HERITAGE RANCH COMMUNITY SERVICES DISTRICT
BOARD OF DIRECTORS' REGULAR MEETING
Minutes of February 18, 2021

This meeting was held virtually pursuant to the virtual meeting protocols as outlined in the President's Declaration of April 6, 2020.

1. **4:00 PM OPEN SESSION / CALL TO ORDER / FLAG SALUTE**

   President Capps called the meeting to order at 4:00 pm and led the flag salute.

2. **ROLL CALL**

   Secretary Gelos called the role. Director Burgess was absent. All other Directors were present.

   Staff present: General Manager Scott Duffield, Office Supervisor/Board Secretary Kristen Gelos, District legal counsel Jeff Minnery and Jennifer Blackburn.

3. **PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA**

   Cynthia Replogle, Oceano CSD Director, sent an email to the Board which was a Letter of Support of the proposed IWMA Ordinance to Regulate Polystyrene and wanted to make sure our Board was aware of this Ordinance.

4. **CONSENT ITEMS**

   a. **Meeting Minutes:** Receive/approve minutes of regular meeting of January 21, 2021.
   b. **Warrant Register:** Receive/approve January 2021 warrants.
   c. **Treasurer's Report:** Receive/file January 2021 report.
   d. **Fiscal Report:** Receive/file January 2021 status report.

   Director Cousineau made a motion to approve all consent items as presented. Director Rowley seconded the motion. The motion passed by the following roll call vote:

   Ayes: Barker, Capps, Cousineau, Rowley
   Absent: Burgess

5. **DISCUSSION ITEMS**

   Director Burgess arrived at 4:07pm

   a. **Request to receive and file Photovoltaic System Project updates.**

   Manager Duffield provided a power-point presentation with updates on the project and answered any questions the board had.

   The report was received and filed.

6. MANAGER'S REPORT

Manager Duffield provided a brief summary of the item and answered any questions the board had.

The report was received and filed.

7. STAFF REPORTS

The reports were received and filed.

8. COMMITTEE AND DIRECTOR REPORTS

Director Cousineau wanted to commend the staff working through the storm and the issues that arose from it. He wanted to make sure they knew how much the Board appreciates their efforts.

9. ADJOURNMENT

On a motion by Director Capps and seconded by Director Barker, the meeting adjourned at 4:35 pm to the next scheduled regular meeting on Thursday, March 18, 2021.

APPROVED:

_____

Devin Capps, President
Board of Directors

ATTEST:

_____

Kristen Gelos, Secretary
Board of Directors

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021
WARRANT REGISTER

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
2/2/2021	INTERNAL REVENUE SERVICE		
	FEDERAL WITHHOLDING TAXES	1,957.15	
	FICA WITHIHOLDING	303.08	
	MEDICARE	733.80	$ 2,994.03
2/2/2021	EMPLOYMENT DEVELOPMENT DEPARTMENT		
	ETT	19.75	
	SDI	303.64	
	SUI	395.06	
	STATE WITHHOLDING	660.88	$ 1,379.33
2/2/2021	SAN MIGUEL GARBAGE		
	DELINQUENT SOLID WASTE FEES	374.50	$ 374.50
2/3/2021	CALPERS HEALTH BENEFITS		
	CALPERS HEALTH BENEFITS	9,045.65	
	EMPLOYEE PAID HEALTH BENEFIT	957.97	
	EMPLOYEE PAID HEALTH BENEFIT	957.97	
	EMPLOYEE PAID HEALTH BENEFIT	957.97	$ 11,919.56
2/5/2021	J.B. DEWAR. INC.		
	FUEL & OIL	492.33	$ 492.33
2/5/2021	CALPERS 457 DEFFERED COMP PROG		
	PERS 457- DEFFERED COMP.	1,320.00	$ 1,320.00
2/5/2021	CALPERS RETIREMENT SYSTEM		
	PERS RETIREMENT	2,433.72	
	PERS RETIREMENT TIER 2	1,075.89	
	PERS RETIREMENT PEPRA	615.31	
	SURVIVOR BENEFIT	6.51	$ 4,131.43
2/8/2021	PG&E		
	ELECTRICTIY	16,978.03	$ 16,978.03
2/9/2021	GREAT WESTERN ALARM		
	ALARM & ANSWERING SERVICE	262.60	$ 262.60
2/9/2021	WALLACE GROUP		
	PVS PROJECT	1,121.25	
	PVS PROJECT	1,511.25	
	VERTICAL INTAKE PROJECT	1,460.07	$ 4,092.57

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021
WARRANT REGISTER

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
2/9/2021	ADAMSKI, MOROSKI, MADDEN, CUMB		
	LEGAL & ATTORNEY	1,217.00	$ 1,217.00
2/9/2021	RYAN BRINK		
	CELL & INTERNET ALLOWANCE	80.00	$ 80.00
2/9/2021	RELIABLE OFFICE MACHINE REPAIR		
	OFFICE SUPPLIES	282.31	$ 282.31
2/9/2021	SLO COUNTY AIR POLLUTION CONTROL		
	LICENSES & PERMITS	2,033.50	$ 2,033.50
2/9/2021	FGL ENVIRONMENTAL		
	LAB TESTING	951.00	$ 951.00
2/9/2021	SWRCB		
	LAB TESTING	2,800.00	$ 2,800.00
2/9/2021	ROY ARNOLD		
	CELL & INTERNET ALLOWANCE	80.00	$ 80.00
2/9/2021	FLUID RESOURCE MANAGEMENT		
	PROFESSIONAL SERVICES	550.75	
	PROFESSIONAL SERVICES	720.60	$ 1,271.35
2/9/2021	NAPA AUTO PARTS		
	MAINTENANCE FIXED EQUIPMENT	251.92	$ 251.92
2/9/2021	ABALONE COAST ANALYTICAL, INC.		
	LAB TESTING	1,284.00	
	LAB TESTING	2,745.00	$ 4,029.00
2/9/2021	FASTENAL COMPANY		
	MAINTENANCE FIXED EQUIPMENT	53.67	$ 53.67
2/9/2021	KRISTEN GELOS		
	MEDICAL REIMBURSEMENTS	732.69	
	CELL & INTERNET ALLOWANCE	40.00	$ 772.69
2/9/2021	JAMES A. PRITCHETT		
	CELL & INTERNET ALLOWANCE	80.00	$ 80.00

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021
WARRANT REGISTER

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
2/9/2021	R&B COMPANY A CORE & MAIN COMPANY		
	METERS & EQUIPMENT	3,429.86	
	METERS & EQUIPMENT	243.64	$ 3,673.50
2/9/2021	PITNEY BOWES GLOBAL FINANCIAL		
	POSTAGE METER LEASE	161.79	$ 161.79
2/9/2021	BURT INDUSTRIAL SUPPLY		
	VEHICLES/SM TOOLS & EQUIPMENT	506.14	$ 506.14
2/9/2021	MICHAEL K. NUNLEY & ASSOCIATES		
	PROJECT X	486.16	$ 486.16
2/9/2021	DATA PROSE LLC		
	JANUARY BILLING	1,121.29	$ 1,121.29
2/9/2021	SCOTT DUFFIELD		
	CELL & INTERNET ALLOWANCE	40.00	$ 40.00
2/9/2021	RIVAL TECHNOLOGY INC.		
	PROFESSIONAL SERVICES	630.70	
	COMPUTER / SOFTWARE	130.00	$ 760.70
2/9/2021	MARK HUMPHREY		
	CELL & INTERNET ALLOWANCE	80.00	$ 80.00
2/9/2021	KENWOOD ENERGY		
	PVS PROJECT	4,436.25	$ 4,436.25
2/9/2021	ALL WAYS CLEAN		
	STRUCTURES & GROUNDS	400.00	$ 400.00
2/9/2021	BRIAN VOGEL		
	CELL & INTERNET ALLOWANCE	80.00	$ 80.00
2/9/2021	ALL AMERICAN DRILLING, INC.		
	VERTICAL INTAKE NO. 1 PROJECT	2,656.70	$ 2,656.70
2/9/2021	WHIT'S-TURN TREE CARE		
	STRUCTURES & GROUNDS	3,435.00	$ 3,435.00
2/12/2021	CALPERS 457 DEFFERED COMP PROG		
	PERS 457- DEFFERED COMP.	1,320.00	$ 1,320.00

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021
WARRANT REGISTER

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
2/11/2021	READY REFRESH BY NESTLE		
	LAB TESTING	76.83	$ 76.83
2/12/2021	R. BRINK		
	NET PAYROLL	2,638.36	$ 2,638.36
2/12/2021	R. ARNOLD		
	NET PAYROLL	2,286.96	$ 2,286.96
2/12/2021	J. PRITCHETT		
	NET PAYROLL	3,132.27	$ 3,132.27
2/12/2021	M. HUMPHREY		
	NET PAYROLL	2,017.87	$ 2,017.87
2/12/2021	B. VOGEL		
	NET PAYROLL	1,963.10	$ 1,963.10
2/12/2021	K. GELOS		
	NET PAYROLL	2,385.10	$ 2,385.10
2/12/2021	D. BURGESS		
	NET PAYROLL	92.35	$ 92.35
2/12/2021	B. BARKER		
	NET PAYROLL	92.35	$ 92.35
2/12/2021	M. ROWLEY		
	NET PAYROLL	92.35	$ 92.35
2/12/2021	R. COUSINEAU		
	NET PAYROLL	92.35	$ 92.35
2/12/2021	D. DUFFIELD		
	NET PAYROLL	3,484.17	$ 3,484.17
2/12/2021	D. CAPPS		
	NET PAYROLL	92.35	$ 92.35
2/12/2021	INTERNAL REVENUE SERVICE		
	FICA WITHIHOLDING	(241.08)	
	FEDERAL WITHHOLDING TAXES	2,014.59	
	MEDICARE	741.88	$ 2,515.39

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021
WARRANT REGISTER

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
2/12/2021	EMPLOYMENT DEVELOPMENT DEPARTMENT		
	ETT	7.01	
	SDI	273.81	
	SUI	154.10	
	STATE WITHHOLDING	715.24	$ 1,150.16
2/12/2021	CALPERS RETIREMENT SYSTEM		
	EMPLOYER'S CONTRIBUTION	15.27	
	PERS RETIREMENT	2,433.72	
	PERS RETIREMENT TIER 2	1,075.89	
	PERS RETIREMENT PEPRA	615.31	
	SURVIVOR BENEFIT	6.51	$ 4,146.70
2/18/2021	AT&T		
	TELEPHONE & INTERNET	179.03	$ 179.03
2/21/2021	CALPERS RETIREMENT SYSTEM		
	PERS RETIREMENT U/L	6,642.76	
	PERS RETIREMENT U/L	250.10	$ 6,892.86
2/25/2021	RYAN BRINK		
	CELL/INTERNET ALLOWANCE	80.00	$ 80.00
2/25/2021	FGL ENVIRONMENTAL		
	LAB TESTING	1,372.50	$ 1,372.50
2/25/2021	SWRCB		
	LICENSES & PERMITS	10,234.40	$ 10,234.40
2/25/2021	MGE UNDERGROUND		
	HYDRANT METER	23.42	$ 23.42
2/25/2021	COUNTY OF SAN LUIS OBISPO		
	PROFESSIONAL SERVICES	286.70	$ 286.70
2/25/2021	ROY ARNOLD		
	MEDICAL REIMBURSEMENT	250.80	
	CELL/INTERNET ALLOWANCE	80.00	$ 330.80
2/25/2021	KRISTEN GELOS		
	CELL/INTERNET ALLOWANCE	40.00	$ 40.00

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021
WARRANT REGISTER

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
2/25/2021	JAMES A. PRITCHETT		
	CELL/INTERNET ALLOWANCE	80.00	$ 80.00
2/25/2021	R&B COMPANY A CORE & MAIN COMPANY		
	MAINTENANCE FIXED EQUIPMENT	61.78	$ 61.78
2/25/2021	SHORE-TEK INC		
	VEHICLES	82.06	$ 82.06
2/25/2021	DATA PROSE LLC		
	FEBRUARY INSERTS	173.52	$ 173.52
2/25/2021	SCOTT DUFFIELD		
	CELL/INTERNET ALLOWANCE	40.00	$ 40.00
2/25/2021	WESTERN EXTERMINATOR COMPANY		
	STRUCTURES & GROUNDS	86.00	$ 86.00
2/25/2021	MARK HUMPHREY		
	CELL/INTERNET ALLOWANCE	80.00	$ 80.00
2/25/2021	BRIAN VOGEL		
	CELL/INTERNET ALLOWANCE	80.00	$ 80.00
2/25/2021	LARRY WALKER ASSOCIATES		
	CONSULTING & ENGINEERING	3,994.00	$ 3,994.00
2/12/2021	R. BRINK		
	NET PAYROLL	2,299.76	2,299.76
2/12/2021	R. ARNOLD		
	NET PAYROLL	2,426.22	2,426.22
2/12/2021	J. PRITCHETT		
	NET PAYROLL	2,278.94	2,278.94
2/12/2021	M. HUMPHREY		
	NET PAYROLL	2,334.03	2,334.03
2/12/2021	B. VOGEL		
	NET PAYROLL	1,739.55	1,739.55

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021
WARRANT REGISTER

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
2/12/2021	K. GELOS		
	NET PAYROLL	2,385.10	2,385.10
2/12/2021	D. DUFFIELD		
	NET PAYROLL	3,650.55	3,650.55
2/26/2021	CALPERS 457 DEFFERED COMP PROG		
	PERS 457- DEFFERED COMP.	1,320.00	$ 1,320.00
2/26/2021	INTERNAL REVENUE SERVICE		
	FEDERAL WITHHOLDING TAXES	2,011.95	
	MEDICARE	708.94	$ 2,720.89
2/26/2021	EMPLOYMENT DEVELOPMENT DEPARTMENT		
	ETT	0.18	
	SDI	293.36	
	SUI	3.87	
	STATE WITHHOLDING	714.74	$ 1,012.15
2/26/2021	CALPERS RETIREMENT SYSTEM		
	PERS RETIREMENT	2,433.72	
	PERS RETIREMENT TIER 2	1,075.89	
	PERS RETIREMENT PEPRA	615.31	
	SURVIVOR BENEFIT	6.51	$ 4,131.43
2/26/2021	STOCKMAN'S ENERGY, INC.		
	PVS PROJECT	37,161.15	$ 37,161.15
2/28/2021	CHARTER COMMUNICATIONS		
	INTERNET	84.99	$ 84.99
		GRAND TOTAL FOR ALL WARRANTS	**$190,924.84**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
TREASURER'S REPORT
FEBRUARY 2021

SUMMARY REPORT OF ALL ACCOUNTS

Beginning Balance:	$	4,845,434.67
Ending Balance:	$	4,828,941.07
Variance:	$	(16,493.60)
Interest Earnings for the Month Reported:	$	0.70
Interest Earnings Fiscal Year-to-Date:	$	33,864.24

ANALYSIS OF REVENUES

Total operating income for water and sewer was:	$	153,238.62
Non-operating income was:	$	17,220.88
Franchise fees paid to the District by San Miguel Garbage was:	$	6,615.55
Interest earnings for the P.P.B. checking account was:	$	0.70
Interest earnings for the P.P.B. DWR Loan Services account was:	$	-
Interest earnings for the P.P.B. DWR Reserve account was:	$	-
Interest earnings for the P.P.B. SRF Loan Services account was:	$	-
Interest earnings for the Western Alliance account was:	$	1.07
Interest earnings for the LAIF account was:	$	-

ANALYSIS OF EXPENSES

Pacific Premier Bank checking account total warrants, fees, and Electronic Fund Transfers was:	$	192,264.04

STATEMENT OF COMPLIANCE

This report was prepared in accordance with the Heritage Ranch Community Services District Statement of Investment Policy. All investment activity was within policy limits. There are sufficient funds to meet the next 30 days obligations. Attached is a status report of all accounts and related bank statements.

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
STATUS REPORT FOR ALL ACCOUNTS
FEBRUARY 2021

BEGINNING BALANCE ALL ACCOUNTS		**$ 4,845,434.67**
OPERATING CASH IN DRAWER		**$300.00**
PACIFIC PREMIER BANK - CHECKING		
BEGINNING BALANCE 1/31/2021	$95,651.68	
DEPOSIT REVENUE & MISCELLANEOUS INCOME	$175,768.67	
INTEREST EARNED	$0.70	
TOTAL CHECKS, FEES AND EFT'S	($192,264.04)	
TRANSFER TO LAIF ACCOUNT	$0.00	
ENDING BALANCE 2/28/2021		**$79,157.01**
PACIFIC PREMIER BANK DWR LOAN REPAYMENT (1994-2029):		
LOAN SERVICES ACCOUNT		
BEGINNING BALANCE 1/31/2021	$133.38	
QUARTERLY DEPOSIT	$0.00	
INTEREST EARNED	$0.00	
SEMI-ANNUAL PAYMENT	$0.00	
ENDING BALANCE 2/28/2021		**$133.38**
PACIFIC PREMIER BANK DWR RESERVE ACCOUNT		
BEGINNING BALANCE 1/31/2021	$113,349.28	
INTEREST EARNED	$0.00	
ENDING BALANCE 2/28/2021		**$113,349.28**
PACIFIC PREMIER BANK SDWSRF LOAN SERVICES ACCOUNT		
BEGINNING BALANCE 1/31/2021	$29,585.39	
QUARTERLY DEPOSIT	$0.00	
INTEREST EARNED	$0.00	
SEMI-ANNUAL PAYMENT	$0.00	
ENDING BALANCE 2/28/2021		**$29,585.39**
WESTERN ALLIANCE		
PVS PROJECT CAPITALIZED INTEREST FUND		
BEGINNING BALANCE 1/31/2021	$27,839.69	
INTEREST EARNED	$1.07	
INTEREST PAYMENT	$0.00	
ENDING BALANCE 2/28/2021		**$27,840.76**
LOCAL AGENCY INVESTMENT FUND (LAIF)		
BEGINNING BALANCE 1/31/2021	$4,578,875.25	
INTEREST EARNED	$0.00	
TRANSFER FROM PACIFIC PREMIER CHECKING	$0.00	
TRANSFER TO PACIFIC PREMIER CHECKING	$0.00	
ENDING BALANCE 2/28/2021		**$4,578,875.25**
ENDING BALANCE ALL ACCOUNTS		**$4,828,941.07**
DIFFERENCE FROM LAST MONTH	**Decrease**	**($16,493.60)**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2020/21 Budget

OPERATING INCOME	Budget FY 20/21	Actual February	Actual Year to Date	Percentage Year to Date	Variance Explanation
Water Fees	1,021,511	92,401	814,936	80%	
Sewer Fees	658,012	58,591	443,634	67%	
Hook-Up Fees	3,000	0	7,435	248%	Fluctuates based on activity
Turn on Fees	3,500	300	2,850	81%	
Late Fees	17,000	1,913	13,367	79%	
Plan Check & Inspection	10,000	0	0	0%	
Miscellaneous Income	2,000	33	211	11%	
TOTAL OPERATING INCOME	$1,715,023	$153,239	$1,282,432	75%	
FRANCHISE INCOME					
Solid Waste Franchise Fees	66,984	6,616	54,590	81%	
TOTAL FRANCHISE REVENUE	$66,984	$6,616	$54,590	81%	
NON-OPERATING INCOME					
Standby Charges	242,144	7,032	144,085	60%	
Property Tax	383,074	10,189	245,342	64%	
Interest	80,000	1	33,864	42%	Fluctuates based on activity
Connection Fees	70,580	0	53,533	76%	Fluctuates based on activity
TOTAL NON-OPERATING INCOME	$775,798	$17,221	$476,824	61%	
RESERVE REVENUE					
Capital Reserves	654,941	16,720	281,635	43%	
Operating Reserves	1,508,148	32,113	541,135	36%	
TOTAL RESERVE REVENUE	$2,163,089	$48,833	$822,769	38%	
TOTAL ALL INCOME	$4,720,894	$225,908	$2,636,615	56%	

