RURAL NORTH VACAVILLE WATER DISTRICT
BOARD OF DIRECTORS REGULAR MEETING

Tuesday, February 11, 2025

7:00 P.M

Vacaville Fire Protection District, Fire Station #67,
4135 Cantelow Road, Vacaville, CA 95688

"The Mission of the Rural North Vacaville Water District is to deliver, efficiently and reliably for many years, quality water for domestic use and fire protection."

AGENDA

(Anyone wishing to address the Board is asked to fill out a "Public Comment Card" prior to the start of the meeting, or during if necessary, and give it to the Board Clerk.)

1. **Call Meeting to Order (Board President)**
2. **Roll Call (Board Clerk)**
3. **Approval of the Agenda (Board President)**
4. **Public Comment (Non-Agenda Items)**

   Opportunity for the public to speak to the Board on any subject matter within the district's jurisdiction but not appearing on today's agenda. Speaker times are limited to three (3) minutes per person.

   Please submit a Public Comment Card to the Board Clerk prior to the commencement of this Public Comment section. Only those who have submitted speaker cards or have expressed an interest in speaking prior to the conclusion of the Public Comment section will be called upon to speak.

   Public comments on agenda or non-agenda items during a Board of Directors meeting are for the purpose of informing the Board to assist Board members in making decisions. Please address your comments to the President of the Board.

   Please note that State law prevents the Board from discussing or acting on items not listed on the agenda. Public comments relating to matters listed on the agenda are called for by the Board President at the appropriate agenda item when requested by a Public Comment Card.

   Public comments during Board meetings are not for questions and answers. Should you have questions, please do not ask them as part of your public comments to the Board. Answers will not be provided during Board meetings. Please present your questions to the RNVWD General Manager or a Board Member via email, phone call, letter, or in-person at a time other than during a Board meeting.

5. **Consent Items (Public Comment)**

   Items appearing on the Consent Calendar are considered routine and may be acted upon by the Board by one motion, without discussion; however, any item may be considered separately at the request of any Board member.

   a) Consider for Approval the **Meeting Minutes** of the **Regular January 14, 2025, meeting.**

   b) Consider for Approval the **Monthly Financial Reports and Adjustments for December 2025**

   (Action Item is for all at one time)

6. **General Manager's Report (Verbal Update)** ***(Public Comment)***
   a) System update – Leaks, repairs and current issues.

7. **Executive Assistant/Treasurer's Report (Verbal Update) (Public Comment)**
   a) 6-month recap: July – December

8. **Continuing Business** ***(Public Comment)***
   a) Discuss and provide directions on the following options for solar power: a) Negotiate and sign a power purchase agreement, PPA; b) Drop the solar project NEM 2 completely; c) Evaluate outside funding to do the solar installation without a PPA or d) Evaluate other reduced scope scenarios such as for only Well 1 and 2 and obtain additional bids. **(Discussion Item)**

9. **New Business** ***(Public Comment)***
   a) Consider for approval the issuance of ten (10) additional water rights to be owned by the District and reserved for future connections as approved by the Board for each sale. Engage the process of hearings as outlined in the Rules and Regulations Section 3 Expansion of the Water System. Reference Modeling of distribution system report by Coastland Civil Engineers available on RNVWD website. Water rights may be financed by the District, at District's sole option. The sale price amount and interest rate percentage to be determined. Fees for engineering may be applicable and the physical service connection to the District's distribution system are additional costs by the Buyer. **(Action Item)**

   b) Consider for approval to appoint a new JPIA alternate board member to fill the vacancy with Ken Swenson's departure. JPIA is the insurance carrier for the District's general liability. **(Action Item)**

10. Adjourn

The next Regular Meeting is scheduled for **Tuesday March 11, 2025,** at 7:00 pm at the Vacaville Fire Protection District, Fire Station #67, 4135 Cantelow Road, Vacaville, CA 95688.

The Board of Directors of the Rural North Vacaville Water District holds its Regular Board Meetings on the second Tuesday of every month at 7:00 p.m. The Board may discuss any item on the agenda and may act on any of those items. Agenda items are numbered for identification purposes only and will not necessarily be considered in the indicated order.

In compliance with the American with Disabilities Act, if you have a disability and need a disability-related modification or accommodation to participate in this meeting, please contact the General Manager. Upon request, the District will provide written agenda materials in appropriate alternative formats, or disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to the General Manager at gm@rnvwd.com or submitted by phone at 707-447-8420. Requests made by mail (sent to P.O. Box 5097, Vacaville, CA 95696) must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.

