2006)

Category 4: Increase Total Screened Capacity/Add Redundancy/Reduce Load on Existing System – These options were raised by the meeting participants as a new category of alternative to address the fundamental goal of getting more water into Lake Casitas. Rather than modifying the existing screen systems these alternatives would increase the total screened capacity, add redundancy or reduce the load on the existing system. Alternatives discussed and/or brainstormed during the meeting include:

a) Move fish ladder auxiliary flow pipe to draw water from the forebay rather than through the v-screen channel – With the existing fish screen/fish ladder configuration diverting its maximum flow volume, up to 171 cfs that passes through the v-screen system is returned to the river downstream. Of this, only 50 cfs is needed to return the juvenile fish to the river downstream and allow adult fish to migrate upstream via the fish ladder. The auxiliary pipeline carries 121 cfs of screened water to the river. If the 121 cfs for the auxiliary water supply was conveyed via a dedicated pipeline directly from the forebay, an additional 121 cfs could remain in the canal at peak discharge. The AWS flow would either need to be screened or, if unscreened, the pipe size, slope and flow volume would need to be designed to meet NMFS' criteria for a bypass pipe and outfall. The concept of using a passive, cylindrical tee screen for an alternative AWS intake was posed during a post-meeting discussion.

a) Increase the v-screen area by extending the screens upstream with additional panels or increasing the length of the screen panels at their existing locations by angling the face of the screens from the

vertical – distributing the withdrawn flow over a larger screen area would allow more flow to be withdrawn; the additional screen area would allow more flow to be withdrawn even if the reduction in screen porosity due to debris is the same and thus should allow more effective withdrawal at higher river flow rates.

b) Add a second v-screen channel – the second v-screen channel could be used in combination with the existing channel or to provide redundancy in the event that the existing channel becomes clogged and needs to be shut down.
c) Use passive screening, such as one or more cylindrical tee-screens, located in the vicinity of the timber barrier – the passive screen and associated conduit would be used to provide a secondary or supplemental source of water to the canal.
d) Replace the v-screen system with an electrical barrier – if an effective electrical barrier can be implemented to exclude fish from the canal, screening would be unnecessary. An alternative passage route with sufficient flow to convey the upstream and downstream migrants would need to be provided.
e) Replace the v-screen system with an infiltration basin in the forebay – if an effective infiltration basin could be provided, then screening would be unnecessary. A passage route with sufficient flow to convey the upstream and downstream migrants would need to be provided.

Category 5: Supplemental Action – these are concepts that would be used in conjunction with other modifications to improve performance. They are not intended as stand-alone options.

a) Routinely dredge the forebay – dredging the forebay would help to address the natural tendency of the river to trend toward the left, away from the canal intake and reduce the volume of grasses and plant matter in the immediate vicinity of the intake. Although sediment deposition in the v-screen channels has not been identified as a problem by CMWD, routine dredging would encourage some settlement upstream of the diversion.
b) Routine removal of the calcification deposits – calcification deposits on the back side of the screen occlude the open area, increase head loss and restrict the capacity of the screens to divert flow. CMWD should inspect the back sides of the screens during non-diversion season and if calcification deposits are observed, pull the screens and either manually clean them on site or remove them from site for chemical cleaning. The meeting participants noted that for the existing screen system design it would be easier to clean the screens in place rather than removing them from site.
c) Balance the screen system – if debris is not accumulating at a uniform rate across all screen panels, the screens could be balanced by varying the porosity of the baffle panels to force a uniform flow withdrawal. This may improve the cleaning efficiency. However, during the site visit the meeting participants observed that the space between the baffle panels exceeds the size of the openings themselves; therefore it is likely not possible to adjust the porosity by changing the relative positions of the panels as intended for the existing baffle system. In addition, it appeared that the baffle panels had been welded together, therefore the baffles cannot be readily adjusted.
d) Operations - review current operations procedures to provide suggestions that could improve screen efficiencies.