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2020/21 Budget

OPERATING EXPENSES

SALARIES AND BENEFITS	Budget FY 20/21	Actual February	Actual Year to Date	Percentage Year to Date	Variance Explanation
Salaries	715,567	45,642	393,885	55%	
Health Insurance	103,862	7,333	54,554	53%	
Health Insurance - Retiree	48,451	2,697	30,147	62%	
PERS	126,097	14,262	97,729	78%	
Standby	14,000	937	8,908	64%	
Overtime	16,000	3,171	12,580	79%	Fluctuates based on need & staffing
Workers Comp. Ins.	19,194	0	20,642	108%	Paid Annually
Directors' Fees	12,000	500	4,000	33%	
Medicare/FICA	10,550	1,123	6,876	65%	
Car Allowance	3,000	250	2,000	67%	
SUI/ETT	1,500	108	343	23%	
Uniforms	5,000	0	1,623	32%	
TOTAL SALARIES & BENEFITS	$1,075,221	$76,023	$633,288	59%	

UTILITIES

Electricity	249,810	16,978	170,135	68%	
Propane	1,012	0	413	41%	
Water Purchase	23,114	0	23,114	100%	Paid Semiannually
Telephone/Internet	12,129	1,224	6,665	55%	
TOTAL UTILITIES EXPENSE	$286,065	$18,202	$200,327	70%	

MAINTENANCE & SUPPLIES

Chemicals	76,000	0	43,092	57%	
Computer/Software	29,450	130	6,200	21%	
Equip. Rental/Lease	2,500	0	148	6%	
Fixed Equip.	142,000	367	36,608	26%	
Fuel & Oil	12,000	492	4,964	41%	
Lab Testing	41,000	9,229	22,039	54%	
Office Supplies	2,000	282	846	42%	
Parks & Recreation	0	0	0	0%	
Struct./Grnds.	14,140	3,921	9,980	71%	
Small Tools/Equip.	3,000	327	2,471	82%	
Supplies	5,000	0	2,088	42%	
Meters/Equip.	5,000	3,674	6,038	121%	Fluctuates based on activity
Vehicles	6,500	261	5,555	85%	
TOTAL MAINT. & SUPPLY EXPENSE	$338,590	$18,684	$140,029	41%	

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2020/21 Budget

GENERAL & ADMINISTRATION	Budget FY 20/21	Actual February	Actual Year to Date	Percentage Year to Date	Variance Explanation
Ads./Advertising	1,500	0	948	63%	Fluctuates based on activity
Alarm/Answering Service	4,000	263	2,230	56%	
Audit	8,200	0	10,195	124%	
Bank Charges/Fees	4,000	520	4,937	123%	Fluctuates based on activity
Consulting/Engineering	85,000	3,994	14,210	17%	
Dues/Subscription	8,750	0	8,314	95%	
Elections	1,000	0	0	0%	
Insurance	41,370	0	41,863	101%	Paid Annually
LAFCO	6,600	0	5,870	89%	Paid Annually
Legal/Attorney	25,000	1,217	8,817	35%	
Licenses/Permits	32,100	12,268	21,962	68%	
Plan Check & Inspection	10,000	0	0	0%	
Postage/Billing	20,000	1,457	9,226	46%	
Professional Service	36,900	2,189	32,293	88%	
Tax Collection	5,300	0	0	0%	
Staff Training & Travel	8,000	0	1,517	19%	
Board Training & Travel	1,000	0	0	0%	
TOTAL G & A	$298,720	$21,907	$162,381	54%	
CAPITAL PROJECTS & EQUIPMENT					
Projects	2,078,089	48,833	822,769	40%	
Equipment	85,000	0	0	0%	
TOTAL CAPITAL EXPENSE	$2,163,089	48,833	822,769	38%	
DEBT					
State Loan Payment	103,629	0	51,814	50%	paid semiannually
State Loan Payment Phase II	58,740	0	29,369	50%	paid semiannually
TOTAL DEBT	$162,369	$0	$81,184		
FUNDED DEPRECIATION	$288,000	$24,000	$192,000	67%	
UNFUNDED DEPRECIATION	$0	$0	$0	0%	
TOTAL EXPENSE	$4,612,054	$207,649	$2,231,978	48%	
CONNECTION FEES TRANSFER	$70,580	$0	$53,533	76%	
SOLID WASTE FEES TRANSFER	$30,924	$3,735	$29,489	95%	
FUND TOTAL	**$7,336**	**$14,524**	**$321,616**		

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Scott Duffield, General Manager
Kristen Gelos, Office Supervisor
Steve Tanaka, District Engineer

DATE: March 18, 2021

SUBJECT: Submittal for approval Resolution 21-01 Initiating Proceedings and Establishing of Water and Sewer Standby Charges for Property within the District for Fiscal Year 2021/22.

Recommendation

It is recommended that the Board of Directors:

1. Approve Resolution 21-01 Initiating Proceedings and Establishing of Water and Sewer Standby Charges for Property within the District for Fiscal Year 2021/22; and

2. Schedule a public hearing for May 20, 2021 at 4:00 PM to confirm the Standby Charges.

Background

Standby Charges are a parcel-based source of revenue commonly available to public agencies for use in defraying the cost of having certain benefits available to parcels.

California Government Code Section §54984, et.al. is known as the Uniform Standby Charge Procedures Act and provides the authority to impose these charges and states,

> *"Any local agency which is authorized by law to provide water, sewer, or water and sewer service, and which is providing either or both of those services within its jurisdiction, may fix…a water or sewer standby charge, or both, on land within the jurisdiction of the local agency to which water, sewer, or water and sewer services are made available for any purpose by the agency, whether the water or sewer services are actually used or not."*

Discussion

It has been the practice of Heritage Ranch Community Services District since 1991 to collect Standy Charges to offset certain costs that sustain water and/or sewer services including debt service on the Water Treatment Plant, and maintenance and operations.

Debt Service

In 1994, the construction of the Water Treatment Plant (WTP) and Phase I reconstruction of Pump Stations 1 & 4 were completed. One-half the cost of the WTP and all of the cost for the reconstruction was funded through a $2,179,398, 35-year term loan from the State. In 2015, Phase II Water Treatment Plant improvements which included the Plate Settler construction was completed. This cost is being funded through a $984,090, 20-year term loan also from the State. The total annual debt service for both loans is $162,367.

Maintenance & Operations

Maintenance of fixed equipment includes the water and sewer treatment plants, pumps and lift stations. Operations includes but is not limited to the purchase of raw water, the supplies, tools, and equipment necessary to operate and maintain facilities, and permits required from State and County agencies.

Fiscal Considerations

The total number of parcels subject to the water standby charge is 2,071. The total number of parcels subject to the sewer standby charge is 1,866. The total standby revenue for Fiscal Year 2021/22 is anticipated to be $242,144. Table 1 and 2 illustrate how the charges are allocated and how they are used.

Table 1 Charge by Parcel

Standby Charge	No. of Parcels	$ per Parcel	Total
Water	2071	$98	$202,958
Sewer	1866	$21	$39,186
Total			$242,144

Table 2 Use by Charge

Item	Water	Sewer	Total
Debt Service	$162,367	-	$162,367
Maintenance/Ops	$40,591	$39,186	$79,777
Total	$202,958	$39,186	$242,144

Results

Resolution 21-01 will serve to initiate and establish the Standby Charges for Fiscal Year 2021/22. The Standby Charges will be confirmed at a public hearing on May 20, 2021. If adopted, the Standby Charges will be collected through the County of San Luis Obispo property tax roll as a means of effective, efficient collection.

Attachments: Resolution 21-01 Initiating Proceedings and Establishing of Water and Sewer Standby Charges for Property within the District for Fiscal Year 2021/22
Engineering Report for Standby Charges

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
RESOLUTION NO. 21-01

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE HERITAGE RANCH COMMUNITY SERVICES DISTRICT INITIATING PROCEEDINGS AND ESTABLISHING OF WATER AND SEWER STANDBY CHARGES FOR PROPERTY WITHIN THE DISTRICT FOR FISCAL YEAR 2021/22

WHEREAS, the District is authorized to provide water and sewer services, and is authorized to fix, levy, or collect any standby or availability charge or assessments in connection with providing those services; and

WHEREAS, the report of a qualified engineer is on file with the District and the standby charge proposed is based upon that report. The engineer's report includes all of the following: (1) a description of the charge, (2) a compilation of the amount of the charge proposed for each parcel subject to the charge, (3) a statement of the methodology and rationale followed in determining the degree of benefit conferred by the service for which the charge is made, and (4) other factors listed in Government Code Section §54984.3.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the Board of Directors of the Heritage Ranch Community Services District as follows:

1. The foregoing recitals are true and correct and are incorporated by this reference.

2. The parcels subject to the proposed standby charges are within Tracts 424, 446, 447, 452, 466, 474, 475, 693, 720, 721, 1063, 1094, 1910, 1990, and Parcel Map 71-217. All such parcels are contained within a list of Assessor Parcel Numbers on file with the District and made a part herein.

3. The amount of the proposed charge is $119 per parcel with available water and sewer service, and $98 per parcel with available water service only.

4. The Board of directors will hold a public hearing regarding imposition of a standby charge on each parcel and in the amount set forth within this resolution. The hearing will be held on May 20, 2021 at 4:00 PM or as soon thereafter as the matter may be heard, at the District Office, located at 4870 Heritage Road, in Heritage Ranch, California. At that time and place, the District will hear and consider all objections or protests, if any, to the proposed standby charges.

The District Secretary is hereby directed to cause notice of the time and place of the public hearing on the standby charges to be published before the hearing in the manner required by law.

PASSED, APPROVED AND ADOPTED by the Board of Directors of the Heritage Ranch Community Services District on the 18th day of March 2021, by the following roll call vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

APPROVED:

_____

Devin Capps, President
Board of Directors

ATTEST:

_____

Kristen Gelos
Board Secretary

MEMORANDUM

Heritage Ranch Community Services District
Engineering Report - Standby Charges

Date: March 11, 2021

To: Scott Duffield, PE, General Manager

From: Steven G. Tanaka, PE, District Engineer Steven G. Tanaka, PE Digitally signed by Steven G. Tanaka, PE DN: C=US, E=stevent@wallacegroup.us, O=Wallace Group, CN="Steven G. Tanaka, PE" Date: 2021.03.03 08:23:31-08'00'

Subject: Engineering Report for Standby Charges Pursuant to the Uniform Standby Charge Procedures Act, Section 54984 et. seq. of the California Government Code

In accordance with the requirements of the California Government Code Section 54984, and more particularly Section 54984.3, Sections a-1 to a-4, the District must adopt a resolution to initiate proceedings to fix standby charges for water and sewer facilities at Heritage Ranch Community Services District. The proposed standby charges must be based on an engineering report prepared by a qualified engineer, containing the items and information contained in Section 54984.3, Sections a-1 through 1-4. Furthermore, this Engineering Report and determination of standby charges must be filed with the District on or before August 10th of each calendar year, or prior to the start of each Fiscal Year.

This Engineering Report addresses California Government Code Section 54984, as follows:

54984.3.(a)(1). A description of the charge and the method by which it will be imposed.

Each parcel within the District eligible to receive water and sewer services has an outstanding commitment by the District to provide such services. In order to maintain the commitment to provide water and sewer services to all eligible parcels within the District, the water and sewer systems must be periodically repaired, maintained and replaced to ensure that the water and sewer facilities are capable of providing continued and future services to these parcels, and are kept in good working order. There are also District overhead and administrative charges associated with these activities that must be covered by these standby charges. These costs are determined from, and allocated by the budgeting practices of the District. The fiscal year budget reflects the amounts to be assessed. Standby charges will be assessed to all eligible existing parcels which receive or may receive in the future, water and sewer services from the District.

Debt Service. In 1994, the construction of the Water Treatment Plant (WTP) and Phase I reconstruction of Pump Stations 1 & 4 were completed. One-half the cost of the WTP and all of the cost for the reconstruction of pump stations was funded through a $2,179,398, 35-year term loan from the State. In 2015, Phase II Water Treatment Plant improvements which included the Plate Settler construction was

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completed. This cost is being funded through a $984,090, 20-year term loan also from the State. The total annual debt service for both loans is $162,367.

Maintenance & Operations. Maintenance of fixed equipment includes the water and sewer treatment plants, pumps and lift stations. Operations includes but is not limited to the purchase of raw water, the supplies, tools, and equipment necessary to operate and maintain facilities, and permits required from State and County agencies.

The proposed standby charges will be assessed equally amongst the parcels for which standby charges will be assessed. Standby charges will be imposed and assessed on the County Tax Roll.

54984.3.(a)(2). A compilation of the amount of the charge proposed for each parcel subject to the charge.

There are currently 2,071 existing parcels within the District subject to these standby charges. Of this total, 1,866 parcels would be charged for water and sewer service, and the remaining 205 parcels would be charged for standby water service only. A summary of the standby charges for both water and sewer systems are included in Table 1.

Table 1. Summary of Standby Charges by Parcel

Standby Charge	No. of Parcels	Assessment per Parcel, $	Total
Water	2,071	$ 98	$ 202,958
Sewer	1,866	$ 21	$ 39,186
TOTAL	---	---	$ 242,144

For the water system, $162,367 will be used for the retirement of debt service for the District's Safe Drinking Water loan for construction of the District's Water Treatment Plant and pumping facility improvements, as well as the District's State Water Resources Control Board loan for construction of the Plate Settler at the Water Treatment Plant. The remaining $40,591 will be used for water system maintenance and operation.

For the wastewater system, $39,186 will be used for wastewater system maintenance and operation. Table 2 summarizes the standby charges and their corresponding allocation to water and sewer systems.

Table 2. Summary of Use by Standby Charge

Item	Water	Sewer	Total
Debt Service	$ 162,367	$ -	$ 162,367
Maintenance & Operations	$ 40,591	$ 39,186	$ 79,777
TOTAL	$ 202,958	$ 39,186	$ 242,144

54984.3.(a)(3). A statement of the methodology and rationale followed in determining the degree of benefit conferred by the service for which the charge is made.

Each parcel within the District eligible to receive water and sewer services has an outstanding commitment by the District to provide that service. In preparation for such water and sewer services and for the commitment to standby to provide those services, the water and sewer systems must be periodically repaired, maintained and replaced to ensure that the facilities are in good working order and capable of providing future services to these parcels. In order to prepare for and to have the necessary forces and means to provide the services at all times, and to keep the systems in good working order, the District incurs certain costs. These costs are determined from, and allocated by, the budgeting practices of the District. The budget reflects the amounts to be assessed. The parcels for which these standby charges are assessed, will directly benefit by the District ensuring that such water and sewer services are adequate and available.

The improvements to the water treatment plant benefit all 2,071 parcels whether currently provided water service, or such service is provided in the future for any parcel currently not served water (not yet developed). As such, the annual debt service is shared equally amongst all parcels which benefit equally from these water treatment plant improvements.

The water and sewer system maintenance and operations costs are annual costs to operate the entire water and sewer systems that benefit all 2,071 parcels receiving water services, and all 1,866 parcels receiving sewer services, equally.

Therefore, it is recommended that the District initiate and confirm the Water and Sewer Standby Charges for FY 2021/22 in the amount of $98 for water and $21 for sewer for each and every parcel in the District eligible for these services. These charges should be confirmed prior to July 1, 2021 (beginning of the Fiscal Year) by a Public Hearing and Resolution.

54984.3.(4)(b) A description of the lands upon which the charge is to be imposed. Assessor parcel numbers shall constitute sufficient description for this purpose.

A listing of the 2,071 properties, corresponding assessor parcel numbers, and associated charges will be filed concurrently with the County Auditor's office. This listing is also on file at the District office.

54984.3.(4)(c) The amount of the charge for each of the lands so described.

Please refer to Table 1 of this Engineering Report. For parcels to receive water and sewer services, the charge is $119/parcel. For those parcels to receive only water service, the charge is $98/parcel.

54984.3.(4)(d) The date, time, and place upon which the governing body will hold a public protest hearing regarding the imposition of the charge, and notice that the governing body will hear and consider all objections or protests, if any, to the proposed charges.

The Board will hold a public hearing on May 20, 2021, at 4:00 pm at the District Office, located at 4870 Heritage Road, in Heritage Ranch, California. At that time and place, the District will hear and consider all objections or protests, if any, to the proposed standby or availability charges or assessments.

SGT:

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Personnel Committee

DATE: March 18, 2021

SUBJECT: Submittal for approval Resolution No. 21-02 appointing Michael P. Wilcox interim Operations Manager as a CalPERS retired annuitant pursuant to Government Code Section 21221(h).

Recommendation

It is recommended that the Board of Directors approve Resolution No. 21-02 appointing Michael P. Wilcox interim Operations Manager as a CalPERS retired annuitant pursuant to Government Code Section 21221(h).

Background

Government Code Section 21221 states:

"A retired person may serve without reinstatement from retirement or loss or interruption of benefits provided by this system, as follows:

> *(h) Upon interim appointment by the governing body of a contracting agency to a vacant position during recruitment for a permanent appointment and deemed by the governing body to require specialized skills or during an emergency to prevent stoppage of public business. A retired person shall only be appointed once to this vacant position. These appointments, including any made concurrently pursuant to Section 21224 or 21229, shall not exceed a combined total of 960 hours for all employers each fiscal year. The compensation for the interim appointment shall not exceed the maximum monthly base salary paid to other employees performing comparable duties as listed on a publicly available pay schedule for the vacant position divided by 173.333 to equal an hourly rate. A retired person appointed to a vacant position pursuant to this subdivision shall not receive any benefits, incentives, compensation in lieu of benefits, or any other forms of compensation in addition to the hourly rate. A retired annuitant appointed pursuant to this subdivision shall not work more than 960 hours each fiscal year regardless of whether he or she works for one or more employers."*

Discussion

The governing body of a public agency can appoint a retiree to work in a vacant position during the recruitment to permanently fill the vacancy or during an emergency to prevent stoppage of public business. Section 21221(h) is used to hire retirees on an interim basis to vacant managerial, executive, department heads or other unique positions, such as Operations Manager. Additionally, emergencies that would cause the actual stoppage of public business, e.g., disasters such as floods or earthquakes, etc., are rare; however, the COVID emergency is here and ongoing.

The Operations Manager position has been offered to four individuals over the last twelve months and all four have declined. The General Manager is considering revisions to the job description focusing more on a management position rather than a treatment operator position.

Mr. Wilcox has a Bachelor of Science degree in agricultural engineering from Cal Poly San Luis Obispo and extensive and specialized experience in management, engineering, operations, and maintenance. His most recent employment was with the City of Morro Bay for eleven years as the Maintenance Superintendent where he supervised all aspects of the operations and maintenance of roads, facilities, parks, and fleet, and had thirteen or more employees under his leadership. He simultaneously served as acting Director of Recreation and Parks for a short time. Mr. Wilcox also has administrative experience in purchasing and public contracts, capital project management, and public agency processes. Previous work experience includes engineering and operations management for large scale wine industry in Paso Robles, among other things.

Fiscal Considerations

The Operations Manager position is included in the FY 2020/21 Budget.

A retired annuitant does not receive any benefits, incentives, compensation in lieu of benefits, or any other forms of compensation; only the hourly rate of pay.

Results

The recommended action will provide the District with a valuable employee with the needed skill set to work in the unique position during the recruitment to permanently fill a vacancy.

This retiree's work history and previous experience provides a diverse skill set that will fill the needs of the position, with a very high degree of integrity and leadership, and should be a big help for the operations staff, the General Manager, and the District.