BOARD OF DIRECTORS
REGULAR MEETING MINUTES
JANUARY 14, 2024 at 7:00 pm

The Rural North Vacaville Board of Directors met in Regular Meeting session on this date.

Roll Call: Steven Strickland, President; Alan Hanger, Vice President; Gary Hensley, Director; James Miles, Director; Eileen Uthe-Smith, Director; Patrick Sweeney, General Manager; Ashwin Swenson, Exec. Assistant; Nancy Veerkamp, Clerk/Admin

Absent: None

Public (Speaking): Ken Swenson

1. Call Meeting to Order
The meeting was called to order by the President, Steven Strickland, at 7:02 pm.

2. Roll Call (Board Clerk)

3. Approval of the Agenda (Board President) VP Alan made a motion to approve the Agenda and the motion was seconded by Director Eileen.
All approved.

4. Public Comments (Non Agenda Items): None

5. Consent Items: Public Comment: None
a) Consider for Approval the Meeting Minutes of the Regular Meeting December 10, 2024.
b) Consider for Approval the Monthly financial reports and adjustments for November 2024.
Director Gary made a motion to approve item a. Director Eileen seconded the motion.
All approved
Director Alan made a motion to approve item b. Director Gary seconded the motion.
All approved.

6. General Managers Report (verbal update)- Public Comment: None

a) Transition – We are spending 4-5 hours a week training with Gordon. There is a lot to learn.

b) Eaton – paid off

c) Ghillotti – pending negotiations for terms- The County of Solano is paying Ghillotti and a note is being written up with no interest for the district to pay back the $84,000 at $14,000 first payment and followed with 7 months of $10,000 each.

Director Eileen thanked the GM for the tour of the facilities. It really helped to understand how things work.

7. Executive Assistant/Treasurer's Report (verbal update)- Public Comment:None

a) Transition- The training with Weston and Gordon started in mid-December. The GM and I will start working on the new budget in March before the June deadline. The district fiscal year is July 1 to June 30. We will be creating a new format using the prior budget for information.

8. Continuing Business: Public Comment: None

a) Discuss and provide direction on the following options for solar power: a) Negotiate and sign a power purchase agreement, PPA; b) Drop the solar application completely; c) Evaluate outside funding to do the solar installation without a PPA or d) Evaluate other reduced scope scenarios such as for only Well 1 and 2 and obtain additional bids. Consider for approval the selection of two Board Members to an "Ad Hoc" committee to review solar project. **(Action Item)** Director Gary made a motion to appoint Directors Alan and Steven to the Ad Hoc committee with the addition of Ken Swenson as a consultant to the committee. Director Eileen seconded the motion. Discussion: President Steven wants more information before a decision on this subject is to be made at the February meeting. VP Alan: He has contacted two credit unions to receive a proposal for financing and he has contacted an additional solar company for a bid.

Vote: All approved.

9. New Business- Public Comments:

a) Consider for approval Electronic Communications Policy 3300 (Action Item) **)** Director Gary made a motion to approved Policy 3300. Director Eileen seconded the motion. Discussion: None

Vote: All approved

b) Consider for approval Coastland Hydraulic Model 1-2-25 (Action Item) **)** Director Gary made a motion to approve the report. Director Eileen seconded the motion. Discussion:

VP Alan: are there any weak spots that should be planned for in the future budget?: GM: we have identified some and you can see them on the colored map. Currently there is no budget for these areas. Ken Swenson: It would be good for the district to look for grant

money related to fire protection. The district could potentially increase the size of the pumps to refill the tanks faster. Director Gary: David Stevens is looking into grants for the district

Vote: All approved.

10. Adjourn
The meeting was adjourned at 7:27 pm.

The next Regular Meeting is scheduled for Tuesday, February 11, 2024, at 7:00 pm at the Vacaville Fire Protection District, Fire Station #67, 4135 Cantelow Road, Vacaville, CA 95688.