Office Locations

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PO Box 1604
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(805) 904-6530

VENTURA
56 E. Main Street, Suite 103
Ventura, California, 93001
(805) 904-6530

BAKERSFIELD
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Bakersfield, California, 93301
(661) 873-4262

FRESNO
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CASITAS MUNICIPAL WATER DISTRICT
MEMORANDUM

TO: MICHAEL FLOOD, GENERAL MANAGER

FROM: JULIA ARANDA, ENGINEERING MANAGER

SUBJECT: TECHNICAL ADVISORY COMMITTEE FOR MATILIJA FORMATION DEEP WELLS

DATE: 04/24/2019

RECOMMENDATION:

It is recommended the Board of Directors authorize the General Manager to enter into an agreement for professional consulting services with Pueblo Water Resources, Inc. for the sum not to exceed $25,712.00 for the Matilija Formation Groundwater Supply Project Technical Advisory Committee (TAC).

BACKGROUND AND DISCUSSION:

The Board requested a 'second opinion' regarding the feasibility of the Matilija Formation Deep Wells project, including the Horizontal Bore (HOBO) and Vertical Bore (VERBO) components. Pueblo Water Resources (Pueblo) discussed the concept of a TAC at the Water Resources Committee meeting of March 19, 2019 and subsequently prepared a proposal for review at the Water Resources Committee meeting of April 16, 2019.

Key project tasks include:

- Project management and TAC Coordination
- Project Definition and Scope Development
- Review and Assessment of Available Information
- Consolidated TAC Summary Memorandum

The overall schedule for completion of these tasks is three months.

BUDGET IMPACT:

The 2018-19 fiscal year budget includes a line item for Robles Test Bore from which these services will be funded.

Attachment:
Proposal from Pueblo Water Resources, Inc. dated April 16, 2019

April 11, 2019
Project No. 18-0145

Casitas Municipal Water District
1055 N. Ventura Avenue
Oak View, California 93022

Attention: Julia Aranda, P.E.
Engineering Manager

Subject: Proposal for Professional Services, Matilija Formation Groundwater Supply Project Technical Advisory Committee.

Dear Ms. Aranda:

The Casitas Municipal Water District (District) contracted with Kear Groundwater (KG) and Water Resource Engineering Associates (WREA) to investigate the feasibility of developing emergency groundwater supply from a deep vertical well drilled into the Matilija Sandstone Formation in the Santa Ynez Mountains near Ojai, California. The first step in the investigation would be the drilling of a test well, which would be constructed on District property located approximately 1,100-feet southwest of the Robles Diversion Dam on the west side of the Ventura River, near the intersection of Rice Canyon and Cooper Canyon Roads. It is intended that information acquired and knowledge gained through the drilling and testing of the test well would be used to evaluate the feasibility and provide information for a permanent, full-scale Matilija Formation Groundwater Supply Project (Matilija Project).

Because of the unconventionally deep drilling and proposed well completion depths (up to 7000 feet), likely difficult drilling and well construction conditions, uncertainties regarding instantaneous and sustainable yield of such a bedrock well, water quality concerns, and likely high pilot drilling/testing and full-scale project costs, the District has asked Pueblo Water Resources, Inc. (Pueblo) to assist in project evaluation by coordinating and facilitating an independent, third-party review of pilot project plans and full scale project feasibility. To accommodate the District's request, Pueblo has assembled a Technical Advisory Committee (TAC) for the Matilija Project consisting of a team of highly qualified experts with extensive experience with Santa Ynez Mountain hydrogeology and the planning and execution of high capacity groundwater supply projects. This proposal presents a scope and budget for the Matilija Project TAC. Based on the availability of existing materials for the TACs review and consideration, we envision that the TAC evaluation will be conducted in incremental phases, with the likely results of this first phase including a request for additional information from the District's consultants for further review and analysis. This proposal presents the scope and fees associated with the first phase of TAC review.

Technical Advisory Committee Members

The TAC will consist of three members: Martin Feeney, P.G., C.Hg., C.E.G.; Paul Sorensen, P.G., C.Hg., C.E.G.; and Joe Oliver, P.G., C.Hg. The careers of all three of the TAC

members have focused on groundwater supply projects within the Central Coast area. Mr. Feeney was one of the founding Principals of Staal, Gardner, and Dunne, Inc., and has worked as a consulting hydrogeologist, with significant well and water supply project experience, for the past thirty seven years. Mr. Sorensen, Principal Hydrogeologist with GSI Water Solutions in San Luis Obispo, has also focused his career on groundwater supply projects in Santa Barbara, San Luis Obispo, and Monterey Counties for the past forty years. Mr. Sorensen's specific expertise is with groundwater supply and development, basin analysis, and water resource management. Mr. Oliver has over 40 years' experience as a groundwater professional. He was formerly the Water Resources Manager for the Monterey Peninsula Water Management District where he was responsible for the development and oversight of numerous groundwater supply development projects, including those dealing with fractured bedrock systems. Since his retirement in 2017, Mr. Oliver has been working as an independent, consulting hydrogeologist. During much of their respective careers, the three members of the TAC have had professional relationships with each other and have worked together on numerous water supply projects. Bios of each of the TAC members are attached.