Attachments: Resolution No. 21-02

File: Personnel

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
RESOLUTION NO. 21-02

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE HERITAGE RANCH COMMUNITY SERVICES DISTRICT APPOINTING MICHAEL P. WILCOX INTERIM OPERATIONS MANAGER AS A CALPERS RETIRED ANNUTITANT PURSUANT TO GOVERNMENT CODE SECTION 21221(H)

WHEREAS, an appointment of a retired annuitant under Gov. Code section 21221(h) requires the retiree is appointed into the interim appointment during recruitment for a permanent appointment; and

WHEREAS, the District has a current recruitment for a permanent appointment; and

WHEREAS, the District hereby appoints Michael P. Wilcox as an interim appointment retired annuitant to the vacant position of Operations Manager under Gov. Code section 21221(h), effective March 19, 2021; and

WHEREAS, this Gov. Code section 21221(h) appointment shall only be made once and therefore will end on December 31, 2022; and

WHEREAS, the entire employment agreement, contract or appointment document between Michael P. Wilcox and the District has been reviewed by this body and is attached herein; and

WHEREAS, no matters, issues, terms or conditions related to this employment and appointment have been or will be placed on a consent calendar; and

WHEREAS, the employment shall be limited to 960 hours per fiscal year for all CalPERS employers; and

WHEREAS, the compensation paid to retirees cannot be less than the minimum nor exceed the maximum monthly base salary paid to other employees performing comparable duties, divided by 173.333 to equal the hourly rate; and

WHEREAS, the maximum base salary for this position is $9,096.52 and the hourly equivalent is $52.49, and the minimum base salary for this position is $7,484.83 and the hourly equivalent is $43.19; and

WHEREAS, the hourly rate paid to Michael P. Wilcox will be $43.19; and

WHEREAS, Michael P. Wilcox has not and will not receive any other benefit, incentive, compensation in lieu of benefit or other form of compensation in addition to this hourly pay rate; and

THEREFORE, BE IT RESOLVED THAT the Heritage Ranch Community Services District Board of Directors hereby certifies the nature of the appointment of Michael P. Wilcox as described herein and detailed in the attached employment agreement and that this appointment is necessary to fill the critically needed position of interim Operations Manager for the Heritage Ranch Community Services District as soon as possible during the recruitment to permanently fill the vacancy to prevent stoppage of public business.

PASSED, APPROVED AND ADOPTED by the Board of Directors of the Heritage Ranch Community Services District on the 18th day of March 2021, by the following roll call vote.

AYES:
NOES:
ABSTAIN:
ABSENT:

APPROVED:_____
Devin Capps, President
Board of Directors

ATTEST:_____
Kristen Gelos, Secretary
Board of Directors

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
INTERIM OPERATIONS MANAGER
EMPLOYMENT AGREEMENT

This Employment Agreement ("Agreement"), between the Heritage Ranch Community Services District ("District"), and Michael P. Wilcox ("Interim Operations Manager"), shall be effective on March 19, 2021.

ARTICLE I - TERM OF EMPLOYMENT

Section 1.01 Grant and Acceptance of Employment/Term. The District hereby employs Interim Operations Manager as a CalPERS Retired Annuitant and under the terms and conditions stated in this Agreement, and Operations Manager hereby accepts such employment and continuing until December 31, 2022 unless otherwise terminated as provided in this Agreement.

ARTICLE II - DUTIES OF INTERIM OPERATIONS MANAGER

Section 2.01 General Duties. Subject to Section 2.02 below, Interim Operations Manager is employed as the Interim Operations Manager to perform duties for and on behalf of the District consistent with the job description of the Operations Manager, a copy of which is attached hereto as Exhibit A and incorporated herein by reference, and such other duties as the District, through the General Manager, may direct.

Section 2.02 Scope of Employment. Interim Operations Manager agrees to devote all of his working time, attention, and ability to the business of the District during the term of this Agreement. During the term of this Agreement, Interim Operations Manager shall not engage in any conduct or other employment or business that would unreasonably interfere with his responsibilities and duties to District or that would reflect unfavorably upon the interests of the District. Interim Operations Manager shall perform all services, acts or things necessary or advisable to manage and conduct the business of District, subject to the direction of the General Manager and the policies set by the District.

Section 2.03 Work Schedule. Interim Operations Manager's work schedule (and working time) shall generally conform to that of other employees of the District; however, it is recognized by both parties that Interim Operations Manager's work schedule will be somewhat variable and may not always conform to a standard 40-hour workweek. Interim Operations Manager shall be required to work such additional hours as may be necessary for the performance of all of the duties of the Interim Operations Manager including, but not limited to, responding to emergencies and attending regular meetings of the Board and its committees and such other meetings held outside of the District's regular hours of business as shall be helpful to conduct District business.

Section 2.04 Rules and Regulations. At all times during employment with the District, Interim Operations Manager shall strictly adhere to and obey all the policies, rules and regulations

now in effect or as subsequently adopted governing the conduct of employees of District. Additionally, Interim Operations Manager shall act in a prudent, responsible and ethical manner as to matters not the subject of the District's rules and regulations so as to not bring discredit or disrepute to the District, the Board of Directors, or the position of Interim Operations Manager.

Section 2.05 Change Duties. District shall have the right at any time during the term of this Agreement to assign managerial or supervisory duties to Interim Operations Manager different from the duties originally assigned and specified above and may amend Exhibit A attached hereto.

Section 2.06 Performance. Interim Operations Manager agrees to loyally and conscientiously perform all of the duties and obligations either expressly or implicitly required of the Interim Operations Manager by the terms of this Agreement. Interim Operations Manager agrees to comply with and submit to the directions, instructions, and control of the General Manager in the performance of the stated and implicit duties under this Agreement.

ARTICLE III - COMPENSATION OF INTERIM OPERATIONS MANAGER

Section 3.01 Base Salary. District shall provide to Interim Operations Manager a monthly salary in accordance with the range and step associated with the Operations Manager position and salary schedule approved by the Board, payable in increments according to District's periodic payroll disbursement policy.

ARTICLE IV - BENEFITS

Section 4.01 The Interim Operations Manager is appointed as a CalPERS Retired Annuitant and as such shall not receive any benefits, incentives, compensation in lieu of benefits, or any other forms of compensation in addition to the hourly rate.

ARTICLE V - TERMINATION OF EMPLOYMENT

In addition to the expiration of this Agreement pursuant to Article I above, this Agreement may be terminated as follows:

Section 5.01 The District may terminate employment of Interim Operations Manager at any time with or without cause. In either event, District shall pay Interim Operations Manager all compensation then due and owing; thereafter, all of District’s obligations under this Agreement shall cease.

ARTICLE VI - GENERAL PROVISIONS

Section 6.01 Notices. Any notices to be given hereunder by either party to the other may be affected either by personal delivery in writing or by mail, registered or certified, postage prepaid

with return receipt requested. Notices delivered personally shall be deemed communicated as of actual receipt; mailed notices shall be deemed communicated as of forty-eight (48) hours after mailing.

Section 6.02 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of California. All actions or proceedings arising directly or indirectly from this Agreement shall be litigated only in state or federal courts for the County of San Luis Obispo, State of California, and Interim Operations Manager, as part of the consideration for the execution of this Agreement, hereby consents to the jurisdiction of any local, state or federal court situated within or for the County of San Luis Obispo, State of California.

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

Date: _____ By: _____
Scott B. Duffield, General Manager

INTERIM OPERATIONS MANAGER

Date: _____ By: _____
Michael P. Wilcox, Interim Operations Manager

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Scott Duffield, General Manager
Eileen Shields, MKN & Associates

DATE: March 18, 2021

SUBJECT: Request to receive the Wastewater Treatment Plant Improvements Preliminary Engineering Memorandum dated March 5, 2021 and authorize the General Manager to pursue a Wastewater Treatment Plant project based on Alternative 3B, a membrane bioreactor packaged wastewater treatment plant

Recommendation

It is recommended that the Board of Directors:

1) Receive the Wastewater Treatment Plant Improvements Preliminary Engineering Memorandum dated March 5, 2021; and

2) Authorize the General Manager to pursue a Wastewater Treatment Plant project based on Alternative 3B, a membrane bioreactor packaged wastewater treatment plant.

Background

In 2018, the District's National Pollutant Discharge Elimination System (NPDES) Permit for discharge of treated wastewater from the District's wastewater treatment plant (WWTP) was renewed with revised effluent limits. With the adoption of the 2018 NPDES Permit, the Regional Water Quality Control Board also issued a Time Schedule Order (TSO), which acknowledges the inability to immediately comply with the revised effluent limits for copper, unionized ammonia, and nitrate. The TSO provides a compliance schedule and interim limits for these three constituents.

The current 5-year Capital Improvement Program includes projects for the WWTP identified in the 2017 Recycled Water Study which is scheduled to be initiated this Fiscal Year; however, the revised effluent limits and the inability of the current WWTP to consistently met them require revisions to the previously identified projects.

The District retained MKN & Associates (MKN) in June 2020 to perform a WWTP Alternatives Analysis. In October 2020, MKN provided your Board an update of the

WWTP Alternatives Analysis. MKN completed the draft WWTP Improvements Preliminary Engineering Memorandum ("Report") in December 2020, reviewed it with District staff and received comments, made revisions and finalized the Report earlier this month. The results and recommendations of the Report are summarized in this staff report.

Discussion

The Report identifies and evaluates improvement alternatives to allow the WWTP to meet the permit requirements. Three main treatment alternatives were identified. Two process options were reviewed for the third alternative.

1) Alternative 1: Modifications to the existing pond system with diffused aeration and addition of a moving bed bioreactor (See Figure 2-3 in attached Report)
2) Alternative 2: In-pond extended aeration system (See Figure 3-2 in attached Report)
3) Alternative 3A: Activated sludge packaged wastewater treatment plant (See Figure 4-2 in attached Report)
4) Alternative 3B: Membrane bioreactor packaged wastewater treatment plant (See Figure 5-2 in attached Report)

MKN evaluated the alternatives using various evaluation criteria including impacts to the existing treatment process and space requirements, anticipated water quality, sludge handling, operational requirements, operational control, and costs. Full details of the evaluation, including the qualitative comparison, are included in the Report.

The following tables provide a summary of the alternatives evaluation. Table 1 summarizes the comparison of capital cost opinions, operating and maintenance cost opinions, and 20-year net present values (NPV).

Table 1: Cost Comparison Summary

Alternative	Annual O&M Cost Opinion ($)	Capital Cost Opinion ($MM)	Total 20-Year NPV ($MM)
(1) Modifications to Existing Pond System - Diffused Aeration and Bioreactor	111,500	6.3	9.4
(2) In-pond Extended Aeration System	67,500	8.2	10.1
(3A) Packaged WWTP - Activated Sludge	113,500	9.4	12.6
(3B) Packaged WWTP - Membrane Bioreactor	202,500	10.4	16.0

A scoring and ranking of the project alternatives was developed with input from District staff. Table 2 summarizes the scoring for five main comparative criteria. Scores of 1 through 4 were assigned, with 1 representative of a low score and 4 a high score.

Table 2: Summary of Comparative Alternative Scores

Alternative	Footprint	Water Quality	Operational Requirements	Operational Control	Cost (20-yr NPV)
(1) Modifications to Existing Pond System - Diffused Aeration and Bioreactor	1	1	4	1	4
(2) In-pond Extended Aeration System	2	3	3	2	3
(3A) Packaged WWTP - Activated Sludge	3	3	2	2	2
(3B) Packaged WWTP - Membrane Bioreactor	4	4	1	4	1

The five criteria are not considered equal, when considering the comparison of alternatives. Weighting was developed with input from the District to compare the alternatives and develop the preferred and recommended system. A weighting system of 10 to 50 was used, with 10 representative of a lower weight and 50 representative of a higher (more important/critical) weight.

- Footprint: 10
- Water Quality: 50
- Operational Requirements: 20
- Operational Control: 30
- Cost (Net Present Value): 40

This weighting system was used and multiplied by the scores in Table 2 to develop weighted scores for each alternative. Table 3 summarizes the weighted scoring.

Alternative 3B, the membrane bioreactor packaged WWTP, has the highest total weighted score, at 420 points, followed by Alternative 2, the in-pond extended aeration system with 410 points. Alternative 3A, the activated sludge packaged WWTP, scored 360 points and Alternative 1, the modifications to the existing ponds with diffused aeration system and bioreactor, scored the lowest with 330 points.

Table 3: Summary of Comparative Alternative Weighted Scores

Alternative	Footprint	Water Quality	Operational Requirements	Operational Control	Cost (Net Present Value)	Total Weighted Score
(1) Modifications to Existing Pond System - Diffused Aeration and Bioreactor	10	50	80	30	160	**330**
(2) In-pond Extended Aeration System	20	150	60	60	120	**410**
(3A) Packaged WWTP - Activated Sludge	30	150	40	60	80	**360**
(3B) Packaged WWTP - Membrane Bioreactor	40	200	20	120	40	**420**

Recommendation and Next Steps

The District is bound to the NPDES permit requirements and requirements of the Time Schedule Order issued by the Regional Water Quality Control Board. The existing WWTP cannot reliably meet these requirements. Therefore, improvements to the treatment system are required. Based on the analyses provided in the Report, it is recommended that the District pursue implementation of Alternative 3B, the membrane bioreactor packaged WWTP.

The next major steps for project development are summarized below.

- Conceptual Design, including but not limited to:
- Detailed design criteria
- Evaluation and development of recommendations for electrical service and standby power, equalization storage, and sludge dewatering

- 30% site plan and piping plan
- Technical specifications table of contents
- 30% opinion of probable construction cost
- Project financial plan
- Environmental analyses and documentation
- Final Design and development of construction documents

If authorized to pursue the recommended WWTP Improvement Project, District staff will work to develop the path to move forward and return to your Board as needed providing updates, solicit input, and requesting authorizations.

Fiscal Considerations

An initial amount of $82,500 for development of a wastewater project(s) is included in the current FY 2020/21 Budget. Should additional budget be needed staff will return to your Board.

Moving forward the Board will need to decide on how to fund the WWTP project.

Results

Approval of the recommended action will allow for further implementation of a necessary wastewater treatment plant upgrade project that will not only exceed our permit requirements thus providing a buffer for future more stringent regulatory compliance requirements but will also have the potential to produce recycled water. This will provide increased safety and reliability of wastewater services to our community for a long time.

Attachments: Wastewater Treatment Plant Improvements Preliminary Engineering Memorandum dated March 5, 2021 (MKN) (Appendices are Clerk Filed)

File: Projects_WWTP Project X

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

WASTEWATER TREATMENT PLANT IMPROVEMENTS PRELIMINARY ENGINEERING MEMORANDUM

MARCH 5, 2021

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Heritage Ranch Community Services District
Wastewater Treatment Plant Improvements
Preliminary Engineering Memorandum

March 5, 2021

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WATER - WASTEWATER - REUSE

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1.0 BACKGROUND

1.1 Introduction

HRCSD owns and operates a wastewater treatment and disposal system consisting of two aerated treatment ponds (Ponds 1 and 2), an effluent pumping station, a polishing pond (Pond 3), and slow sand filters. The wastewater treatment plant (WWTP) discharges treated effluent to an ephemeral stream. MKN completed the Heritage Ranch Recycled Water Study in January 2017. At the time, Heritage Ranch Community Services District (HRCSD or District) faced effluent limits for nitrate, acute and chronic toxicity, copper, and unionized ammonia in the receiving water. MKN and Professor Tryg Lundquist (Cal Poly) developed recommendations for managing nitrogen forms by utilizing the two treatment ponds, Pond 3 near the disposal location, and the sand filters. It was assumed that copper requirements would be addressed by improving the potable water treatment process and preventing corrosion of copper plumbing through pH adjustment or use of a corrosion inhibitor.

In 2018, the District's Waste Discharge Requirements (WDR) and National Pollutant Discharge Elimination System (NPDES) Permit was revised. With the adoption of the 2018 NPDES Permit (NPDES No. CA0048941, WDR Order No. R3-2017-0026), the Central Coast Regional Water Quality Control Board (RWQCB) also issued a Time Schedule Order (TSO, TSO No. R3-2019-0011), which acknowledges the District is unable to immediately comply with the copper, unionized ammonia, and nitrate effluent limits. The TSO provides a compliance schedule and interim limits for copper, unionized ammonia, and nitrate. Since adoption of the TSO, District staff has been working on operational changes to manage nitrate and unionized ammonia in the treated effluent.

In order to meet the permit requirements for unionized ammonia and nitrate, the District's WWTP will need to effectively treat the nitrogen compounds through processes called nitrification and denitrification. Nitrogen occurs as several forms in wastewater, including ammonia and organic nitrogen. Natural biochemical processes convert the organic nitrogen into ammonia (ammonification). By the time raw wastewater reaches a wastewater treatment plant, the majority of the organic nitrogen has been converted to ammonia or ammonium. Nitrification occurs in an oxygen rich environment when specific bacteria convert ammonia to nitrite and nitrate in a two-step process. These bacteria require sufficient biomass and oxygen, proper environmental conditions (temperature, pH, alkalinity, etc.), and enough time in the treatment process to complete nitrification.

The denitrification process converts nitrate to nitrogen gas in a reduction process which strips the oxygen from the nitrate, requiring an anoxic (or low oxygen), carbon-rich environment. Ideally, dissolved oxygen is less than 0.2 mg/L. Denitrifying bacteria will use either dissolved oxygen or nitrate. If dissolved oxygen is present, the bacteria will use it first and will not remove the nitrate.

Wastewater treatment improvement alternatives to meet the District's water quality requirements are reviewed in the following sections. Complying with both nitrate and unionized ammonia in plant effluent will require a system that can reliably perform both nitrification and denitrification. Sufficient influent alkalinity is required to allow nitrification to proceed uninhibited. This would need to be verified during design. If sufficient alkalinity is not present in the influent, it can easily be added, but would increase operating costs. It is assumed that

management of the copper effluent limit will be primarily achieved through adjustments to the District's potable water system and implementation of intake credits to account for copper concentrations in the source water.

Table 1-1 summarizes the proposed WWTP design influent flows and loadings for existing and future conditions. Existing conditions are based on review of influent records from 2018 through 2019 provided by the District. Development of these design criteria is described in the Technical Memorandum titled Confirmation of Design Criteria for the WWTP Alternatives Analysis & Preliminary Engineering, by MKN, dated December 2020 (**Appendix A**). Sizing for the alternatives was based on maximum month flows (MMF) and maximum month loadings.

Table 1-1: Summary of Design Criteria Influent Flows and Loadings

	Unit	Existing	Future
Flow Conditions			
ADF	MGD	0.11	0.26
MMF	MGD	0.17	0.40
PDF	MGD	0.26	0.63
PHF	MGD	0.44	1.06
Influent Quality			
Average BOD_5 Concentration	mg/L	395	395
Average BOD_5 Load	ppd	362	857
Average TSS Concentration	mg/L	431	431
Average TSS Load	ppd	395	935
Maximum Month BOD_5 Concentration	mg/L	589	589
Maximum Month BOD_5 Load	ppd	540	1277
Maximum Month TSS Concentration	mg/L	549	549
Maximum Month TSS Load	ppd	504	1190

The effluent quality criteria are based on meeting the District's existing NPDES Permit requirements**. Table 1-2** summarizes the effluent limitations from the NPDES Permit, also used to compare the alternatives. The permit limits effluent dry weather flow to 0.4 MGD on a monthly average basis. See **Appendix B** for additional requirements, including toxicity and bacteria.