Minutes submitted by Nancy Veerkamp, Clerk of the Board

Minutes approved by President:

_____
President

_____
Date

RNVWD - Operating Fund
Balance Sheet
As of December 31, 2024

	Dec 31, 24
ASSETS	
Current Assets	
Checking/Savings	
160.027 · Cash -Vendor Deposits Held acct	44,208
160.020 · Cash WFB Checking #3799	298,435
160.025 · Cash PayPal Account	1,581
160.029 · Cash in Treasury - Fund 164	75,576
Total Checking/Savings	419,800
Accounts Receivable	
11000 · Hydrant Water Customer AR	4,140
Total Accounts Receivable	4,140
Other Current Assets	
160.110 · Water Svc Accounts Rec.	139,176
160.139 · Accrued Interest Receivable	20,808
160.199 · LT Rec Principal Due Next 12 Mo	49,831
Total Other Current Assets	209,815
Total Current Assets	633,755
Fixed Assets	
160.315 · Infrastructure	15,161,692
160.340 · Equipment	546,827
160.370 · Allowance For Depreciation	(9,515,433)
Total Fixed Assets	6,193,086
Other Assets	
160.244 · LT Receivable - Dove Creek Tr	35,000
160.243 · LT Receivable - Forfang	36,586
164.242 · LT Receivable - Fade	35,129
164.241 · LT Receivable - Sondrol	35,129
164.240 · LT Receivable - Mojas	35,128
164.239 · LT Receivable - Martin	35,129
164.238 · LT Receivable - DelCampo	129,423
164.236 · LT Receivable - Anguiano	31,183
164.235 · LT Receivable - Hamilton	33,629
164.230 · LT Receivable-Morgan	469,414
164.231 · LT Receivable - Demyan	33,772
164.233 · LT Receivable - Pitcavage	28,499
164.299 · Current Portion of LT Rec.	(49,831)
Total Other Assets	888,191
TOTAL ASSETS	**7,715,031**

RNVWD - Operating Fund
Balance Sheet
As of December 31, 2024

	Dec 31, 24
LIABILITIES & EQUITY	
Liabilities	
Current Liabilities	
Accounts Payable	
160.500 · Deposit Payables	31,989
160.505 · Hydrant Customer Deposits	1,500
Total Accounts Payable	33,489
Credit Cards	
160.601 · Wells Fargo Visa Card-New	231
Total Credit Cards	231
Other Current Liabilities	
164.599 · Current Portion of Loan Payable	120,617
160.510 · Accounts Payable	58,408
160.515 · Accrued Liabilities	
160.517 · Accrued Liab - Ghillotti	85,000
Total 160.515 · Accrued Liabilities	85,000
Total Other Current Liabilities	264,025
Total Current Liabilities	297,744
Long Term Liabilities	
164.600 · Loan Payable	1,025,881
164.699 · Less Current Port. of Loan Pay	(120,617)
Total Long Term Liabilities	905,264
Total Liabilities	1,203,008
Equity	
160.749 · County Reserve Funds	68,387
160.770 · Investment in Fixed Assets	5,090,056
32000 · Retained Earnings	1,089,309
Net Income	264,271
Total Equity	6,512,023
TOTAL LIABILITIES & EQUITY	**7,715,031**