Scope of Work

Based on our understanding of the project and the District's needs, and our extensive experience with similar projects for other municipal clients, we have developed the following scope of work.

Task 1. Project Management and TAC Coordination

Pueblo will serve as the manager and the coordinator of the TAC throughout the project. This will include serving as the primary point of contact between the District and the TAC. Pueblo will coordinate TAC activities, facilitate meetings between the TAC members when required, and establish schedules for TAC deliverables. This will include serving as the primary point of contact between the District and the TAC.

Task 2. Project Definition and TAC Scope Development

Pueblo will schedule an internal kick-off meeting to initiate the TAC process. The purpose of the kick-off meeting is to discuss the project description, take inventory of the materials to be reviewed, and define the goals and objectives of the TAC. The goals and objectives of the TAC will be focused on providing the District with a sound, independent review regarding the preliminary feasibility of the Matilija Project. The unified TAC goals and objectives will be discussed with the District for review to establish consensus moving forward with the TAC review.

Task 3. Review and Assessment of Available Information

Each of the TAC members will perform an independent review and assessment of available materials, and will establish, comments, concerns, and questions regarding their respective evaluation of materials. These assessments will include questions and conclusions about the materials provided to that point, and recommendations for further action or requirements. Once each TAC member has performed their respective reviews, a meeting amongst the TAC members will be held to discuss results of the independent TAC reviews. The reviews will be discussed in terms of the goals and objectives previously established by the TAC and approved by the District.

Task 4. TAC Summary Memorandum

A unified, summary memorandum will be prepared following completion of Task 3 incorporating the questions, concerns, and conclusions resulting from the TAC review. The memorandum will first be issued as a draft, and Pueblo will meet with the District to discuss. Following consideration of District input, the memorandum will be finalized. Pueblo will be available to present and discuss the memorandum with District staff and/or Board members at a committee meeting.

Estimated Fees

The total cost for the first phase of the Matilija Project TAC is estimated to total $25,172. The cost estimate is based on the established scope of work and the fee schedules of the various TAC members, and includes a 15% markup on fees for Pueblo's TAC subconsultants. A spreadsheet showing estimates of costs by task is attached, and a summary of the estimated costs is presented in the table below:

Estimated Costs Summary
Matilija Formation Water Supply Project TAC – Phase 1

Task Description	Estimated Cost
1 – Project Management and TAC Coordination	$2,460
2 – Project Definition and TAC Scope Development	$3,420
3 – Review and Assessment of Available Information	$12,040
4 – Consolidated TAC Summary Memorandum	$7,252
Total Estimated Costs	**$25,172**

Project Schedule

All members of the TAC are prepared to begin work immediately upon notice to proceed. An estimate of the time of completion of each task, from the notice to proceed date, is provided below:

Task Description	Completion from NTP
1 – Project Management and TAC Coordination	4 weeks
2 – Project Definition and TAC Scope Development	6 weeks
3 – Review and Assessment of Available Information	10 weeks
4 – Consolidated TAC Summary Memorandum	12 weeks
Total Project Completion Duration	**3 months**

We appreciate the opportunity to provide assistance to the District with the evaluation of the Matilija Project feasibility. Please contact me if you have any questions or require additional information regarding the TAC or this proposal.

Sincerely,

PUEBLO WATER RESOURCES, INC.

Michael S. Burke, P.G., C.Hg
Principal Hydrogeologist

Attachments: TAC Committee Member Bios
Cost Estimation Worksheet

TECHNICAL ADVISORY COMMITTEE BIOS
MATILIJA FORMATION GROUNDWATER SUPPLY PROJECT

Martin Feeney, P.G., C.E.G., C.Hg.