Table 1-2: NPDES Effluent Limitations NPDES No. CA0048941, WDR Order No. R3-2017-0026			
Parameter	**Average Monthly**	**Average Weekly**	**Maximum Daily**
Biological Oxygen Demand (BOD)[1] (mg/L)	30	45	90
Total Suspended Solids (TSS)[1] (mg/L)	30	45	90
pH (standard units)	6.0 – 8.3 at all times		
Nitrate (as N) (mg/L)	-	-	10
Oil and Grease (mg/L)	10	-	20
Chlorine, Total Residual (µg/L)	-	-	ND[2]
Settleable Solids (mL/L)	-	-	0.1
Unionized ammonia (mg/L)	0.025	-	-
Copper, total recoverable (µg/L)	11	-	22
[1]The average monthly percent removal for BOD and TSS shall not be less than 85 percent. [2] Applied as an instantaneous effluent limitation.			

1.2 Evaluation Criteria

MKN evaluated three WWTP improvement alternatives to address the water quality requirements, including review of the potential to make improvements to the existing treatment ponds; conversion of the treatment pond system to a wave oxidation system or extended aeration system; and installation of a packaged WWTP (activated sludge system or membrane bioreactor system).

The District is pursuing an intake credit for copper, which was initiated with an evaluation performed as part of the 2017 Draft NPDES Permit review (Calculation of a Copper Intake Credit for Heritage Ranch Community Services District's Wastewater Treatment Facility, Larry Walker Associates, July 20, 2017). The District submitted an updated evaluation and proposed calculation method to the Regional Water Quality Control Board in 2020, and are currently awaiting a response. (See Section 6.0 for additional details). It is anticipated that implementation of the Copper Intake Credit will allow compliance with the copper effluent limit.

The following evaluation criteria was analyzed for each alternative:

- Impacts to existing treatment process
- Space requirement (footprint)
- Anticipated effluent water quality
- Impacts to effluent copper concentrations
- Sludge handling
- Potential to improve treatment plant redundancy

- Capital Cost opinion
- Operation/maintenance cost opinion

2.0 ALTERNATIVE 1 – MODIFICATIONS TO EXISTING POND SYSTEM-DIFFUSED AERATION & BIOREACTOR

2.1 Description

MKN reviewed whether modifications to the existing secondary treatment process at the WWTP could be made to come into compliance with the permit requirements. Triplepoint is an American wastewater treatment equipment company specializing in lagoon technologies. TriplePoint manufactures a diffused aeration system (Ares™ System) for lagoons, and a moving bed biofilm reactor to address ammonia and/or nitrate reduction requirements. The Triplepoint Ares™ lagoon aeration uses fine bubble membrane diffusers to surround the center column that releases coarse air bubbles, to provide both oxygen transfer and mixing. Coarse bubbles are released at the bottom of the center column as shown in **Figure 2-1**. The diffusers are portable, which allows for some adjustment in placement within the lagoons. Each diffuser assembly has weighted legs with air being supplied by an onshore blower. A stainless-steel tethered float, connected to each submerged diffuser assembly, allows the assemblies to be located from the surface. The diffuser assemblies can be installed without dewatering existing treatment ponds and are lifted for maintenance from a boat on the surface.

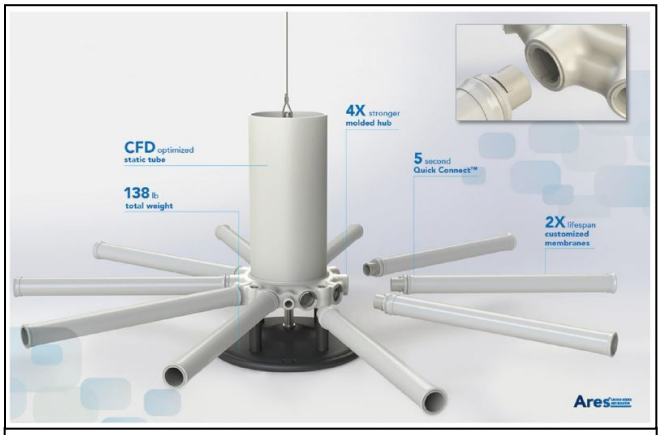

Figure 2-1: Ares™ Diffuser Assembly

To achieve ammonia and nitrate effluent requirements an additional reactor will be required. TriplePoint offers a moving bed biofilm reactor (MBBR), called NitrOx+D®. NitrOx+D® is a nitrification and denitrification reactor designed to utilize the existing lagoons to remove ammonia and nitrate from lagoon effluent, **Figure 2-2**. The system consists of three (3) common-wall concrete tank nitrification reactors (each approximately 16 feet by 16 feet with a height of 21 feet), a post anoxic tank (approximately 18 feet by 18 feet with a side water depth of 18 feet), four (4) stainless steel retention sieves, three (3) stainless steel aeration grids to provide oxygen and mixing to each NitrOx+D® cell, and insulated covers to prevent heat loss. Air is supplied from adjacent blowers.

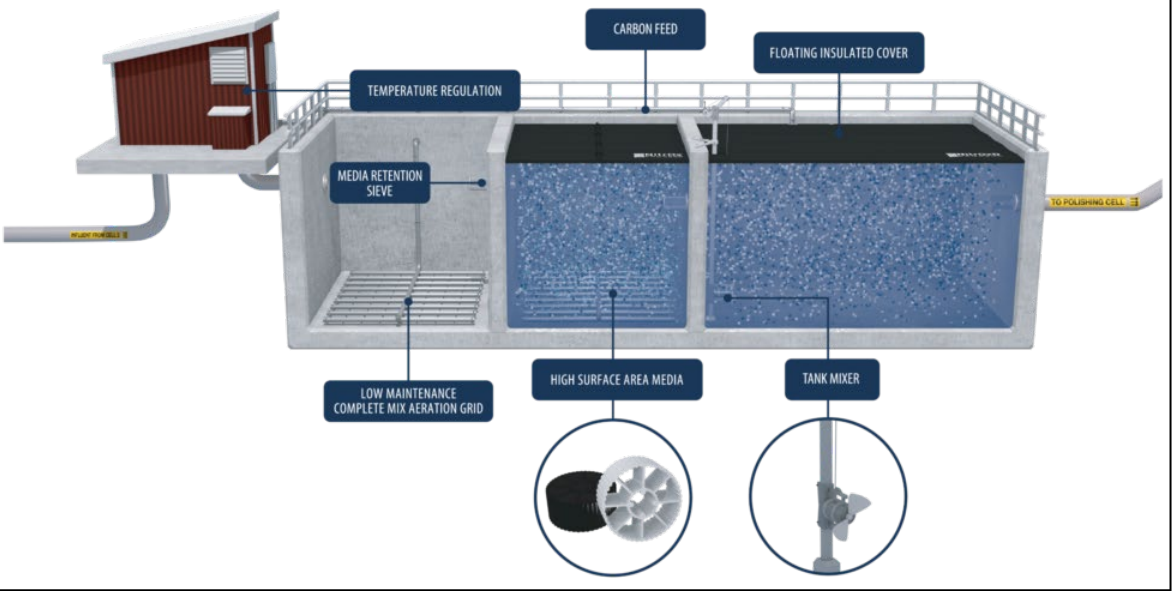

Figure 2-2: NitrOx+D® Lagoon Ammonia Removal Process

2.2 Impacts to Existing Treatment Process

The preliminary site plan for Alternative 1 is shown in **Figure 2-3** and the process flow diagram is included as **Figure 2-4**. The proposed modification would involve replacing the existing splasher aerators with diffuser assemblies in Pond 1 and adding baffle curtain or wall. Pond 2 would be converted to a quiescent or settling pond. A fine screen will be required to remove large solids and rags from the influent. The addition of a headworks system consisting of a mechanically-cleaned screen with ¼-inch openings is recommended.

For existing flows and loadings, thirteen (13) diffusers assemblies are recommended, with twelve (8) in Cell 1A and 3 in Cell 1B (two sections in Pond 1), along with two 25-horsepower blowers using variable frequency drives to allow for variation in oxygen needs. (One blower will be redundant at existing conditions). Cell 2 would contain two (2) diffuser assemblies solely for mixing. From Cell 1B of Pond 1, flow would be directed to the MBBR for further BOD reduction, nitrification and denitrification. Blowers will provide air to membrane diffusers in the MBBR. A minimum 40 horsepower blower is required for the MBBR under existing flows and loadings. With consideration of future aeration requirements, two 50 horsepower blowers are recommended, to provide one for redundancy and to set up for future requirements. From the MBBR, flow will be directed to Cell 2 (existing Pond 2) for settling to reduce total suspended solids. Pumping will likely be required between Cell 1B and the MBBR to allow for gravity flow from the MBBR to Cell 2. From Cell 2, the treated wastewater will be sent to the existing effluent lift station, where it is pumped through the static mixer for chlorination, then to the existing discharge location.

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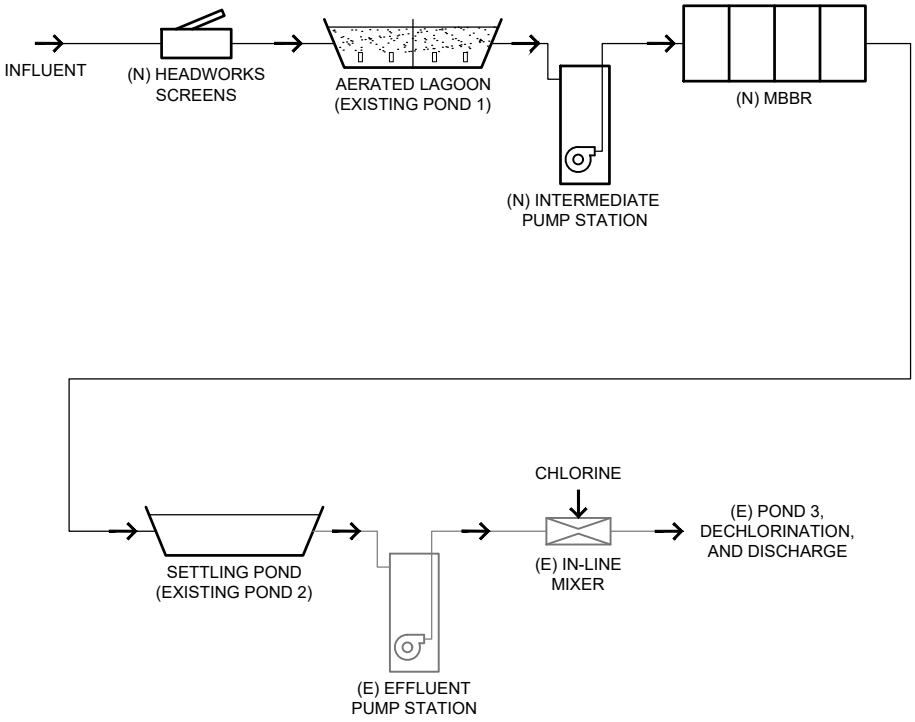
Figure 2-3:

Preliminary Site Plan
Alternative 1
Pond Diffused Aeration
and Bioreactor System

1 inch = 80 feet

0 40 80



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ALTERNATIVE 1
DIFFUSED AERATION & MBBR

FIGURE
2-4

Additional improvements such as site work, influent and effluent piping, electrical improvements, and instrumentation will be required. A flow metering manhole, as recommended in the 2017 Recycled Water Study, is also recommended.

Additionally, the 2017 Recycled Water Master Plan identified the need to perform sludge removal and replace the liners in Ponds 1 and 2. The existing pond's HDPE liners were installed as part of the 1977 WWTP upgrades and are past their useful life. The liner extends 15 feet along the slope of the ponds as shown in **Figure 2-6**. Based on the 1972 WWTP Sewer System record drawing/as-built plans, piping and valves exist to allow bypass of Pond 2 and send treated effluent from Pond 1 to the existing effluent lift station. The condition of the valves and ability to isolate Pond 2 would need to be confirmed. To replace the pond liners, the ponds would need to be taken out of service and cleaned. A bypass of Pond 2 could be employed to isolate Pond 2, drain and clean it, and then replace the liner. Additional aeration would be temporarily installed in Pond 1 to increase aeration and mixing. Theoretically, after Pond 2 improvements are completed, temporary aeration equipment could be installed in Pond 2, and a bypass could be installed to isolate Pond 1 and send the wastewater flow to Pond 2 for treatment. Pond 1 could then be drained and cleaned and the liners replaced. However, due to the amount of sludge in the ponds currently, the ponds should be dredged to remove as much sludge as possible while the system is in operation and before a bypass is initiated to reduce potential for impact to effluent quality. A specialty dredging company with a portable mechanical dewatering system (such as a centrifuge or belt filter press) is recommended.

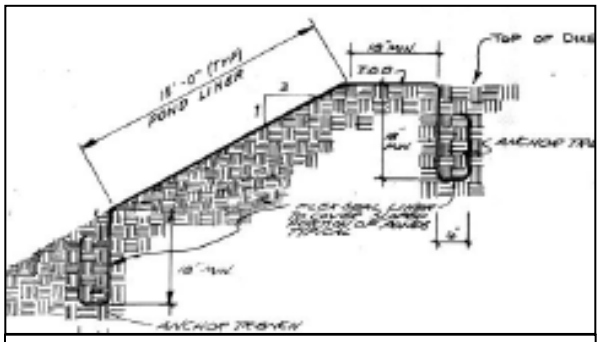

Figure 2-5: Pond 1 and 2 Partial Liner Detail

MKN evaluated the ability to maintain compliance with the permit during bypass of one of the treatment ponds. Assuming first-order rate kinetics, the existing ponds do not have sufficient volume to provide adequate BOD removal with one out of service. It would be possible to meet the BOD requirements with a completely mixed system (by adding temporary aeration equipment). However, with a completely mixed volume, additional settling tanks or filtration would be required to reduce solids. If this alternative is pursued, the temporary treatment design and sequencing would need to be developed to help ensure adequate treatment is maintained during construction.

Excluding the existing ponds, the footprint is minimal for this alternative, consisting mainly of the MBBR and blowers. For the purposes of this evaluation, it is assumed that a blower building will be installed for each alternative. The required footprint is approximately 3,000 ft^2 for the MBBR reactor (87,000 ft^2 including the footprint of the existing ponds) and 2,000 ft^2 for the blower building.

The following additional equipment will be required for future flows and loadings:

- 8 additional diffuser assemblies in Cell 1A and 2 additional diffuser assemblies in Cell 1B (for a total of 16 and 5 assemblies in Cells 1A and 1B, respectively, and 2 assemblies in Cell 2)

- 1 additional 25 horsepower blower with VFD for the diffused aeration system (for a total of 75 horsepower, such that any two blowers would meet air demands)
- 1 additional 50 horsepower blower with VFD for the MBBR (for a total of 150 horsepower, such that any two blowers would meet air demands)

Through Title 23 of the California Code of Regulations, the California State Water Resources Control Board requires wastewater treatment plants to have a classification to determine what Grade level operator will be required to manage the plant. Alternative 1 will likely be classified as a biofiltration plant both existing and future conditions. This would require a minimum Grade II Chief Plant and a minimum Grade I Designated Operator in Charge. See **Appendix C** for additional information on the wastewater treatment plant classification and operator requirements from Title 23.

2.3 Anticipated Effluent Water Quality

Table 2-1 summarizes the anticipated effluent water quality for Alternative 1. The anticipated effluent quality is based on the point at the end of Cell 2, the settling basin. The District's existing WWTP includes a third pond (Pond 3) and sand bed filters at the discharge site. Generally, BOD_5 and TSS concentrations are anticipated to decrease through Pond 3 and the sand bed filters. However, algae growth in Pond 3 and/or the sand bed filters can impact final effluent quality. Further review is recommended during design to determine whether continued use of these components is recommended.

Table 2-1: Comparison of Anticipated Effluent Water Quality for Alternative 1: Pond Diffused Aeration + MBBR and NPDES Permit Effluent Requirements

Parameter	Units	Quality	Monthly Average Effluent Limit (Table 1-2)
5-day Biological Oxygen Demand (BOD_5)	mg/L	< 30	30
Total Suspended Solids (TSS)	mg/L	< 30	30
Total Nitrogen	mg/L	< 8	10 (1)
Unionized Ammonia	mg/L	< 0.025	0.025

Notes:

The permitted monthly average effluent limit for nitrogen is nitrate (as nitrogen) < 10 mg/L. Total nitrogen includes nitrate, nitrite, ammonia, and organic nitrogen. Nitrate concentrations in wastewater will be less than total nitrogen.

2.4 Sludge Handling

With the increase in treatment provided by Alternative 1, sludge production is expected to increase. It is anticipated the majority of the sludge will settle out in Cell 2, the settling pond. However, some solids may settle in Cell 1B as well. It is anticipated that Cell 1A will be well mixed or completely mixed, so little sludge would settle in this first cell. For Cells 1B and 2, sludge

removal would be handled in the same manner as current operations, with a dredge and by dewatering. Sludge production and removal requirements are difficult to predict. However, it is anticipated that the required removal frequency will increase. Therefore, planning and budgeting for sludge removal and disposal every five to seven years is recommended. This will need to be reviewed and refined through monitoring.

2.5 Opinion of Costs

Table 2-2 provides a preliminary capital cost opinion for Alternative 1. The project capital cost estimates provided in this report are opinions of probable costs for budgeting purposes. These opinions are based on our judgment and the information available at this time, and are intended to provide budgetary estimates for District planning purposes. Uncertain conditions such as 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 these estimates. Changes to the scope of the project or discoveries of existing conditions during the project design may impact project costs. MKN cannot guarantee contractor bids or actual costs will be accurately reflected by these estimates.

Table 2-2: Alternative 1 - Pond Diffused Aeration + MBBR Capital Cost Summary

Description	Quantity	Unit	Unit Price	Total Price
Aeration & Bioreactor Equipment	1	LS	$719,000	$719,000
Concrete	280	CY	$1,000	$280,000
Blower Building	600	SF	$300	$180,000
Intermediate Lift Station	1	LS	$300,000	$300,000
Replace Liners in Ponds 1 & 2	1	LS	$320,000	$320,000
Sitework	1	LS	$270,000	$270,000
Piping	1	LS	$270,000	$270,000
Electrical and Instrumentation	1	LS	$360,000	$360,000
Headworks Screens & Flow Meter	1	LS	$446,000	$446,000
Sludge Removal Allowance	1	LS	$500,000	$500,000
Bypassing/ Temp Treatment Allowance	1	LS	$200,000	$200,000
			Construction Cost Subtotal	**$3,945,000**
			Admin, Engineering & Construction Management (30%)	$1,183,500
			Construction Contingency (30%)	$1,183,500
			Total Capital Cost Opinion (rounded to nearest $10,000)	**$6,320,000**

Note: It is assumed sufficient alkalinity and carbon existing in the wastewater influent and no chemical addition is required. Standby power and adequacy of existing electrical service will need to be evaluated during design are not included in costs.

Table 2-3 shows the projected, conservative operating and maintenance cost opinions for Alternative 2 under existing conditions. This assessment was focused on consumables including power and chemical, sludge disposal and major equipment replacement costs. Blower replacement costs assume replacement of each of the four blowers (two 25 horsepower blowers for pond aeration system and two 50 horsepower blowers for MBBR) once in 20 years. Unit costs were assumed based on costs for similar systems.

Table 2-3: Alternative 1 – Pond Diffused Aeration + MBBR O&M Cost Opinion						
Component	**Unit Cost**	**Unit**	**Quantity**	**Unit**	**Total**	**Notes**
Power	$0.13	$/kWh	437,667	kWh/yr	$57,000	(1)
Sludge Disposal	$42,857	$/yr	1		$43,000	(3)
Total Annual O&M Cost					**$100,000**	(1)
20-year New Present Value					**$2,796,435**	
Major Equipment Replacement (4)						
Blower Replacement	$11,500	$/yr	1		$11,500	
20-Year Net Present Value					**$322,000**	
Total 20-Year NPV (O&M)					**$3,118,000**	(1)
Notes: (1) Rounded to $1,000 (2) Net Present Value assumes 3% escalation (3) Sludge disposal costs assume $300,000 sludge removal/disposal project every 7 years. (4) Assumes establishment of annual replacement reserve						

The total 20-year net present value cost opinion for Alternative 1, including capital and annual O&M costs is shown in **Table 2-4**.