RNVWD - Operating Fund
Profit & Loss Budget Performance
December 2024

	Dec 24	Budget	Over B...	Jul - Dec 24	YTD Bud...	Over B...	Annual B...
Ordinary Income/Expense							
Income							
60.9000 · Revenues							
60.9005 · Base Fee	33,572	33,018	554	195,407	191,629	3,778	389,737
60.9010 · Supplemental Fees	13,149	13,504	(355)	78,140	75,172	2,968	156,196
60.9015 · Tier 1	8,077	13,536	(5,459)	73,064	83,505	(10,441)	113,520
60.9020 · Tier 2	1,063	6,153	(5,090)	28,755	37,956	(9,201)	51,600
60.9025 · Tier 3	664	4,922	(4,258)	33,299	30,366	2,933	41,280
60.9027 · Capital Recovery Charge	50,109	49,398	711	293,953	272,684	21,269	569,072
60.9030 · Hydrant Water Usage	4,665	0	4,665	11,221	5,000	6,221	10,000
60.9065 · Princ & Int from Sale WR	2,554	2,555	(1)	56,132	53,687	2,445	107,366
60.9070 · FEMA	2,264	0	2,264	49,610	52,000	(2,390)	52,000
60.9075 · Admin Fees, Late Fees	1,002	650	352	7,172	3,900	3,272	7,800
60.9080 · Interest Income	785	0	785	785	0	785	0
60.9095 · Trans fees earned by GM	0	500	(500)	0	3,000	(3,000)	6,000
Total 60.9000 · Revenues	117,903	124,236	(6,333)	827,538	808,899	18,639	1,504,571
Total Income	117,903	124,236	(6,333)	827,538	808,899	18,639	1,504,571
Expense							
60.2000 · Operating Expenses							
60.2005 · General Manager	12,000	12,000	0	63,450	72,000	(8,550)	144,000
60.2010 · Administration & Board Clerk	715	916	(201)	7,166	5,500	1,666	11,000
60.2015 · Billing Manager	4,000	4,166	(166)	23,100	25,000	(1,900)	50,000
60.2020 · Meter Reading	0	1,166	(1,166)	6,529	7,000	(471)	14,000
60.2025 · Backflow Testing	0	0	0	21,050	22,000	(950)	22,000
60.2028 · Plant & Facilities Operations	14,257	18,334	(4,077)	107,259	110,000	(2,741)	220,000
60.2033 · Weed Abatement	0	0	0	0	0	0	2,765
60.2035 · Legal	0	0	0	3,810	8,000	(4,190)	15,000
60.2040 · Engineering	736	834	(98)	8,020	5,000	3,020	10,000
60.2045 · Audit	1,000	0	1,000	12,061	12,700	(639)	12,700
60.2050 · Accountant CPA	1,210	1,209	1	8,750	7,250	1,500	14,500
60.2065 · USA Marking	321	366	(45)	4,340	2,200	2,140	4,400
60.2070 · Webmaster	1,492	791	701	5,867	4,750	1,117	9,500
60.2075 · Office Supplies	15	375	(360)	2,101	2,250	(149)	4,500
60.2090 · Postage & PO Box Rental	0	416	(416)	690	2,500	(1,810)	5,000
60.2105 · Ins. Gen. Liab., Prop., & Bond	2,131	750	1,381	11,445	4,500	6,945	9,000
60.2115 · Electricity, PGE	6,900	10,687	(3,787)	70,303	68,303	2,000	92,000

RNVWD - Operating Fund
Profit & Loss Budget Performance
December 2024

	Dec 24	Budget	Over B...	Jul - Dec 24	YTD Bud...	Over B...	Annual B...
60.2125 · Office Equipment	0	500	(500)	2,469	3,000	(531)	6,000
60.2130 · Bank & Bankcard Fees	1,460	416	1,044	3,992	2,500	1,492	5,000
60.2135 · Princ & Interest on CoBank Loan	0	0	0	89,286	89,286	0	178,578
60.2145 · Phone Service	99	100	(1)	661	600	61	1,200
60.2150 · Tank Access Rd. Maint. & Gate	0	500	(500)	0	3,000	(3,000)	6,000
60.2160 · CORE SW Lic., Data Stg, Trng.	116	291	(175)	2,478	1,750	728	3,500
60.2175 · Publications & Legal Notices	0	41	(41)	824	250	574	500
60.2185 · Trade Memberships & Training	5,287	0	5,287	13,207	12,000	1,207	12,000
60.2190 · Licenses, Permits & Fees	4,505	0	4,505	4,864	6,000	(1,136)	6,000
60.2195 · Elections	0	0	0	300	0	300	10,000
60.2200 · ITRON Moble Reader SW & Warr.	0	234	(234)	2,469	1,400	1,069	2,800
60.2205 · Fees & Administration	0	84	(84)	500	500	0	1,000
60.2208 · Underground Leak Repairs	(757)	13,086	(13,843)	36,609	78,512	(41,903)	157,022
60.2210 · Routine Maintenance & Minor Rep	3,998	8,313	(4,315)	61,651	49,874	11,777	99,746
60.2235 · Contingency	0	1,666	(1,666)	0	10,000	(10,000)	20,000
60.2300 · Capital Improvements, CRC Resv.	0	4,166	(4,166)	0	25,000	(25,000)	50,000
60.2480 · Funding for Reserves	0	0	0	0	0	0	96,392
60.2485 · Cantelow Bridge Replacement	0	7,084	(7,084)	12,487	42,500	(30,013)	85,000
60.2505 · Engineering Assmt Rept	0	1,166	(1,166)	0	7,000	(7,000)	14,000
60.2510 · Eaton Spare Pump/Shaft	29,468	15,000	14,468	99,468	85,000	14,468	109,468
Total 60.2000 · Operating Expenses	88,954	104,657	(15,703)	687,207	777,125	(89,918)	1,504,571
Total Expense	88,954	104,657	(15,703)	687,207	777,125	(89,918)	1,504,571
Net Ordinary Income	28,949	19,579	9,370	140,331	31,774	108,557	0
Other Income/Expense							
Other Income							
60.9670 · Princ Pymts on CoBank Loan	0	0	0	59,652	59,652	0	120,618
60.9660 · County Bridge Pymts Capitali ed	0	7,084	(7,084)	0	42,500	(42,500)	85,000
60.9650 · Eaton Pump Pymts Capitali ed	29,468	15,000	14,468	99,468	85,000	14,468	109,468
Total Other Income	29,468	22,084	7,384	159,120	187,152	(28,032)	315,086
Other Expense							
60.9710 · Water Rights Princ Pmts Recd	1,457	1,457	(0)	35,180	32,745	2,435	76,118