Mr. Feeney is a California Professional Geologist with specialty certifications in engineering geology (CEG) and hydrogeology (CHg) in with more than 35 years' experience in groundwater consulting. Mr. Feeney is also holds the title of Certified Ground Water Professional from the National Ground Water Association. Mr. Feeney was a founding Principal of the Ventura Consulting Firm, Staal, Gardner and Dunne, Inc. Mr. Feeney has been an independent consultant for the last 20 years. Mr. Feeney's experience in groundwater supply issues includes basin analysis, well siting and design, groundwater modeling (both flow and solute-transport), perennial yield analysis, water quality assessments, and regulatory compliance.

During his career, Mr. Feeney has designed and managed the construction of over 130 municipal wells with depths to 2,500 feet, diameters to 24-inches and discharge rates of up to 6,000 gpm. Mr. Feeney has significant experience in drilling and well construction technology as well as the assessment and rehabilitation of existing wells. Mr. Feeney also has significant experience with hydrogeologic issues associated with desalination facilities, and has designed, permitted, and installed intake and brine disposal wells for projects in California and in the Caribbean.

In recent years, Mr. Feeney has served on various advisory panels and water commissions, including those for the Seaside Basin Watermaster, the City of Santa Barbara, and the City of Ventura.

Paul Sorensen, P.G., C.E.G., C.Hg., GSI Water Solutions, Inc.

Paul Sorensen has more than 35 years of experience managing and performing projects related to hydrogeology and geology with specific expertise in groundwater supply and development, basin analysis, and water resource management. His technical expertise includes water well and monitoring well design and construction of deep municipal wells in unconsolidated and consolidated aquifer environments in Santa Barbara, San Luis Obispo, and Kern counties, regional groundwater basin analyses, perennial yield and basin-wide water balance calculations, groundwater quality studies, and aquifer test analyses. Paul is also an integral part of GSI's senior team of groundwater specialists that addresses the complex issues arising from California's Sustainable Groundwater Management Act (SGMA).

Joe Oliver, P.G., C.Hg.

Mr. Oliver has over 40 years' experience in the field of groundwater hydrology. He was formerly the Water Resources Manager for the Monterey Peninsula Water Management District (MPWMD) where he was the principal investigator for all groundwater-resources investigations conducted by MPWMD for more than two decades, including the construction of numerous monitoring and production wells. His work at MPWMD included the oversight of groundwater

supply investigations from fractured rock aquifer systems in the Monterey Peninsula region, and development of a database to better track and understand the opportunities and constraints associated with these resources.

His previous engagements have included the U.S. Geological Survey, the Colorado Department of Natural Resources, and several private consulting firms specializing in water resources management throughout the Western U.S. He holds a bachelor's and master's degree in geology, specializing in hydrogeology and is a California Registered Geologist and Certified Hydrogeologist. His expertise includes geochemistry, well technology, well rehabilitation, aquifer testing, aquifer storage and recovery, groundwater modeling, and water resources sustainability assessment.

Casitas Municipal Water District

Matilija Formation Groundwater Supply Project TAC - Phase 1

Estimated Fees for Professional Services

LABOR		Principal Professional Pueblo	M. Feeney	P. Sorensen GSIWS	J. Oliver	Hours by Task	Estimated Task Cost *
	Hourly Fee	$205	$200	$260	$190		
Task	Task Description						
1	Project Management and TAC Coordination	12				12	$ 2,460
2	Project Definition and TAC Scope Development	4	4	4	4	16	$ 3,420
3	Review and Assessment of Available Information	8	16	16	16	56	$ 12,040
4	Consolidated TAC Summary Memorandum	8	4	4	16	32	$ 7,252
				Total Labor Hours:		116	
				Total Labor Costs:		$25,172	

* Includes 15% Markup on TAC Subconsultants

CASITAS MUNICIPAL WATER DISTRICT

MINUTES
Executive Committee

DATE: April 19, 2019
TO: Board of Directors
FROM: General Manager, Michael Flood
Re: Executive Committee Meeting of April 12, 2019, at 1000 hours.

RECOMMENDATION:

It is recommended that the Board of Directors receive and file this report.