Table 2-4: Alternative 1 – Pond Diffused Aeration + MBBR 20-Year Net Present Value Cost Opinion	
Total Capital Cost Opinion	$6,320,000
Total 20-year NPV O&M Cost	$3,118,000
Total 20-Year Net Present Value (Capital and O&M)	**$9,438,000**

2.6 Summary of Alternative 1

The primary advantages of Alternative 1 include:

- Retrofits the existing ponds
- The process utilizes the ponds and aeration, a familiar technology
- Lowest estimated capital cost of alternatives reviewed
- Low operational requirements
- Increased redundancy through multiple diffusers and redundant equipment

The main disadvantages include:

- Pond liners need replacement, resulting in an increase to installation costs
- Temporary treatment will be required during installation, increasing risk of added costs and water quality issues
- Alternative 1 increases treatment from the existing process, but does not provide as high a quality as the other alternatives reviewed
- Operating and maintenance costs are highest of alternatives evaluated
- Accessing diffusers requires pond entry
- Less operational control than the other alternatives
- Sludge handling is complicated since it requires dredging and possibly bypassing

3.0 ALTERNATIVE 2 – IN-POND EXTENDED AERATION SYSTEM

3.1 Description

MKN reviewed various in-pond extended aeration systems. Alternative 2 is a complete mix activated sludge process using extended retention of biological solids. In a lined pond (plastic or concrete) the system uses fine bubble membrane diffusers attached to floating aeration chains. These chains move across the basin, not touching the floor, by the air released from the diffusers. Aeration piping and valves are anchored on one side of the basin controlling the flow to each one of the moving chains, shown in **Figure 3-1.** This system is referred to as a wave oxidation system because operators can control which chains have air flowing to the diffusers creating anoxic and oxic zones within the basin. Anoxic zones are created when oxygen is not actively added to an area, resulting in a drop of dissolved oxygen (DO) which helps induce the nitrification and denitrification mechanisms. These mechanisms are what aid in reducing the plant's ammonia and nitrate concentrations.

Figure 3-1: In-pond Extended Aeration Chains

Located downstream of the aeration basin are two secondary clarifiers. The clarifiers consist of a rake mechanism to provide solids-liquid separation, producing low-solids treated effluent for discharge. For the purposes of this analysis, it is assumed the clarifiers will be integral to the basin, but they can be constructed separately as more traditional circular clarifiers. Alternative 2 utilizes a long sludge age of approximately 30 to 45 days. Activated sludge is returned from the clarifiers to the front of the aeration basin. Sludge is wasted periodically to maintain optimum solids concentrations in the system. Once sludge is removed, it will be sent directly to a dewatering or thickening system to reduce water volume and weight prior to transport for disposal or composting.

In some cases, these in-pond extended aeration systems can be installed in existing lagoons without taking the system offline or making other changes to the pond. This can provide a significant advantage for existing lagoon treatment plants over other extended aeration systems, such as oxidation ditches which require significant amounts of concrete, or conventional activated sludge plants which do not react well to shock loads or varying influent flow or quality. However, in this case, the side slopes of Ponds 1 and 2 would need to be revised from the existing 3-to-1 side slope to a 1.5-to-1 slope, and the pond liner would need to be replaced. The feasibility of reworking the slide slope of an existing wastewater pond and maintaining sufficient treatment with one pond out of service is unknown. For these reasons, construction of new pond is recommended for Alternative 2.

3.2 Impacts to Existing Treatment Process

The in-pond extended aeration system would require one new lined earthen aeration basin for existing conditions with a fine bubble aeration system consisting of floating and moving air headers, submerged diffusers and aeration blowers with variable frequency drives.

MKN reviewed the potential to retrofit existing Pond 1 and/or Pond 2. The existing ponds have a shallow side slope at 3-to-1, while the system would require a side slope of 1.5-to-1. Additionally, the 2017 WWTP Recycled Water Study identified the need to replace the existing pond liner. Significant modifications to the ponds would be required to utilize one of the existing ponds for this system. As previously mentioned, a new pond would need to be installed. Since there is not sufficient room near the existing ponds, it is assumed that the new basin would either be installed behind the District's office building in the open space adjacent to the existing WWTP or between the existing laboratory and the pending solar panel project, south of the wastewater treatment ponds. Pond 1 would then be abandoned, and Pond 2 could be partially filled and modified for the second aeration basin to meet future flows and loading. Additional improvements, including those mentioned for Alternative 1, such as site work, flow metering manhole, influent and effluent piping, electrical improvements, and instrumentation will be necessary and would be included for each alternative.

As mentioned in Alternative 1, Title 23 requires wastewater treatment plants to have a classification to determine what Grade operator will be required to manage the plant. Alternative 2 is considered an activated sludge plant and would be classified as a Class III plant for both existing and future conditions. This would require a Grade III Chief Plant Operator and a minimum Grade II Designated Operator in Charge. See **Appendix C** for additional information on Title 23.

The preliminary site plan for the two site options for Alternative 2 is shown in **Figure 3-2**. For the purposes of this analysis, Site A (adjacent to the District office) is assumed. Site options and variations of the site layouts would be explored during design development. Due to elevations, Site B would require pumping to the effluent pump station for discharge, or construction of a new effluent pump station.

The process flow diagram for Alternative 2 is provided as **Figure 3-3**. A mechanically-cleaned fine screen with ¼-inch openings will be required upstream of the pond. From the headworks screen, influent flow will go to the aeration basin, then to the secondary clarifiers. After clarification, the secondary treated effluent will flow to the existing effluent pump station, where it is pumped through the existing chlorination system, then to the existing discharge site.

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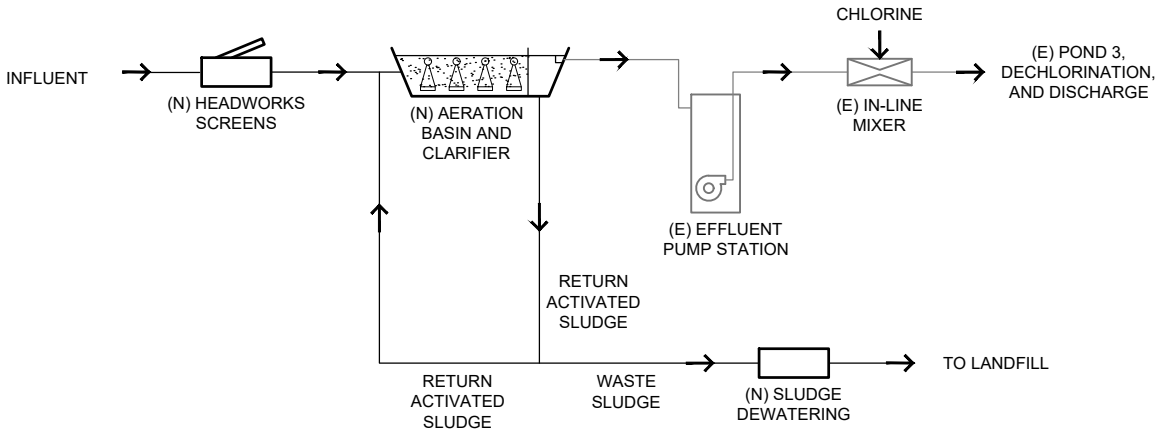
Figure 3-2:

Preliminary Site Plan
Alternative 2
In-Pond Extended
Aeration System

1 inch = 80 feet

0 40 80



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ALTERNATIVE 2
IN-POND EXTENDED AERATION

FIGURE
3-3

Table 3-1 details the improvements included for the extended aeration system required to meet existing conditions. For future flows and loading, the District will need to install a second pond with diffusers, two integral clarifiers, and one additional 40 hp blower.

Table 3-1: In-Pond Extended Aeration Existing Design Information	
Component	**Quantity**
Number of Basins	1
Basin Volume (MG)	0.59
Basin sidewater depth (ft)	9.5
Preliminary Footprint (ft^2)	19,700[1]
Number of Diffusers	224
Number of Assemblies	56
Number of Headers	7
Number of Clarifiers per Basin	2
Integral Clarifier size (ft, each)	30 x 23
Number of Blowers (duty + redundant)	1+1
Blower size (HP)	40
[1] Preliminary footprint does not include the blower building, estimated at approximately 2,000 ft^2.	

3.3 Anticipated Effluent Water Quality

Table 3-2 summarizes the anticipated effluent water qualities for Alternative 2, not including existing Pond 3 or the sand bed filters at the discharge site.

Table 3-2: Anticipated Effluent Water Quality for Alternative 2			
Parameter	**Units**	**Quality**	**Monthly Average Effluent Limit (Table 1-2)**
5-day Biological Oxygen Demand (BOD_5)	mg/L	< 10	30
Total Suspended Solids (TSS)	mg/L	< 15	30
Total Nitrogen (as N)	mg/L	< 8	10 (1)
Unionized Ammonia	mg/L	< 0.025 (2)	0.025

Notes:

(1) The permitted monthly average effluent limit for nitrogen is nitrate (as nitrogen) < 10 mg/L. Total nitrogen includes nitrate, nitrite, ammonia, and organic nitrogen. Nitrate concentrations in wastewater will be less than total nitrogen.

(2) Not included in equipment manufacturer's process guarantee due to temperature and pH dependencies. Assumes pH is below 7.75 at 20 degrees Celsius.

3.4 Sludge Handling

With the increased treatment for this alternative, sludge production will increase. It is anticipated that sludge will need to be removed (wasted) daily, or every couple of days. The majority of sludge is water, which can be reduced through mechanical thickening and/or dewatering equipment. This greatly reduces hauling and disposal costs over time. For the purposes of this evaluation, a dewatering system, such as a screw press or belt filter press is assumed, which will dewater sludge from 0.50 percent total dry solids to 12 to 15 percent total dry solids. MKN estimated the sludge generation for Alternative 2 assuming a sludge yield of 0.4 pounds of solids produced per pound of BOD removed, and sludge is dewatered to 15% total dry solids. **Table 3-3** summarizes the estimated sludge generation for Alternative 2.

Table 3-3: Estimated Sludge Generation for Alternative 2

	Existing	Future
Estimated waste sludge volume (gpd)	7,577	16,838
Waste sludge total solids concentration (% total dry solids)	0.50	0.50
Estimated waste sludge total solids (ppd)	632	1,404
Dewatered sludge total solids concentration (% total dry solids)	15	15
Dewatered sludge volume (CY/week)	9	19

3.5 Opinion of Costs

Table 3-4 provides the preliminary capital cost opinion for Alternative 2. A sludge removal allowance was included to account for removal and disposal of sludge from existing Ponds 1 and 2.

Table 3-4: Cost Summary for Alternative 2 - In-Pond Extended Aeration System

Description	Quantity	Unit	Unit Price	Total
Aeration & Clarifier Equipment	1	LS	$1,029,000	$1,029,000
Concrete	370	CY	$1,000	$370,000
Blower Building	600	SF	$300	$180,000
Earthwork	9,240	CY	$30	$277,200
HDPE Pond Liner	22,610	SF	$10	$226,100
Sitework	1	LS	$418,000	$418,000
Piping	1	LS	$418,000	$418,000
Electrical and Instrumentation	1	LS	$557,000	$557,000
Headworks Screens & Flow Meter	1	LS	$446,000	$446,000
Sludge Dewatering System	1	LS	$700,000	$700,000
Sludge Removal Allowance	1	LS	$500,000	$500,000
			Construction Cost Subtotal	**$5,121,300**
			Admin, Engineering & Construction Management (30%)	$1536,390
			Construction Contingency (30%)	$1,536,390
			Total Capital Cost Opinion (rounded to nearest $10,000)	**$8,200,000**

Note: Capital cost does not include abandonment/ retrofit of existing ponds. It is assumed sufficient alkalinity and carbon existing in the wastewater influent and no chemical addition or post-anoxic basin is required. Standby power and adequacy of existing electrical service will need to be evaluated during design are not included in costs.

Table 3-5 shows the projected, conservative operating and maintenance costs for Alternative 2. This assessment was focused on consumables including power and chemical, sludge disposal and major equipment replacement costs. Blower replacement costs assume replacement of each of the two blowers (two 40 horsepower blowers) once in 20 years. Unit costs were assumed based on costs for similar systems.

Table 3-5: Alternative 2 – In-Pond Extended Aeration O&M Cost Opinion						
Component	**Unit Cost**	**Unit**	**Quantity**	**Unit**	**Total**	**Notes**
Power	$0.13	$/kWh	222,100	kWh/yr	$29,000	(1)
Sludge Disposal	$300	$/ton	108	Ton/yr	$33,000	(3)
Total Annual O&M Cost					**$62,000**	(1)
20-year New Present Value					**$1,733,790**	
Major Equipment Replacement (4)						
Blower Replacement	$5,500	$/yr	1		$5,500	
20-Year Net Present Value					**$154,000**	
Total 20-Year NPV (O&M)					**$1,888,000**	(1)
Notes: (1) Rounded to $1,000 (2) Net Present Value assumes 3% escalation (3) Sludge Disposal costs assume $300/ton for hauling and disposal of waste sludge (4) Assumes establishment of annual replacement reserve						

The total 20-year net present value cost opinion for Alternative 2, including capital and annual O&M costs is shown in **Table 3-6**.

Table 3-6: Alternative 2 – Pond Diffused Aeration + MBBR 20-Year Net Present Value Cost Opinion	
Total Capital Cost Opinion	$8,200,000
Total 20-year NPV O&M Cost	$1,888,000
Total 20-Year Net Present Value (Capital and O&M)	**$10,088,000**

3.6 Summary of Alternative 2

Advantages of the in-pond extended aeration system include:

- Increased water quality
- Utilizing an in-pond system maintains a somewhat familiar technology
- Low to moderate operational requirements
- Sludge Removal does not require taking basins out of service

Disadvantages include:

- New pond required, increasing construction cost

- Highest footprint of alternatives
- Accessing diffusers requires pond entry
- Increased sludge production, additional sludge dewatering equipment required

4.0 ALTERNATIVE 3A – ACTIVATED SLUDGE PACKAGED WASTEWATER TREATMENT PLANT

MKN reviewed two packaged wastewater treatment systems that would meet the District's permit requirements. This section summarizes the review of an activated sludge packaged WWTP system (Alternative 3A). See **Section 5** for discussion of Alternative 3B, a membrane bioreactor system.

4.1 Alternative 3A – Activated Sludge WWTP Description

Several manufacturers provide a package activated sludge treatment system. MKN evaluated a proposal from Evoqua Water Technologies. The Evoqua system is based around an above-ground Davco™ field-erected steel tank with bulkheads dividing each process sections as shown in **Figure 4-1**. The proposed system will consist of a 88-foot diameter steel tank with an influent flow equalization basin, two (2) pre-anoxic basins, an aeration basin, secondary clarifier, a post-anoxic basin and re-aeration zone, and an aerobic digester. The majority of the tank will consist of an aeration tank with submerged diffusers. Blowers are placed adjacent to the tank to supply air to the necessary modules. Flows would then go to the center clarifier section where necessary settling and additional waste sludge would get taken to the sludge digester. Aeration/mixing in the sludge digester is recommended to keep the sludge mixed and possibly degrade the sludge further. It is assumed the District will thicken or dewater the sludge to reduce the weight of the sludge before removal. (See **Section 4.4** for further discussion of sludge handling). A 6-mm headworks screen is required upstream of the system.

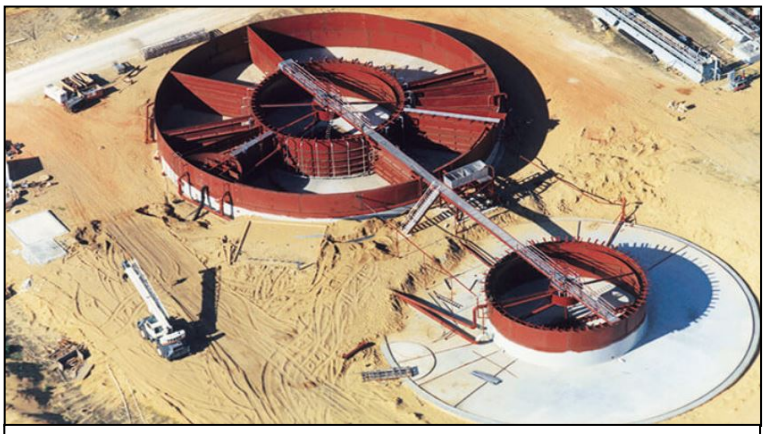


Figure 4-1: Evoqua Package Activated Sludge WWTP

4.2 Impacts to Existing Treatment Process

The preliminary site plan for Alternative 3A is shown in **Figure 4-2** and the process flow diagram is included as **Figure 4-3**. The activated sludge treatment system would replace Ponds 1 and 2. Flow would be pumped to a new headworks screen then through a new flow metering manhole and to a new influent lift station. The lift station would pump influent flow to the equalization portion of the packaged WWTP. From the equalization tank, flow would be sent to the anoxic zone, the aeration zone, post-anoxic zone and reaeration zone, then to the clarifier. After clarification, the secondary treated effluent will flow to the existing effluent pump station, where it is pumped through the existing chlorination system, then to the existing discharge site. Sludge from the clarifier will be returned to the aeration or anoxic zone. Waste sludge would be sent to the sludge digester zone. The packaged system design has a preliminary footprint of approximately 13,420 ft^2 including an estimated 600 ft^2 for a dewatering system. This estimated

footprint does not include an additional 2,000 ft^2 for the blower building. Two 60 horsepower blowers are anticipated for existing conditions. Associated improvements include an influent lift station, mechanically-cleaned headworks screen (6 mm openings), some site piping and electrical and instrumentation.

The need for additional equalization storage would need to be assess during design. The proposed system includes a flow equalization cell within the steel tank of approximately 42,600 gallons, or 6 hours at the existing maximum month flow rate.

Future conditions would require two additional identical package WWTP systems, resulting in a total of three packaged systems.

As mentioned previously, Title 23 requires wastewater treatment plants to have a classification to determine what Grade operator will be required to manage the plant. Alternative 3A would be classified as Class III for both existing and future conditions. This would require a Grade III Chief Plant Operator to run the packaged activated sludge system and a minimum Grade II Designated Operator in Charge. See **Appendix C** for additional information of Title 23.

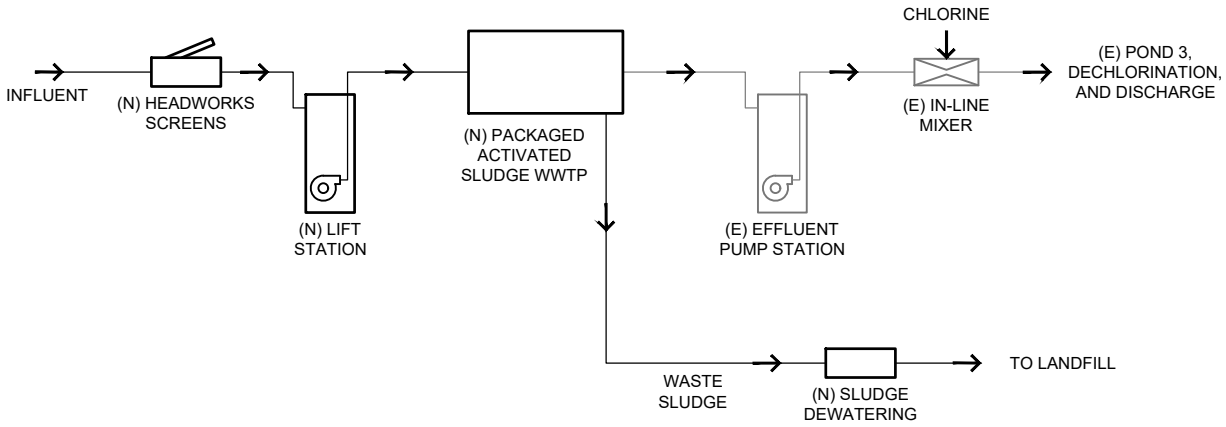
Heritage Ranch Community Services District Wastewater Treatment Plant Improvements - Preliminary Engineering Memorandum

Figure 4-2:

Preliminary Site Plan
Alternative 3A
Packaged Activated Sludge WWTP

1 inch = 80 feet

0 40 80



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HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WWTP IMPROVEMENTS PRELIMINARY ENGINEERING MEMORANDUM

ALTERNATIVE 3A
PACKAGED ACTIVATED SLUDGE WWTP

FIGURE
4-3

4.3 Anticipated Effluent Water Quality

Table 4-1 summarizes the anticipated effluent water qualities for Alternative 3A.

Table 4-1: Anticipated Effluent Water Quality for Alternative 3A			
Parameter	**Units**	**Quality**	**Monthly Average Effluent Limit (Table 1-2)**
5-day Biological Oxygen Demand (BOD_5)	mg/L	< 20	30
Total Suspended Solids (TSS)	mg/L	< 20	30
Total Nitrogen (as N)	mg/L	< 8.0	10 (1)
Unionized Ammonia	mg/L	< 0.025*	0.025

Notes:

The permitted monthly average effluent limit for nitrogen is nitrate (as nitrogen) < 10 mg/L.
Total nitrogen includes nitrate, nitrite, ammonia, and organic nitrogen. Nitrate concentrations in wastewater will be less than total nitrogen.
Not included in equipment manufacturer's process guarantee due to temperature and pH dependencies. Assumes pH is below 7.75 at 20 degrees Celsius.

4.4 Sludge Handling

Due to improved treatment, sludge production will increase. Waste sludge will be pumped from the clarifier or the return sludge line to the sludge tank at the package WWTP. From this tank, sludge would be pumped to a mechanical thickening or dewatering system to reduce water volume and weight. For the purposes of this evaluation, a sludge dewatering system such as a screw press or belt filter press is assumed, which would dewater sludge from 0.5 to 1 percent total solids to 12 to 15 percent total solids. MKN estimated the sludge generation for Alternative 3A assuming a sludge yield of 0.5 pounds of solids produced per pound of BOD removed and sludge is dewatered to 15% total dry solids. **Table 4-2** summarizes the estimated sludge generation for Alternative 3A.

Table 4-2: Estimated Sludge Generation for Alternative 3A		
	Existing	**Future**
Estimated waste sludge volume (gpd)	8,342	18,538
Waste sludge total solids concentration (% total dry solids)	0.50	0.50
Estimated waste sludge total solids (ppd)	696	1,546
Dewatered sludge total solids concentration (% total dry solids)	15	15
Dewatered sludge volume (CY/week)	10	21

4.5 Opinion of Costs

The preliminary opinion of capital cost for Alternative 3A is presented in **Table 4-3.** The table details the estimated cost summary to install an activated sludge system at the District's existing WWTP site.

Table 4-3: Cost Summary for Alternative 3A – Packaged Activated Sludge Treatment Plant

Description	Quantity	Unit	Unit Price	Total
Packaged Activated Sludge Treatment System	1	LS	$2,200,000	$2,200,000
Concrete	360	CY	$1,000	$170,000
Blower Building	600	SF	$300	$360,000
Influent Pump Station	1	LS	$300,000	$300,000
Sitework	1	LS	$561,000	$561,000
Piping	1	LS	$262,000	$262,000
Electrical and Instrumentation	1	LS	$374,000	$374,000
Headworks Screens & Flow Meter	1	LS	$446,000	$446,000
Sludge Dewatering System	1	LS	$700,000	$700,000
Sludge Removal Allowance	1	LS	$500,000	$500,000
			Construction Cost Subtotal	**$5,883,000**
			Admin, Engineering & Construction Management (30%)	$1,764,900
			Construction Contingency (30%)	$1,764,900
			Total Capital Cost Opinion	**$9,420,000**

Note: Capital cost does not include abandonment/ retrofit of existing ponds or additional flow equalization. It is assumed sufficient alkalinity and carbon existing in the wastewater influent and no chemical addition is required. Standby power and adequacy of existing electrical service will need to be evaluated during design are not included in costs.

Table 4-4 shows the projected, conservative operating and maintenance cost opinions for Alternative 3A. This assessment was focused on consumables including power and chemical, sludge disposal and major equipment replacement costs. Blower replacement costs assume replacement of each of the two blowers (two 60 horsepower blowers) once in 20 years. Unit costs were assumed based on costs for similar systems.

Table 4-4: Alternative 3A – Activated Sludge Package WWTP O&M Cost Opinion						
Component	**Unit Cost**	**Unit**	**Quantity**	**Unit**	**Total**	**Notes**
Power	$0.13	$/kWh	520,628	kWh/yr	$68,000	(1)
Sludge Disposal	$300	$/ton	127	Ton/yr	$39,000	(3)
Total Annual O&M Cost					**$107,000**	(1)
20-year New Present Value					**$2,992,185**	
Major Equipment Replacement (4)						
Blower Replacement	$6,500	$/yr	1		$6,500	
20-Year Net Present Value					**$182,000**	
Total 20-Year NPV (O&M)					**$3,174,000**	(1)
Notes: (1) Rounded to $1,000 (2) Net Present Value assumes 3% escalation (3) Sludge Disposal costs assume $300/ton for hauling and disposal of waste sludge (4) Assumes establishment of annual replacement reserve						

The total 20-year net present value cost opinion for Alternative 3A, including capital and annual O&M costs is shown in **Table 4-5**.

Table 4-5: Alternative 3A – Activated Sludge Package WWTP 20-Year Net Present Value Cost Opinion	
Total Capital Cost Opinion	$9,420,000
Total 20-year NPV O&M Cost	$3,174,000
Total 20-Year Net Present Value (Capital and O&M)	**$12,594,000**

4.6 Summary of Alternative 3A

The advantages to a packaged activated sludge system include:

- Packaged system reduces design & installation cost
- Increased redundancy through multiple diffusers, redundant equipment, etc.
- Increased water quality

The disadvantages to a packaged activated sludge system include:

- Moderate operational requirements
- Increased sludge production, additional sludge dewatering equipment will be required

- High cost
- With two additional units required to meet projected future demands, the cost and footprint required to expand would be significant

5.0 ALTERNATIVE 3B – PACKAGED WASTEWATER TREATMENT PLANT WITH MEMEBRANE BIOREACTOR

5.1 Alternative 3B – Package Membrane Bioreactor WWTP Description

MKN evaluated a membrane bioreactor (MBR) packaged wastewater treatment plant. Several manufacturers provide packaged MBR treatment plants, including Evoqua Water Technologies and Cloacina, LLC.

The MBR process consists of activated sludge reactors or aeration basins that use membrane filtration for solids separation. Membrane filtration is a solids separation process which utilizes polymeric filtration media with extremely small pore sizes ranging from 0.04 to 0.4 microns to sieve and separate solids from the treated effluent. These systems are used to replace the secondary clarification and filtration steps normally associated with the activated sludge process. Without the limitations set by solids flux in conventional secondary clarification, the mixed liquor suspended solids (MLSS) concentration can be as high as 10,000 mg/L, which is much higher than conventional suspended growth processes. The higher MLSS concentration and the elimination of secondary clarifiers reduce the footprint of the overall MBR process.

The MBR also produces a higher quality effluent compared to the other alternatives evaluated, with the added membrane filtration.

The package MBR systems generally come prefabricated and ready to connect to existing piping and electrical. The treatment process begins with pumping influent into a 2mm headworks screen, then into an aerobic reactor zone. This zone provides oxygen for biological respiration and solid suspension. The membranes hollow fibers aid in facilitating sludge suspension and avoiding settleability issues. After, the wastewater is pulled through the membranes by pumps, and activated sludge is returned from the tanks back to the anoxic zone. **Figure 5-1** shows a typical Cloacina municipal packaged MBR treatment system.

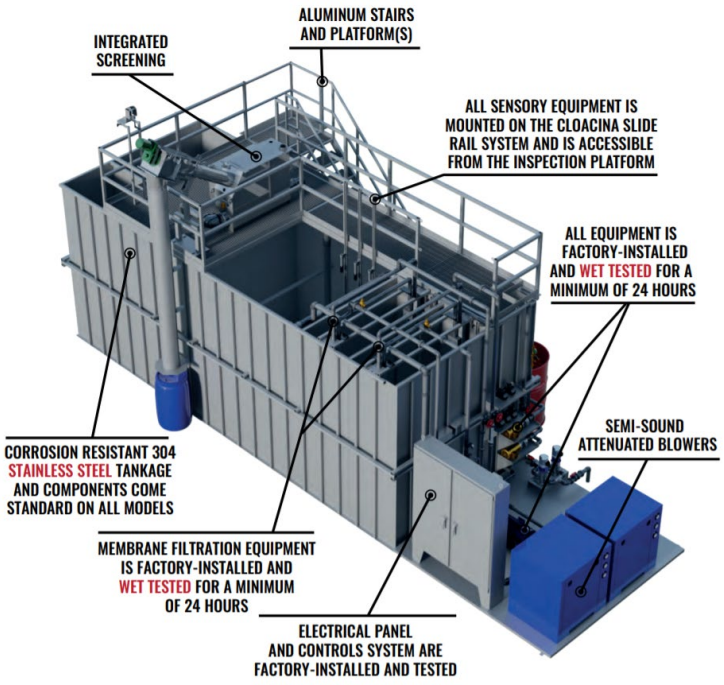


Figure 5-1: Cloacina Mempac™-M Packaged MBR Treatment Plant (25,000 gpd unit)

5.2 Impacts to Existing Treatment Process

The preliminary site plan for Alternative 3B is shown in **Figure 5-2** and the process flow diagram is included as **Figure 5-3**. The package MBR system will replace the existing treatment ponds. Additional improvements including a flow equalization basin and an influent pump station will be required. Although the package MBR system comes with a 2-mm fine screen, a 6-mm headworks screen is recommended to reduce impact to the fine screen and lower potential for blinding.

The packaged system design has a preliminary footprint of approximately 6,600 ft^2 for the proposed system, consisting of three containers, totaling about 82 feet long by 38 feet wide, and assuming about 10 feet on each side for operational purposes. This also includes an estimated 600 ft^2 for a sludge dewatering system. Because the MBR systems only require small tank volumes, they are not able to handle varying influent flows well. A flow equalization tank or basin will be required. Aeration equipment in the equalization tank or basin is recommended to keep solids suspended and reduce potential for odors. The preliminary site plan and cost opinion assume repurpose all or a portion of Pond 1 for flow equalization. Preliminary design should include review of hourly flow information to optimize equalization storage volume requirements, and a comparison of repurposing Pond 1 with installation of an above ground storage tank for flow equalization. Additional improvements include an influent lift station, headworks screen (6mm), and associated electrical and instrumentation improvements.

The existing effluent lift station and chlorination system would be used and treated wastewater would be pumped to the existing discharge location.

As mentioned previously, Title 23 requires wastewater treatment plants to have a classification to determine what Grade operator will be required to manage the plant. Alternative 3B has been classified as Class III for both existing and future conditions. This would require a Grade III Chief Plant Operator to run the packaged membrane bioreactor system and a minimum Grade II Designated Operator in Charge. See **Appendix C** for additional information of Title 23.

Heritage Ranch Community Services District Wastewater Treatment Plant Improvements - Preliminary Engineering Memorandum

Figure 5-2:

Preliminary Site Plan
Alternative 3B
Packaged MBR WWTP

(N) Lift Station

(N) Dewatering System

(N) Packaged MBR WWTP

(N) Flow Metering Manhole

(E) Pond Retrofit as Flow Equalization Pond

(E) Pond to be abandoned

(N) Extension of the existing fence

(N) Headworks

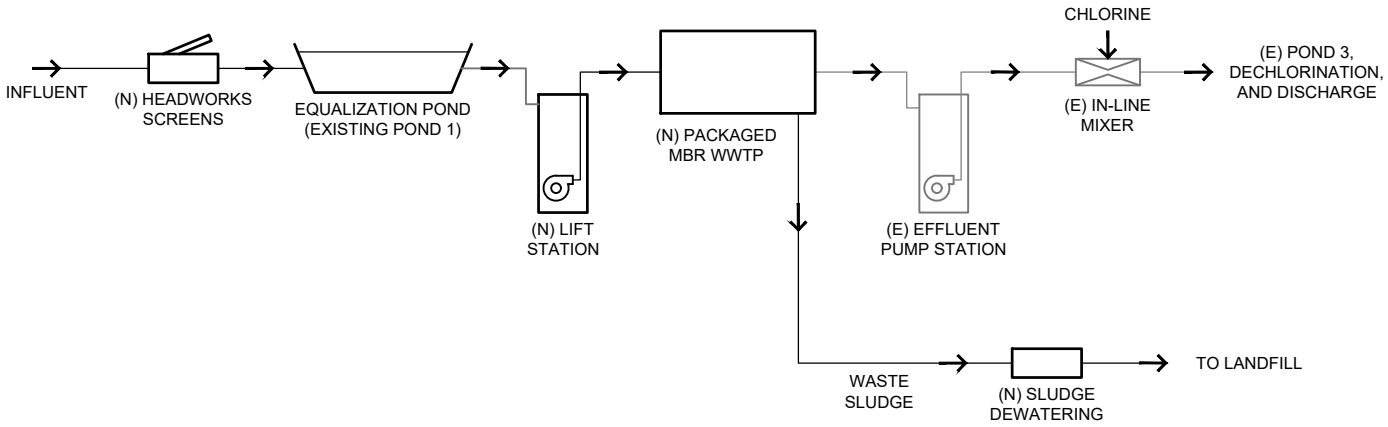
(E) Effluent Pump Station

Approximate Solar Array Location (By Others)

Office

1 inch = 80 feet

0 40 80



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ALTERNATIVE 3B
PACKAGED MBR WWTP

FIGURE
5-3

5.3 Anticipated Effluent Water Quality

Table 5-1 details the anticipated effluent water qualities for Alternative 3B.

Table 5-1: Anticipated Effluent Water Quality for Alternative 3B			
Parameter	**Units**	**Quality**	**Monthly Average Effluent Limit (Table 1-2)**
5-day Biological Oxygen Demand (BOD_5)	mg/L	< 10	30
Total Suspended Solids (TSS)	mg/L	< 10	30
Total Nitrogen	mg/L	< 5	NA
Nitrate (as N)	mg/L	< 2	10
Unionized Ammonia	mg/L	< 0.025	0.025

5.4 Sludge Handling

Sludge production will increase with the increased level of treatment. Waste sludge will be pumped daily from the return activated sludge line to a holding tank or straight to a sludge thickener or dewatering equipment. For the purposes of this evaluation, a sludge dewatering system, such as a screw press or belt filter press is assumed, which would dewater sludge from 0.5 to 1 percent total solids to 12 to 15 percent total solids. MKN estimated the sludge generation for Alternative 3B assuming a sludge yield of 0.6 pounds of solids produced per pound of BOD removed and sludge is dewatered to 15% total dry solids. **Table 5-2** summarizes the estimated sludge generation for Alternative 3B.

Table 5-2: Estimated Sludge Generation for Alternative 3B		
	Existing	**Future**
Estimated waste sludge volume (gpd)	9,014	20,030
Waste sludge total solids concentration (% total dry solids)	0.50	0.50
Estimated waste sludge total solids (ppd)	752	1,671
Dewatered sludge total solids concentration (% total dry solids)	15	15
Dewatered sludge volume (CY/week)	10	27

5.5 Opinion of Costs

The opinion of capital cost of Alternative 3B is presented in **Table 5-3.**

Table 5-3: Cost Summary for Alternative 3B – Packaged Wastewater Treatment Plant with Membrane Bioreactors

Description	Quantity	Unit	Unit Price	Total
Treatment Equipment	1	LS	$2,700,000	$2,700,000
Concrete	180	CY	$1,000	$180,000
Influent Pump Station	1	LS	$300,000	$300,000
Replace Pond 1 Liner (for EQ Basin)	1	SF	$240,000	$240,000
Aeration for EQ Basin	1	LS	$200,000	$200,000
Sitework	1	LS	$237,000	$237,000
Piping	1	LS	$237,000	$237,000
Electrical and Instrumentation	1	LS	$331,000	$331,000
Headworks Screens & Flow Meter	1	LS	$446,000	$446,000
Sludge Dewatering System	1	LS	$700,000	$700,000
Sludge Removal Allowance	1	LS	$500,000	$500,000
			Construction Cost Subtotal	**$6,476,000**
			Admin, Engineering & Construction Management (30%)	$1,942,800
			Construction Contingency (30%)	$1,942,800
			Total Capital Cost Opinion	**$10,370,000**

Note: Capital cost does not include abandonment of the existing system. It is assumed sufficient alkalinity and carbon existing in the wastewater influent and no chemical addition or post-anoxic basin is required.

Table 5-4 shows the projected, conservative operating and maintenance costs for Alternative 3B. This assessment was focused on consumables including power and chemical, sludge disposal and major equipment replacement costs. Membrane replacement costs assume replacement is required once every ten years. Unit costs were assumed based on costs for similar systems.

Table 5-4: Alternative 3B – Membrane Bioreactor Package WWTP O&M Cost Opinion						
Component	**Unit Cost**	**Unit**	**Quantity**	**Unit**	**Total**	**Notes**
Power	$0.13	$/kWh	1,110,079	kWh/yr	$144,000	(1)
Sludge Disposal	$300	$/ton	137	Ton	$41,000	(3)
Membrane Cleaning						
Hypochlorite	$2.87	$/gal	775.2	Gal	$2,225	
Citric Acid	$10.95	$/gal	645.2	Gal	$7,065	
Total Annual O&M Cost					**$194,000**	(1)
20-year New Present Value					**$5,425,084**	
Major Equipment Replacement (4)						
Membrane Replacement	$8,500	$/yr	1		$8,500	
20-Year Net Present Value					**$238,000**	(1)
Total 20-Year NPV (O&M)					**$5,663,000**	(1)

Notes:
(1) Rounded to $1,000
(2) Net Present Value assumes 3% escalation
(3) Sludge Disposal costs assume $300/ton for hauling and disposal of waste sludge
(4) Assumes establishment of annual replacement reserve

The total 20-year net present value cost opinion for Alternative 1, including capital and annual O&M costs is shown in **Table 5-5**.

Table 5-5: Alternative 3B – Membrane Bioreactor Packaged WWTP 20-Year Net Present Value Cost Opinion	
Total Capital Cost Opinion	$10,370,000
Total 20-year NPV O&M Cost	$5,663,000
Total 20-Year Net Present Value (Capital and O&M)	**$16,033,000**

5.6 Summary of Alternative 3B

The packaged MBR system advantages include:

- Package system reduces design and installation costs
- Small footprint
- Highest water quality
- Highest operational control
- Increased redundancy

- Flexibility for future

Disadvantages of Alternative 3B include:

- Increased sludge production, additional sludge dewatering equipment will be required
- High operational requirements
- Highest capital cost

6.0 EFFLUENT COPPER COMPLIANCE

6.1 Copper Intake Credits

In October 2020, the District submitted a letter to the Central Coast Regional Water Quality Control Board (Water Board) summarizing the proposed consideration of copper intake credits when determining compliance with interim and final effluent limits. The calculation of intake credits was discussed during the adoption of the current NPDES permit and the Water Board staff had determined the calculation of copper intake credits based on the State Implementation Plan (SIP) is appropriate.