BACKGROUND AND OVERVIEW:

1. **Roll Call**.
   Director Pete Kaiser
   Director Russ Baggerly
   General Manager, Michael Flood
   Executive Administrator Rebekah Vieira
   District Counsel Robert Kwong

2. **Public Comments**. None

3. **Board comments**. None

4. **Manager's Comments.** None

5. **Discussion of Casitas MWD Draft Bylaws.**
   DC Kwong went through his memo attached to the draft bylaws highlighting some of the points made.

   EA Vieira indicated that Board Member duties and rules of conduct should be included in the bylaws.

   Directors Baggerly and Kaiser indicated that a customer appeals process should be included in the bylaws.

   Director Baggerly indicated that latent powers should be considered.

   Director Kaiser indicated that something about recreation being part of the District's mission should also be included.

   GM Flood indicated that the mission statement will be considered at the May 4th Special Meeting, Board officer designations needed alignment, and President/Chairperson wording needs work.

6. **Board Priority List Update.**
   GM Flood went over the status of the various items in the list and future actions.

   Director Baggerly indicated that the Board needs to be mindful of this list when looking to add additional items to it.

7. **Discussion of the Alliance for Water Resources for Ventura County Political Action Committee (AWRPAC) Endorsement Request.**
   GM Flood made comments about the nature of the request.

   The Committee decided that they would not recommend involvement at this time.

CASITAS MUNICIPAL WATER DISTRICT

MINUTES
Personnel Committee

DATE: April 19, 2019
TO: Board of Directors
FROM: General Manager, Michael Flood
Re: Personnel Committee Meeting of April 9, 2019, at 1630 hours.

RECOMMENDATION:

It is recommended that the Board of Directors receive and file this report.

BACKGROUND AND OVERVIEW:

1. **Roll Call**.
   Director Jim Word
   Director Brian Brennan
   General Manager, Michael Flood
   Executive Administrator, Rebekah Vieira

2. **Public Comments**.
   None.

3. **Board/Management comments**.
   Director Brennan asked for a Human Resources Manager recruitment update to which EA Vieira provided an update.

4. **Review of Proposed Job Classification Adjustments and Related New Job Descriptions:**

   a. Distribution Foreman to Distribution Supervisor.

   b. Utility Foreman to Utility Supervisor.

   c. District Maintenance Foreman to District Maintenance Supervisor.

   d. Lake Casitas Recreation Area (LCRA) Maintenance Foreman to LCRA Maintenance Supervisor.

   GM Flood provided a PowerPoint presentation to present the details of this item. This included a budgetary analysis as well.

5. **Review of Proposed Additional Positions and Related New Job Descriptions:**

   a. Chief Financial Officer.

   b. Customer Service & Accounting Supervisor.

   GM Flood provided a PowerPoint presentation to present the details of this item. This included a budgetary analysis as well.

   Director Brennan inquired as to whether these positions would be advertised.

   Director Word inquired as to whether the job descriptions had been reviewed by the Union.

   GM Flood indicated that the job descriptions were currently under review by the SEIU and that only the Customer Service & Accounting Supervisor position would be advertised.

CASITAS MUNICIPAL WATER DISTRICT

MINUTES
Water Resources Committee

DATE: April 19, 2019
TO: Board of Directors
FROM: General Manager, Michael Flood
Re: Water Resources Committee Meeting of April 16, 2019, at 1000 hours.

RECOMMENDATION:

It is recommended that the Board of Directors receive and file this report.

BACKGROUND AND OVERVIEW:

1. **Roll Call**.
   Director Russ Baggerly
   Director Angelo Spandrio
   General Manager, Michael Flood
   Engineering Manager, Julia Aranda
   Public Relations and Resources Manager, Bryan Sandoval

2. **Public Comments**.
   None

3. **Board comments**.
   None

4. **Manager's Comments.**
   None

5. **Review of the 2016 Urban Water Management Plan Update.**
   PR&RM Sandoval responded to comments and made notes for changes recommended by the Committee.

   Recommendations included changes to the storage numbers for Lake Casitas amongst others.

   The Committee recommended that a finalized version of the plan be brought to the Board of Directors for review, final comments and approval.

6. **Review Matilija Deep Well Project Technical Advisory Committee proposal.**
   Mike Burke of Pueblo Water Resources presented a proposal for the TAC in a not to exceed amount of $25,172.00. Details discussed were the makeup of the Committee and aspects of the review of the Matilija Deep Wells project.