The District submitted a memorandum prepared by Larry Walker Associates (LWA), titled Updated Calculation of Copper Intake Credits for Heritage Ranch Community Services District's Wastewater Treatment Facility, dated September 30, 2020. The Memorandum documents the proposed method and assumptions for calculation of intake credits for copper. The source water for the WWTF's collection system is the same waterbody into which the treated effluent discharge eventually returns. When effluent is discharged from the WWTF containing copper at the same or lower concentrations as the source water, there is no net increase in concentrations or loads to the receiving water. The effluent copper concentrations can therefore be adjusted to account for the source water contribution, as intake credits.

LWA reviewed calculation of copper intake credits and resulting adjusted concentrations for second quarter 2018 through second quarter 2020. Following the proposed method, no effluent concentration would have exceeded the effective interim limits, only a single effluent concentration would have exceeded the final average month effluent limit (AMEL) and no effluent concentration would have exceeded the final maximum day effluent limit (MDEL). **Table 6-1** summarizes the compliance of effluent copper concentrations with intake credits.

Table 6-1: Compliance of Effluent Copper Concentrations with Intake Credits

Quarter	Adjusted Effluent Concentration, µg/L	Interim Limits (effective until Nov 30, 2022)		Final Limits (effective Nov 30, 2022)		Compliance with effective limits
		AMEL: 18, µg/L	MDEL: 25, µg/L	AMEL: 11, µg/L	MDEL: 22, µg/L	
2018 Q2	5.6	18	25	11	22	Yes
2018 Q3	8.7	18	25	11	22	Yes
2018 Q4	7.0	18	25	11	22	Yes
2019 Q1	2.0	18	25	11	22	Yes
2019 Q2	3.1	18	25	11	22	Yes
2019 Q3	5.7	18	25	11	22	Yes
2019 Q4	4.8	18	25	11	22	Yes
2020 Q1	**13.5**	18	25	**11**	22	Yes
2020 Q2	7.8	18	25	11	22	Yes

Source: Table 2, Updated Calculation of Copper Intake Credits for Heritage Ranch Community Services District's Wastewater Treatment Facility (LWA, September 30, 2020)

It is recommended that the District continue to follow up with the Water Board and begin implementation of the intake credits for copper compliance.

6.2 Potential Impacts to Effluent Copper Concentration

Heavy metals may be present in wastewater in soluble and insoluble forms. In conventional wastewater treatment, removal of metals in insoluble form occurs by settlement through primary or secondary clarification steps. During secondary (biological) treatment, soluble metals may be removed through entrapment and co-settlement with settling biomass. Studies have found that removal of some heavy metals, including copper and zinc, was improved at longer sludge ages[1]. However, part of this may be attributed to better removals of biological oxygen demand and suspended solids. Additionally, membrane treatment increases removal of copper and other metals through the reduction of suspended solids in the effluent.

It is anticipated that all four of the alternatives will improve potential for removal of copper over the existing WWTP. Alternatives 2 and 3B will provide the best potential for reduced copper effluent concentrations. Alternative 2 (In-Pond Extended Aeration System) typically operates with a longer sludge age than the other alternatives, which could assist in soluble and insoluble copper removal. Alternative 3B (MBR Package WWTP) will increase removal of copper through reduction of suspended solids.

[1] Santos A, Barton P, Cartmell E, Coulon F, Crane RS, Hillis P, Lester JN, Stephenson T, Judd SJ. Fate and behaviour of copper and zinc in secondary biological wastewater treatment processes: II. Removal at varying sludge age. Environ Technol. 2010 Jun;31(7):725-43. doi: 10.1080/09593330.2010.481315. PMID: 20586235.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Comparison of the Alternatives

Alternative 1 has the benefit of reusing the existing wastewater treatment ponds. Alternative 1 has low operational requirements, increases redundancy from the existing system, and has the lowest estimated capital cost of the alternatives. However, the existing pond liners need to be replaced, which will require taking them out of service. This can be done one at a time, but a temporary aeration system and temporary settling tanks or filtration will be needed to maintain water quality with only one pond in service during construction. This increases costs and water quality may be impacted during construction. While it will meet the existing water quality requirements, of the alternatives reviewed, Alternative 1 has the anticipated lowest effluent water quality. In addition, access to the diffusers requires entry into the pond, resulting in less operational control and the second highest operating and maintenance costs out of the alternatives.

Alternative 2 centers around an in-pond aeration system. With this system, increased water quality and low to moderate operational requirements are advantages. However, there are several disadvantages including the need to install a new pond, resulting in increased construction costs and a relatively large footprint. Similar to Alternative 1, pond entry would be required to conduct any maintenance on the diffusers. Alternative 2 has the lowest estimated operating and maintenance costs and the second lowest estimated capital cost.

Alternative 3A, the packaged activated sludge WWTP reduces design and installation costs over other conventional activated sludge treatment plants. With multiple diffusers and redundant pumping and blower systems, there is the advantage of increased redundancy. However, the system has moderate operational requirements, increased sludge production, and a high capital cost. Operating and maintenance costs are moderate.

Alternative 3B, the packaged MBR also has the advantage of reduced design and installation costs compared to conventional membrane bioreactor plant. The packaged MBR has a small footprint, the highest water quality out of the alternatives, increased redundancy, provides flexibility for future recycled water use, and high operational control. However, similar to Alternative 3A, the MBR system will produce more sludge requiring additional dewatering equipment. The main disadvantages of this alternative are the high capital and ongoing operating and maintenance costs, highest energy requirement, and anticipated high operational requirement.

Table 7-1 provides a summary of the qualitative comparison of the alternatives. **Table 7-2** provides a comparison of the capital cost opinions, operating and maintenance cost opinions, and 20-year net present values (NPV).

Table 7-1: Summary of Qualitative Comparison of Alternatives					
Alternative	**Approximate Footprint (SF)**	**Water Quality**	**WWTP Classification / Min. Grade Level of CPO/Operator in Charge**	**Operational Requirements**	**Operational Control**
(1) Modifications to Existing Pond System - Diffused Aeration and Bioreactor	88,700	Meets permit (+)	II /2/1	Low	Low
(2) In-pond Extended Aeration System	21,700	Exceeds permit (++)	III /3/2	Low - Moderate	Moderate
(3A) Packaged WWTP - Activated Sludge	13,420	Exceeds permit (++)	III /3/2	Moderate	Moderate
(3B) Packaged WWTP - Membrane Bioreactor	6,600	Exceeds permit & meets recycled water (+++)	III /3/2	High	High

Table 7-2: Cost Comparison Summary			
Alternative	**Annual O&M Cost Opinion ($)**	**Capital Cost Opinion ($)**	**Total 20-Year NPV ($)**
(1) Modifications to Existing Pond System - Diffused Aeration and Bioreactor	111,500	6,320,000	9,438,000
(2) In-pond Extended Aeration System	67,500	8,200,000	10,088,000
(3A) Packaged WWTP - Activated Sludge	113,500	9,420,000	12,594,000
(3B) Packaged WWTP - Membrane Bioreactor	202,500	10,370,000	16,033,000

A scoring and ranking of the project alternatives was developed with input from District staff. **Table 7-3** summarizes the scoring for five main comparative criteria. Scores of 1 through 4 were assigned, with 1 representative of a low score and 4 a high score.

Table 7-3: Summary of Comparative Alternative Scores					
Alternative	**Footprint**	**Water Quality**	**Operational Requirements**	**Operational Control**	**Cost (20-yr NPV)**
(1) Modifications to Existing Pond System - Diffused Aeration and Bioreactor	1	1	4	1	4
(2) In-pond Extended Aeration System	2	3	3	2	3
(3A) Packaged WWTP - Activated Sludge	3	3	2	2	2
(3B) Packaged WWTP - Membrane Bioreactor	4	4	1	4	1

The five criteria are not considered equal, when considering the comparison of alternatives. Weighting was developed with input from the District to compare the alternatives and develop the preferred and recommended system. A weighting system of 10 to 50 was used, with 10 representative of a lower weight and 50 representative of a higher (more important/critical) weight.

- Footprint: 10
- Water Quality: 50
- Operational Requirements: 20
- Operational Control: 30
- Cost (Net Present Value): 40

This weighting system was used and multiplied by the scores in **Table 7-3** to develop weighted scores for each alternative. **Table 7-4** summarizes the weighted scoring.

Table 7-4: Summary of Comparative Alternative Weighted Scores						
Alternative	**Footprint**	**Water Quality**	**Operational Requirements**	**Operational Control**	**Cost (Net Present Value)**	**Total Weighted Score**
(1) Modifications to Existing Pond System - Diffused Aeration and Bioreactor	10	50	80	30	160	**330**
(2) In-pond Extended Aeration System	20	150	60	60	120	**410**
(3A) Packaged WWTP - Activated Sludge	30	150	40	60	80	**360**
(3B) Packaged WWTP - Membrane Bioreactor	40	200	20	120	40	**420**

Alternative 3B, the membrane bioreactor packaged WWTP, has the highest total weighted score, at 420 points, followed by Alternative 2, the in-pond extended aeration system with 410 points. Alternative 3A, the activated sludge packaged WWTP, scored 360 points and Alternative 1, the modifications to the existing ponds with diffused aeration system and bioreactor, scored the lowest with 330 points.

7.2 Recommendations

The District is bound to the NPDES permit requirements and requirements of the Time Schedule Order issued by the Regional Water Quality Control Board. The existing WWTP cannot reliably meet these requirements. Therefore, improvements to the treatment system are required. Based on the analyses herein, it is recommended that the District pursue implementation of Alternative 3B, the membrane bioreactor packaged WWTP.

The next major steps for project development are summarized below.

- Conceptual Design, including but not limited to:
  - Detailed design criteria
  - Evaluation and development of recommendations for electrical service and standby power, equalization storage, and sludge dewatering
  - 30% site plan and piping plan
  - Technical specifications table of contents
  - 30% opinion of probable construction cost
- Project financial plan
- Environmental analyses and documentation
- Final Design and development of construction documents

Appendices are Clerk Filed

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Scott Duffield, General Manager

DATE: March 18, 2021

SUBJECT: Request to receive and file Photovoltaic System Project updates.

Recommendation

It is recommended that the Board of Directors receive and file Photovoltaic System Project updates.

Background

Your Board approved the Photovoltaic System Project (Project) at the January 16, 2020 meeting and selected Stockman's Energy, Inc. as the most qualified proposer. The Notice to Proceed was issued March 3, 2020.

Project Updates

Project Scope

WWTP

Everything is complete including electrical work by PG&E, final connections and switchover to new transformer and meter. We are waiting for PG&E to schedule their final inspection and issue Permission to Operate.

WTP:

Everything is complete except:

- Data acquisition system
- Installation of new switchgear and other work associated with PG&E upgrades
- Fire and County final inspections
- PG&E Service Planning requirements (design plans) were anticipated by 2/25/2021 but PG&E did not meet that and are now anticipated "in two to three weeks" or 3/15/2021. The contractor has already ordered the switchgear, but PG&E still needs to provide the plans for the other specific upgrade work the

contractor will need to do (transformer pad, any boxes, trenching and conduit to the new switchgear, etc.).
- Then we must wait for PG&E to schedule the installation of the transformer, cabling, meter, etc. That work is anticipated to be 5/5 - 6/22.
- Final connections and switchover once PG&E work is complete

Project Budget

The Project is currently within budget.

Change Order No. 1 was issued in the amount of $ (9,647.80) for:

- Land survey work at WTP site – Additive $ 3,220 to contract price
- Revised fencing at WTP site – Deductive $ (83,855) to contract price
- Electrical upgrade work at WWTP site – Additive $ 49,039 to contract price
- Electrical upgrade work at WTP site (portion) – Additive $21,947 to contract price

Additional budget changes we are tracking include:

- Electrical upgrade work at WTP site (remainder) – Additive $TBD to contract price

PG&E direct costs to date include:

- Upgrades for WWTP – $23,262.55
- Upgrades for WTP – $TBD

Project Schedule

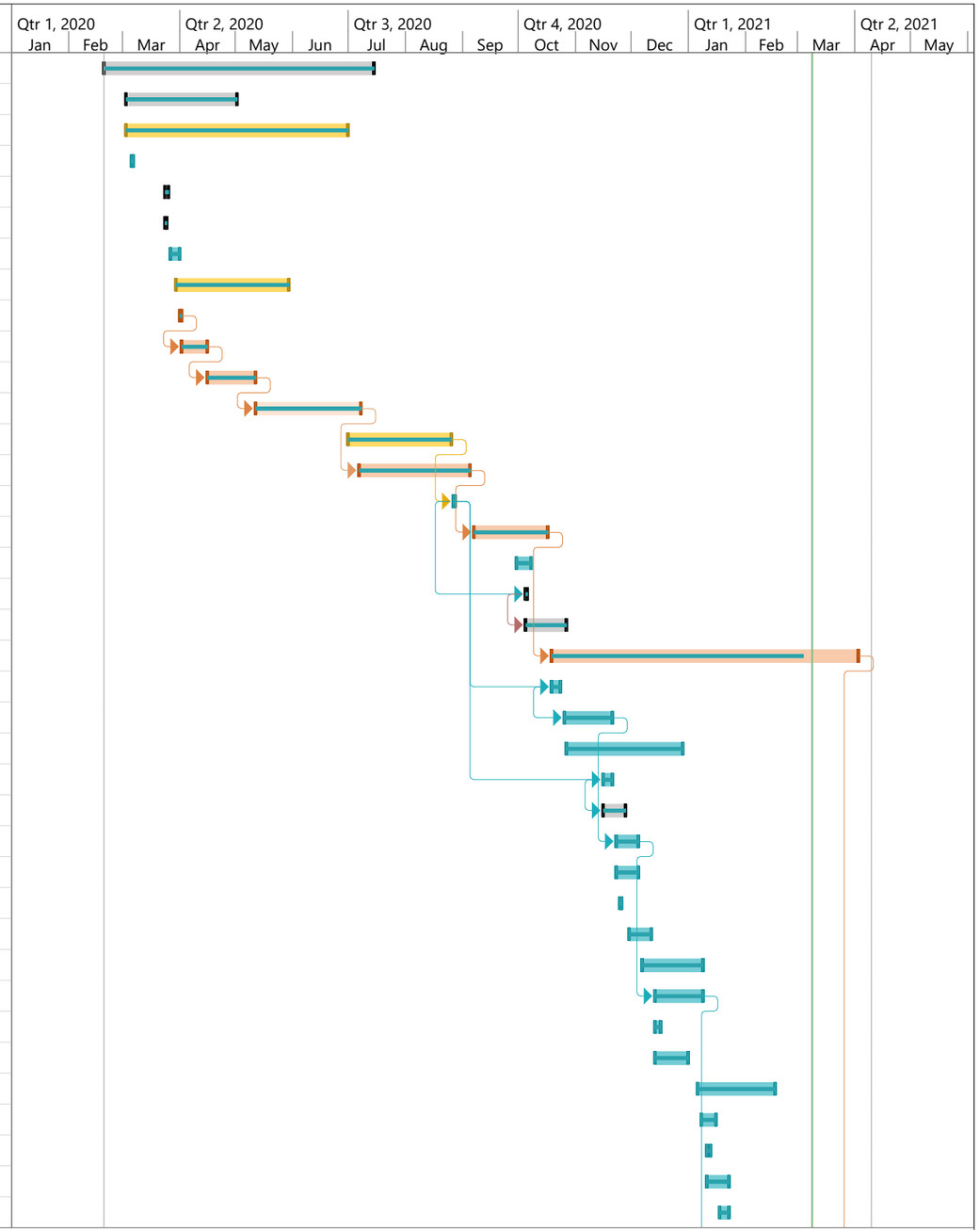
The schedules have been updated to include the additional work for the service upgrades at both sites. Contract Change Order No. 1 was issued for the scope and budget changes noted above with additional time given to accommodate the service upgrades and PG&E's timeline we are given. Therefore, Substantial Completion of the entire project is now May 13, 2021.

The critical path still goes through PG&E's portion of the work. The latest schedules from the contractor indicate commissioning of the WWTP system April 5, 2021, and the WTP system August 20, 2021.

Attachments: Project Schedules dated 3/9/21

File: Projects_PVS

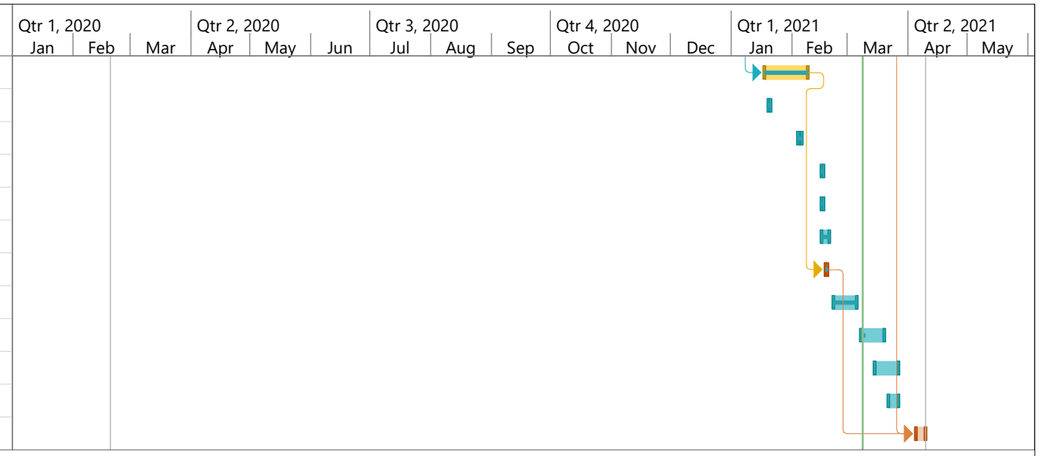
Task Name	Duration	Start	Finish	Status	Notes
Utility Locate 811	104 days	Thu 2/20/20	Tue 7/14/20	Complete	
Gather and Present Submittals to District for Approval	44 days	Tue 3/3/20	Fri 5/1/20	Complete	
Create Permit Packages and Submit to County	86 days	Tue 3/3/20	Tue 6/30/20	Complete	
Solar Panels Ordered	1 day	Fri 3/6/20	Fri 3/6/20	Complete	
Survey Water Treatment Plant	2 days	Tue 3/24/20	Wed 3/25/20	Complete	
Pull Testing and Geotech	1 day	Tue 3/24/20	Tue 3/24/20	Complete	
Solar Panels Delivered	3 days	Fri 3/27/20	Tue 3/31/20	Complete	
District Permit Review	45 days	Mon 3/30/20	Fri 5/29/20	Complete	
Submit Documents to Initiate Interconnection Process	1 day	Wed 4/1/20	Wed 4/1/20	Complete	
PG&E Interconnection Process: Initial Review	10 days	Thu 4/2/20	Wed 4/15/20	Complete	
PG&E Interconnection Process: Engineering Review WWTP	18 days	Thu 4/16/20	Mon 5/11/20	Complete	
PG&E Interconnection Process: Service Planning WWTP	41 days	Tue 5/12/20	Tue 7/7/20	Complete	
County Permit Review Process	40 days	Wed 7/1/20	Tue 8/25/20	Complete	
PG&E Interconnection Process: Estimating Process WWTP	44 days	Tue 7/7/20	Fri 9/4/20	Complete	
Order Racking	1 day	Thu 8/27/20	Thu 8/27/20	Complete	
District Reviews & Executes Contract with PG&E, WWTP	30 days	Mon 9/7/20	Fri 10/16/20	Complete	**LATE**
Stockmans PG&E Service Upgrade Estimate Prepared	6 days	Wed 9/30/20	Wed 10/7/20	Complete	
Mobilize	1 day	Mon 10/5/20	Mon 10/5/20	Complete	
Site Preparation	16 days	Mon 10/5/20	Mon 10/26/20	Complete	
PG&E Service Upgrades: WWTP	6 mons	Mon 10/19/20	Fri 4/2/21	Late	
Racking Delivered	5 days	Mon 10/19/20	Fri 10/23/20	Complete	
Solar Racking Installation	20 days	Mon 10/26/20	Fri 11/20/20	Complete	
Stockmans Orders Switchgear & Other PG&E Service Upgrade Equipmer	45 days	Tue 10/27/20	Mon 12/28/20	Complete	**LATE**
Balance of System Delivery Date	5 days	Mon 11/16/20	Fri 11/20/20	Complete	
DC Trenching and Conduit Installation	10 days	Mon 11/16/20	Fri 11/27/20	Complete	
Install Solar Panels and Mount Electrical Equipment	10 days	Mon 11/23/20	Fri 12/4/20	Complete	
AC Trenching and Conduit Installation	10 days	Mon 11/23/20	Fri 12/4/20	Complete	
County Trench Inspection	1 day	Wed 11/25/20	Wed 11/25/20	Complete	
SU: Trenching & Conduit Installation	10 days	Mon 11/30/20	Fri 12/11/20	Complete	
SU: Set Transformer Pad and Bollards	25 days	Mon 12/7/20	Fri 1/8/21	Complete	
Finish Remaining Wiring Connections	20 days	Mon 12/14/20	Fri 1/8/21	Complete	
SU: Trench Inspection & Backfill	3 days	Mon 12/14/20	Wed 12/16/20	Complete	
SU: Switchgear Pad Install	14 days	Mon 12/14/20	Thu 12/31/20	Complete	
SU: Box #6 Installation (PG&E or Other)	30 days	Wed 1/6/21	Tue 2/16/21	Complete	
SU: Expected Switchgear Delivery	6 days	Fri 1/8/21	Fri 1/15/21	Complete	
SU: Pad & Bollard Inspection	2 days	Mon 1/11/21	Tue 1/12/21	Complete	
SU: Switchgear Installation	10 days	Mon 1/11/21	Fri 1/22/21	Complete	
County Fire Inspection	5 days	Mon 1/18/21	Fri 1/22/21	Complete	