   Director Spandrio indicated that he would like to ensure a risk assessment comes out of the final report of the Committee. Mr. Burke indicated that this would indeed be part of the final report.

   Director Baggerly commented that the proposal looked good and the qualifications of the Committee were respectable to the effort.

   The Water Resources Committee recommended that this proposal be brought forward to the Board of Directors for approval.

7. **Presentation of Robles Fish Passage Fish Screen Enhancements Alternatives Analysis.**
   EM Aranda introduced the MKN team and Mike Nunley of MKN provided a presentation of the

alternatives analysis. Additionally Mr. Nunley indicated that a proposal for designing the prototyping of the alternatives would be ready prior to the next Board meeting.
Director Spandrio asked that an analysis of how much more water could be diverted be done along with the cost of the water lost should the alternatives not be implemented. He also enquired as to the issues of doing consultations with regulators.

Director Baggerly asked about a combination of alternatives along with the possibility of doing something with debris at the overshot gate.

Mr. Nunley indicated that whatever is done within the facility would need to analyze the effect on steelhead as to whether a formal or informal consultation would occur.

8. **Presentation of 2019 Water Supply Assessment.**

GM Flood went over various parts of the memo including recommendations for Board action for FY2020. He also indicated that even though it isn't in the memo, the Board should consider bringing back a limited leak relief program for the customers.

Director Baggerly indicated that customers need to be responsible for their water use but there might be a way to provide provisional conservation stages during the lake's recovery period.

Director Spandrio indicated that the Board should look at softening the stance on leak relief and that there should also be something in the memo about the current safe yield study that is going on right now.

GM Flood indicated that the Comprehensive Water Resources Plan effort would be included in the memo that goes to the Board next week.

United States Department of Agriculture

Office of the Secretary
Washington, D.C. 20250

MAR 22 2019

Mr. Jim Word
President, Board of Directors
Casitas Municipal Water District
1055 Ventura Avenue
Oak View, California 93022

Dear Mr. Word:

Thank you for your letter of October 29, 2018, regarding the Casitas Municipal Water District's (CMWD) request for a permit for stream monitoring devices from the U.S. Department of Agriculture's Forest Service. I apologize for the delayed response.

Los Padres National Forest staff is aware of CMWD's interest in the Matilija Formation Eastern Horizontal Boring Project. The proposed project is extremely complex and involves Federal and state water rights, which will take time to adequately address in a permit decision. The proposal has additional challenges regarding the project's proximity to the Matilija Wilderness and withdrawal of groundwater in a proposed wilderness area.

The Forest Service is aware of the challenges and is working to ensure the appropriate actions are taken. I encourage you to continue to address your concerns with John F. Smith, District Ranger of the Ojai and Santa Barbara Districts, at (805) 967–3481, extension 217.

Sincerely,

Sonny Perdue

Sonny Perdue
Secretary

Casitas Municipal Water District

CFD 2013-1 Inprovement Fund

		Expenses Paid	Interest Earned	Balance
Bond B - Funds Received Beginning Balance	42,658,223.98			42,658,223.98
Purchase Price of Golden State Water		-34,481,628.00		8,176,595.98
Interest Jun 2017			461.18	8,177,057.16
Main Extension Contract Pmt		65,506.41		8,242,563.57
Reinbursment from CFD 2013-1 Meter Cost		189,578.84		8,432,142.41
Interest Jul 2017		61044.46	5,544.85	8,498,731.72
Main Extension Contract Pmt		247,496.63		8,746,228.35
Interest Aug 2017		343024.97	3,677.09	9,092,930.41
Interest Sep 2017		186442	3,647.06	9,283,019.47
Interest Oct 2017		54728	3,437.91	9,341,185.38
Reinbursment from CFD 2013-1 Meter Cost		-1,038,855.67		8,302,329.71
Interest Nov 2017		98026.2	3,614.48	8,403,970.39
Interest Dec 2017		9459.11	3,663.59	8,417,093.09
Interest Jan 2018		17387.98	3,894.34	8,438,375.41
Interest Feb 2018		55690.35	4,511.30	8,498,577.06
Interest Mar 2018			4,221.55	8,502,798.61
Interest Apr 2018			5,400.71	8,508,199.32
Interest May 2018			6,037.34	8,514,236.66
Interest Jun 2018			6,461.77	8,520,698.43
Interest Jul 2018			6,771.59	8,527,470.02
Interest Aug 2018			7,444.64	8,534,914.66
Interest Sep 2018			7,521.43	8,542,436.09
Interest Oct 2018			7,547.03	8,549,983.12
Interest Nov 2018			8,755.99	8,558,739.11
Interest Dec 2018			8,711.47	8,567,450.58
Interest Jan 2019			9,430.38	8,576,880.96
Interest Feb 2019			10,113.30	8,586,994.26
Interest Mar 2019			9,102.54	8,596,096.80
Less: Pending Projects for Reimbursment				-1,915,968.02
Total funds remaining for improvement:				6,680,128.78