Heritage Ranch CSD
WWTP Solar Project 2020
Tue 3/9/21

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

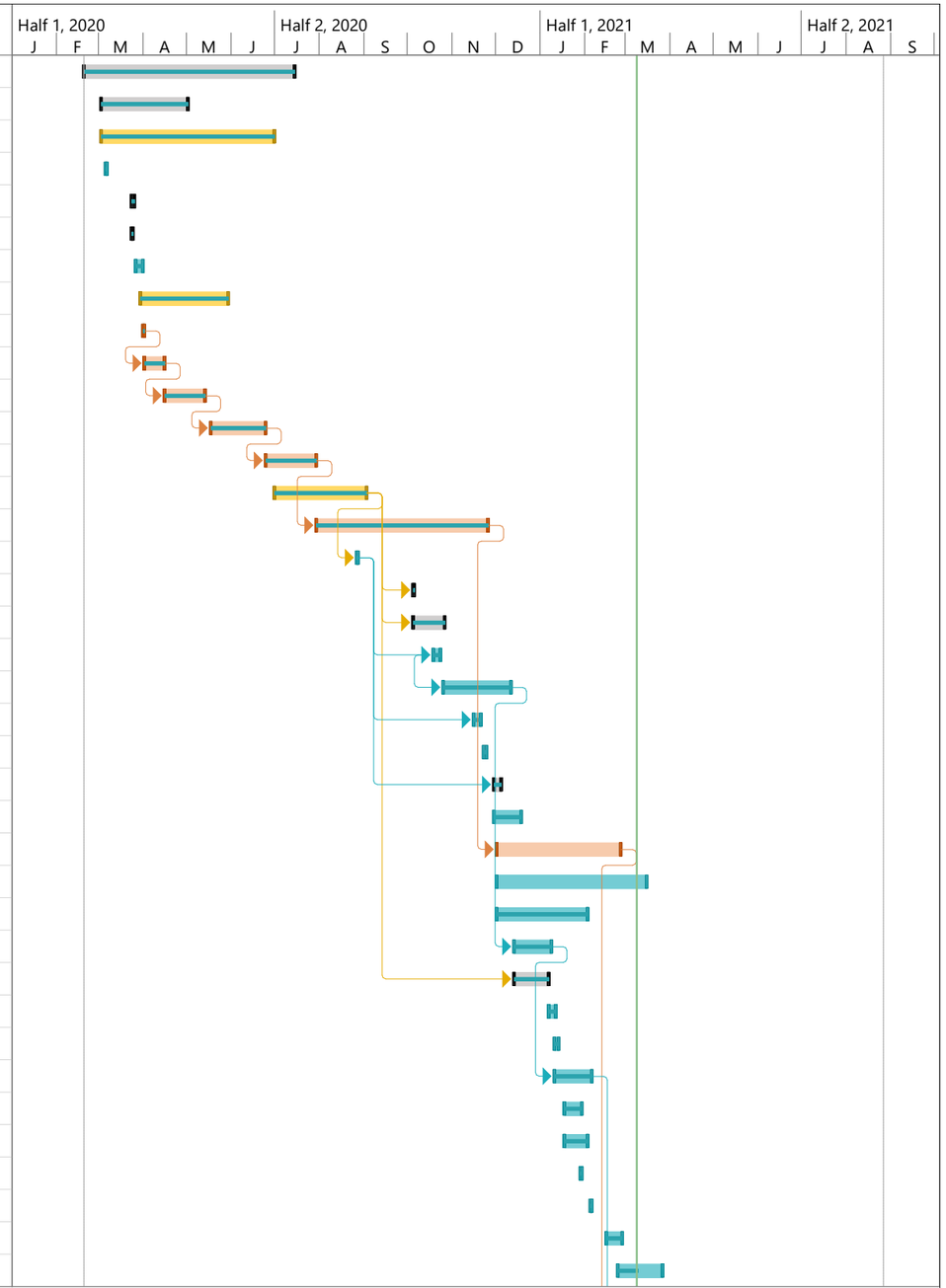
Task Name	Duration	Start	Finish	Status	Notes
County Final Inspection: Date of Substantial Completion	16 days	Mon 1/18/21	Mon 2/8/21	Complete	
SU: Practice Mandrel Test	1 day	Wed 1/20/21	Wed 1/20/21	Complete	
SU: Switchgear Housekeeping Pad Installation	2 days	Thu 2/4/21	Fri 2/5/21	Complete	
SU: Mandrel Inspection	1 day	Tue 2/16/21	Tue 2/16/21	Complete	
SU: Final Inspection	1 day	Tue 2/16/21	Tue 2/16/21	Complete	
SU: PG&E Electrical Work Scheduled For	4 days	Tue 2/16/21	Fri 2/19/21	Complete	
Submit Final Documents for Interconnection with PG&E	1 day	Thu 2/18/21	Thu 2/18/21	Complete	**LATE**
DAS: System Installation	10 days	Mon 2/22/21	Fri 3/5/21	Complete	
Final Commissioning Measurement: System Output Form Completion	10 days	Mon 3/8/21	Fri 3/19/21	On Schedule	
PG&E Final Inspection	10 days	Mon 3/15/21	Fri 3/26/21	Future Task	
PG&E PTO Granted	5 days	Mon 3/22/21	Fri 3/26/21	Future Task	
Commissioning of System: WWTP	5 days	Mon 4/5/21	Fri 4/9/21	Future Task	**LATE**



Heritage Ranch CSD
WWTP Solar Project 2020
Tue 3/9/21

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

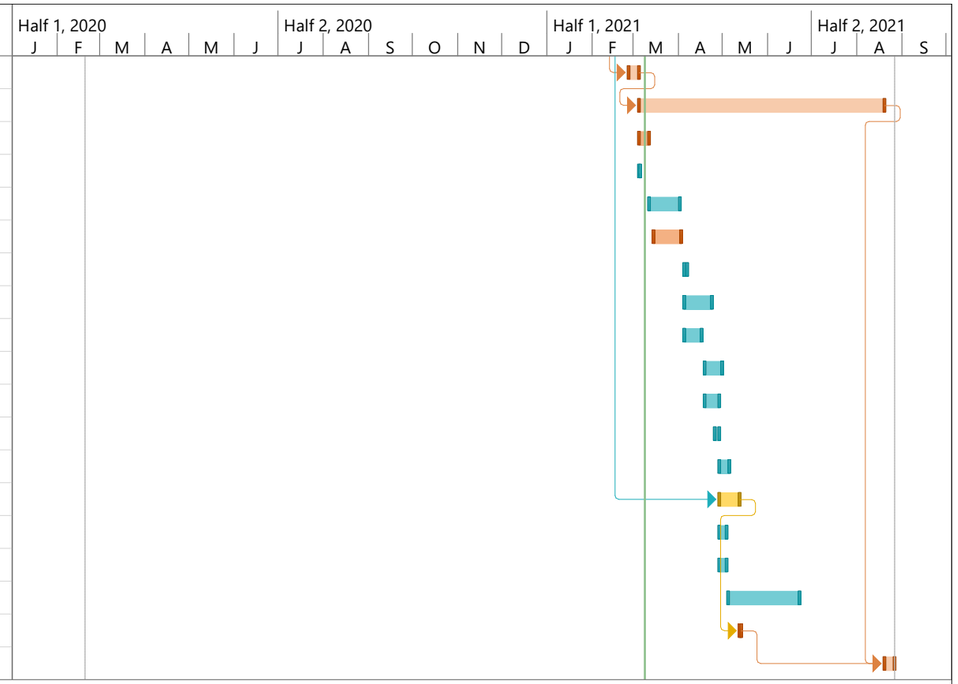
Task Name	Duration	Start	Finish	Status	Notes
Utility Locate 811	104 days	Thu 2/20/20	Tue 7/14/20	Complete	
Gather and Present Submittals to District for Approval	44 days	Tue 3/3/20	Fri 5/1/20	Complete	
Create Permit Packages and Submit to County	86 days	Tue 3/3/20	Tue 6/30/20	Complete	
Solar Panels Ordered	1 day	Fri 3/6/20	Fri 3/6/20	Complete	
Survey Water Treatment Plant	2 days	Tue 3/24/20	Wed 3/25/20	Complete	
Pull Testing and Geotech	1 day	Tue 3/24/20	Tue 3/24/20	Complete	
Solar Panels Delivered	3 days	Fri 3/27/20	Tue 3/31/20	Complete	
District Permit Review	45 days	Mon 3/30/20	Fri 5/29/20	Complete	
Submit Documents to Initiate Interconnection Process	1 day	Wed 4/1/20	Wed 4/1/20	Complete	
PG&E Interconnection Process: Initial Review	10 days	Thu 4/2/20	Wed 4/15/20	Complete	
PG&E Interconnection Process: Engineering Review WTP	20 days	Thu 4/16/20	Wed 5/13/20	Complete	
PG&E Interconnection Process: Supplemental Review WTP	28 days	Mon 5/18/20	Wed 6/24/20	Complete	
PG&E Interconnection Process: Electrical Independence Test WTP	25 days	Thu 6/25/20	Wed 7/29/20	Complete	
County Permit Review Process	46 days	Wed 7/1/20	Wed 9/2/20	Complete	
PG&E Interconnection Process: System Impact Study WTP	85 days	Thu 7/30/20	Wed 11/25/20	Complete	**LATE**
Order Racking	1 day	Thu 8/27/20	Thu 8/27/20	Complete	
Mobilize	1 day	Mon 10/5/20	Mon 10/5/20	Complete	
Site Preparation	16 days	Mon 10/5/20	Mon 10/26/20	Complete	
Racking Delivered	5 days	Mon 10/19/20	Fri 10/23/20	Complete	
Solar Racking Installation	35 days	Mon 10/26/20	Fri 12/11/20	Complete	**LATE**
Balance of System Delivery Date	5 days	Mon 11/16/20	Fri 11/20/20	Complete	
Stockmans Prepares PG&E Service Upgrade Estimate #1	2 days	Mon 11/23/20	Tue 11/24/20	Complete	
DC Trenching and Conduit Installation	5 days	Mon 11/30/20	Fri 12/4/20	Complete	
AC Trenching and Conduit Install (Self Performed)	15 days	Mon 11/30/20	Fri 12/18/20	Complete	
PG&E Interconnection Process: Estimating Process WTP	62 days	Wed 12/2/20	Thu 2/25/21	Late	**LATE**
PG&E Interconnection Process: PG&E Estimate Results Expected	74 days	Wed 12/2/20	Mon 3/15/21	Late	
Stockmans Orders Switchgear	45 days	Wed 12/2/20	Tue 2/2/21	Complete	
Install Solar Panels and Mount Electrical Equipment	20 days	Mon 12/14/20	Fri 1/8/21	Complete	
Fence Installation at Water Treatment Plant	18 days	Mon 12/14/20	Wed 1/6/21	Complete	
Locate, Pothole, and Mark Existing Lines for T1 & T3	3 days	Thu 1/7/21	Mon 1/11/21	Complete	
Stockmans Prepares and Presents Trench Plan	3 days	Mon 1/11/21	Wed 1/13/21	Complete	
Finish Remaining Wiring Connections	20 days	Mon 1/11/21	Fri 2/5/21	Complete	
AC Bore Section, T1 (LTEC)	10 days	Mon 1/18/21	Fri 1/29/21	Complete	
AC Trench Section, T3 (LTEC)	12 days	Mon 1/18/21	Tue 2/2/21	Complete	
County Trench Inspection	1 day	Fri 1/29/21	Fri 1/29/21	Complete	
Tree, Brush, and Stump Removal	1 day	Fri 2/5/21	Fri 2/5/21	Complete	
SU: Expected Switchgear Delivery	9 days	Tue 2/16/21	Fri 2/26/21	Complete	
SU: 3R Retrofit Kt	23 days	Wed 2/24/21	Fri 3/26/21	On Schedule	



Heritage Ranch CSD
WTP Solar Project 2020
Tue 3/9/21

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

Task Name	Duration	Start	Finish	Status	Notes
District Reviews & Executes Contract with PG&E: WTP	5 days	Fri 2/26/21	Thu 3/4/21	Late	**LATE**
PG&E Service Upgrades: WTP	6 mons	Fri 3/5/21	Thu 8/19/21	Late	**LATE**
Stockmans Prepares PG&E Service Upgrade Estimate #2	5 days	Fri 3/5/21	Thu 3/11/21	Late	**LATE**
DAS: System Delivery	1 day	Fri 3/5/21	Fri 3/5/21	Complete	
SU: Trenching & Conduit Installation	15 days	Fri 3/12/21	Thu 4/1/21	Future Task	**PROJECTED LATE**
Stockmans Orders Other PG&E Service Upgrade Equipment	15 days	Mon 3/15/21	Fri 4/2/21	Future Task	**LATE**
SU: Trench Inspection & Backfill	2 days	Mon 4/5/21	Tue 4/6/21	Future Task	**PROJECTED LATE**
SU: Set Transformer Pad and Bollards	15 days	Mon 4/5/21	Fri 4/23/21	Future Task	**PROJECTED LATE**
SU: Switchgear Pad Install	10 days	Mon 4/5/21	Fri 4/16/21	Future Task	**PROJECTED LATE**
DAS: System Install	10 days	Mon 4/19/21	Fri 4/30/21	Future Task	
SU: Switchgear Installation	8 days	Mon 4/19/21	Wed 4/28/21	Future Task	**PROJECTED LATE**
SU: Transformer Pad & Bollard Inspection	3 days	Mon 4/26/21	Wed 4/28/21	Future Task	**PROJECTED LATE**
County Fire Inspection	5 days	Thu 4/29/21	Wed 5/5/21	Future Task	**LATE**
County Final Inspections: Date of Substantial Completion	10 days	Thu 4/29/21	Wed 5/12/21	Future Task	**LATE**
SU: Mandrel Inspection	3 days	Thu 4/29/21	Mon 5/3/21	Future Task	**PROJECTED LATE**
SU: Final Inspection	3 days	Thu 4/29/21	Mon 5/3/21	Future Task	**PROJECTED LATE**
SU: PG&E Work is Scheduled (7wks per Larry Hoff)	35 days	Wed 5/5/21	Tue 6/22/21	Future Task	**PROJECTED LATE**
Submit Final Documents for Interconnection with PG&E	1 day	Thu 5/13/21	Thu 5/13/21	Future Task	**LATE**
Commissioning of System: WTP	5 days	Fri 8/20/21	Thu 8/26/21	Future Task	**LATE**



Heritage Ranch CSD
WTP Solar Project 2020
Tue 3/9/21

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

Manager Report
For the Month of March 2021

In addition to normal operations and administrative duties, below are updates for several areas of work:

Administration

- The Manager attended bi-weekly virtual Special District Managers meetings.
- The Manager is tracking the COVID situation.

Operations

- Prepared and submitted the Water Treatment Plant Monthly Report.
- Submitted the Wastewater Treatment Plant Self-Monitoring Reports.
- Prepared and submitted the Disinfection Byproduct Monthly Report.
- The Manager coordinated with the Division of Drinking Water to supply water samples so they could perform jar testing regarding the disinfection byproducts work.
- Additional updates regarding operations can be found in the Operations Report.

Solid Waste

- The Manager attended the monthly IWMA Local Task Force meeting.
- The Manager attended the IWMA Board March 10th Board meeting to keep a pulse on initiatives they are working on that may affect the District.

Reservoir Status

- As reported by Monterey County Water Resources Agency (MCWRA), as of March 8, 2021, the reservoir was at approximately 750.95 feet in elevation, 41% of capacity, or 154,228-acre feet of storage. MCWRA water releases were shown as 60 cfs.
- The Manager attended the MCWRA Reservoir Operations Committee February 25th meeting.

Capital Improvement Program

Projects / equipment replacement planned for this fiscal year and their status include:

- PVS: see separate agenda item.
- Vertical Intake: Intake structure is complete. Design of the pump and piping by the District Engineer is pending.
- Wastewater project x: The project alternatives analysis by the District Consultant is complete.
- Lift Station 1-5 rehabilitation design phase: Development of contract documents by the District Engineer is on hold.
- Vehicle / Equipment replacement: Purpose and need statements and specifications list by staff is on hold.
- The 2MG Tank mixing system has been installed and is operating normally.

Development

- Nothing significant to report.

Public Relations and Community

- Nothing significant to report.

Human Resources

- A recruitment for the Operations Manager position remains open.

Board Member & Staff Information and Learning Opportunities

- CSDA has released the 2021 Professional Development Catalog. CSDA is a leading source of information and training for special districts. In 2021 all webinars are free to new or existing members. Please check the catalog for important event dates and access information.

* * *

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
FEBRUARY 2021 OFFICE REPORT

Water & Sewer

On March 1st, we processed 1,925 bills for a total dollar amount of $139,627 for water and sewer user fees for the month of February. The number of Automatic Drafts processed was 547 for a total dollar amount of $35,025.

San Miguel Garbage Franchise Fees

Each month, the District receives franchise fees from the previous month.
The breakdown is as follows:

Month of January

Garbage Collection (10%) - $ 6,303.50

Roll-Off Collection (10%) - $ 312.05

Total Franchise Fees Collected - $ 6,615.55

Service Orders Completed

Staff completed a total of 29 service orders for the month of February. Below is a breakdown by job code.

OCCUPANT CHANGE	12	MISC-W/METER INFORMATION	1
USA	6	LEAK	2
TURN-OFF ANGLE STOP	1	LOCK METER	1
MISC-W/O METER INFORMATION	2	UNLOCK	1
CALL OUT	2	AMR DATA LOG	1