Casitas Municipal Water District

CFD 2013-1 Bond Fund

		Expenses Paid	Interest Earned	Balance
Bond B - Funds Received Beginning Balance	466,447.67			466,447.67
Interest Jun 2017			5.04	466,452.71
Interest Jul 2017			188.62	466,641.33
Interest Aug 2017			232.86	466,874.19
Interest Sep 2017			344.71	467,218.90
Interest Oct 2017			235.37	467,454.27
Interest Nov 2017			247.46	467,701.73
Applied Interest Earned for Pmt of Bond B		-468,270.91		-569.18
Interest Dec 2017			314.41	-254.77
Interest Jan 2018			254.77	0.00
Interest Feb 2018			479.96	479.96
Interest Mar 2018			671.37	1,151.33
Interest Apr 2018			1.05	1,152.38
Interest May 2018			1.20	1,153.58
Interest Jun 2018			1.28	1,154.86
Interest Jul 2018			1.34	1,156.20
Interest Aug 2018			1.48	1,157.68
Sept Adjusted Market Value			2.82	1,160.50
Interest Sep 2018			91.04	1,248.72
Applied Interest Earned for Pmt of Bond B		-1,154.86		93.86
Interest Oct 2018			134.86	228.72
Interest Nov 2018			0.34	229.06
Interest Dec 2018			0.34	229.40
Interest Jan 2019			0.37	229.77
Interest Feb 2019			862.62	1,092.39
Interest Mar 2019			1,194.96	2,287.35

Casitas Municipal Water District
CFD 2013 - 1 Projects to be reimbursed to CMWD To Date

Project No:	Project Name:	Total Cost To Date
400	Ojai System Masterplan	378,744.07
420	Sunset Place Pipeline Replacement	65,506.41
421	Cuyama, Palomar and El Paseo Roads Pipeline Replacement	189,578.84
422	South San Antonio Street and Crestview Drive Pipeline	61,044.46
423	West and East Ojai Avenue Pipeline Replacement	247,496.63
424	Running Ridge Zone Hydraulic Improvement	343,024.97
425	Well Rehabilation Replacement	186,442.00
426	Valve & Appurtenance Replacement	54,728.00
427	Fiarview Pipeline Replacement	0.00
428	Mutual Wellfield Pipeline	98,026.20
429	Grand Ave Pipeline	9,459.11
430	Signal Booster Zone Hydraulic Improvements	17,387.98
431	Emily Street Pipeline Replacement	55,690.35
432	Casitas-Ojai System Interties	89,000.00
522	Ojai Arc Flash Study	119,839.00
	Project(s) Cost To Date:	1,915,968.02

CASITAS MUNICIPAL WATER DISTRICT
TREASURER'S MONTHLY REPORT OF INVESTMENTS
04/17/19

Type of Invest	Institution	CUSIP	Date of Maturity	Original Cost	Current Mkt Value	Rate of Interest	Date of Deposit	% of Portfolio	Days to Maturity
*TB	US Treasury Inflation Index NTS	912828MF4	1/15/2020	$1,041,021	$1,176,190	1.375%	11/18/2015	5.82%	268
*TB	Federal Home Loan Bank	3130A0EN6	12/10/2021	$547,735	$504,705	2.875%	5/9/2016	2.50%	953
*TB	Federal Home Loan Bank	3130AIXJ2	6/14/2024	$941,144	$859,779	2.875%	8/2/2016	4.25%	1857
*TB	Federal Home Loan Bank	3130A3DL5	9/8/2023	$1,587,180	$1,492,335	2.375%	10/13/2016	7.38%	1581
*TB	Federal Home Loan Bank	3130A5R35	6/13/2025	$773,773	$724,073	2.875%	2/19/2016	3.58%	2216
*TB	Federal Home Loan Bank	3130A5VW6	7/10/2025	$1,025,110	$999,070	2.700%	5/10/2017	4.94%	2243
*TB	Federal Home Loan Bank	3130ADNW8	2/14/2020	$998,230	$1,000,990	3.400%	1/16/2013	4.95%	297
*TB	Federal National Assn	31315P2J7	5/1/2024	$809,970	$745,815	3.300%	5/25/2016	3.69%	1814
*TB	Farmer MAC	31315PYF0	5/2/2028	$512,355	$494,510	2.925%	11/20/2017	2.44%	3255
*TB	Federal Farm CR Bank	31331VWN2	4/13/2026	$940,311	$834,169	5.400%	5/9/2016	4.12%	2516
*TB	Federal Home Loan Bank	313379EE5	6/14/2019	$1,393,598	$1,348,272	1.625%	10/3/2012	6.67%	57
*TB	Federal Home Loan Bank	313383YJ4	9/8/2023	$476,582	$430,089	3.375%	7/14/2016	2.13%	1581
*TB	Farmer MAC	3133EEPH7	2/12/2029	$480,251	$469,592	2.710%	11/20/2017	2.32%	3535
*TB	Federal Farm CR Bank	3133EFK71	3/9/2026	$854,885	$826,921	2.790%	3/28/2016	4.09%	2482
*TB	Federal Farm CR Bank	3133EFYH4	2/8/2027	$1,016,100	$983,440	3.000%	3/24/2016	4.86%	2811
*TB	Federal Farm CR Bank	3133EGWD3	9/29/2027	$694,629	$670,582	2.200%	11/17/2016	3.32%	3042
*TB	Federal Farm CR Bank	3133EGZW8	10/25/2024	$833,918	$811,338	1.980%	10/25/2016	4.01%	1988
*TB	Federal Home Loan Bank	3133XFKF2	6/11/2021	$743,109	$595,958	5.625%	9/8/2014	2.95%	774
*TB	Federal National Assn	3135G0K36	4/24/2026	$2,532,940	$2,416,250	2.125%	7/6/2010	11.95%	2527
*TB	Federal National Assn	3135G0ZR7	9/6/2024	$1,488,050	$1,403,356	2.625%	5/25/2016	6.94%	1939
*TB	Federal Home Loan MTG Corp	3137EADB2	1/13/2022	$683,584	$662,944	2.375%	5/1/2016	3.28%	986
*TB	US Treasury Note	912828WE6	11/15/2023	$770,037	$776,085	2.750%	12/13/2013	3.84%	1648
	Total in Gov't Sec. (11-00-1055-00&1065)			**$21,144,514**	**$20,226,464**			**99.98%**	
	Total Certificates of Deposit: (11.13506)			**$0**	**$0**			**0.00%**	
**	**LAIF as of: (11-00-1050-00)**		N/A	**$267**	**$267**	2.55%	Estimated	**0.00%**	
***	**COVI as of: (11-00-1060-00)**		N/A	**$2,914**	**$2,914**	2.27%	Estimated	**0.01%**	
	TOTAL FUNDS INVESTED			**$21,147,695**	**$20,229,645**			**100.00%**	
	Total Funds Invested last report			$21,147,892	$20,333,753				
	Total Funds Invested 1 Yr. Ago			$21,080,860	$20,185,069				
****	**CASH IN BANK (11-00-1000-00) EST.**			**$2,690,039**	**$2,690,039**				
	CASH IN Custotial Money Market			**$63,601**	**$63,601**	0.30%			
	TOTAL CASH & INVESTMENTS			**$23,901,335**	**$22,983,284**				
	TOTAL CASH & INVESTMENTS 1 YR AGO			$22,950,439	$22,054,648				

*CD CD - Certificate of Deposit
*TB TB - Federal Treasury Bonds or Bills
** Local Agency Investment Fund
*** County of Ventura Investment Fund
Estimated interest rate, actual not due at present time.
**** Cash in bank

No investments were made pursuant to subdivision (i) of Section 53601, Section 53601.1 and subdivision (i) Section 53635 of the Government Code.
All investments were made in accordance with the Treasurer's annual statement of investment policy.