RNVWD - Operating Fund
Profit & Loss Budget Performance
December 2024

	Dec 24	Budget	Over B...	Jul - Dec 24	YTD Bud...	Over B...	Annual B...
Total Other Expense	1,457	1,457	(0)	35,180	32,745	2,435	76,118
Net Other Income	28,011	20,627	7,384	123,940	154,407	(30,467)	238,968
Net Income	**56,960**	**40,206**	**16,754**	**264,271**	**186,181**	**78,090**	**238,968**

RNVWD - Operating Fund
Check Register
December 2024

Type	Date	Num	Name	Memo	Account	Clr	Split	Debit	Credit
Dec 24									
Check	12/02/2024		Randall Larson Mayn...	ACH Return	160.020 · Cash WFB Checking #3799	X	60.2070 · Webmaster		673.00
Check	12/02/2024		Randall Larson Mayn...	ACH Return	60.2070 · Webmaster		160.020 · Cash WFB Checking #3799	673.00	
Check	12/02/2024		BK Bookkeeping Inc	ACH Return	160.020 · Cash WFB Checking #3799	X	60.2015 · Billing Manager		4,000.00
Check	12/02/2024		BK Bookkeeping Inc	ACH Return	60.2015 · Billing Manager		160.020 · Cash WFB Checking #3799	4,000.00	
Check	12/02/2024	3149	RG West Builders, Inc	nov services	160.020 · Cash WFB Checking #3799	X	60.2005 · General Manager		12,000.00
Check	12/02/2024	3149	RG West Builders, Inc	nov services	60.2005 · General Manager		160.020 · Cash WFB Checking #3799	12,000.00	
Check	12/02/2024	3150	Nancy Veerkamp	november	160.020 · Cash WFB Checking #3799	X	60.2010 · Administration & Board Clerk		715.00
Check	12/02/2024	3150	Nancy Veerkamp	november	60.2010 · Administration & Board Clerk		160.020 · Cash WFB Checking #3799	715.00	
Check	12/03/2024		Wells Fargo		160.020 · Cash WFB Checking #3799	X	160.601 · Wells Fargo Visa Card-New		114.13
Check	12/03/2024		Wells Fargo		160.601 · Wells Fargo Visa Card-New	X	160.020 · Cash WFB Checking #3799	114.13	
Check	12/03/2024		PG & E		160.020 · Cash WFB Checking #3799	X	60.2115 · Electricity, PGE		1,687.13
Check	12/03/2024		PG & E		60.2115 · Electricity, PGE		160.020 · Cash WFB Checking #3799	1,687.13	
Check	12/03/2024	3151	CSDA	2025 Dues	160.020 · Cash WFB Checking #3799	X	60.2185 · Trade Memberships & Training		4,320.00
Check	12/03/2024	3151	CSDA	2025 Dues	60.2185 · Trade Memberships & Training		160.020 · Cash WFB Checking #3799	4,320.00	
Check	12/03/2024	3152	Shaw & Associates	november	160.020 · Cash WFB Checking #3799	X	60.2050 · Accountant CPA		1,210.00
Check	12/03/2024	3152	Shaw & Associates	Monthly	60.2050 · Accountant CPA		160.020 · Cash WFB Checking #3799	1,210.00	
Check	12/03/2024	3153	Gajkowski, Michael (v)	Hydrant Depo...	160.020 · Cash WFB Checking #3799	X	-SPLIT-		975.00
Check	12/03/2024	3153	Gajkowski, Michael (v)	Hydrant Depo...	60.9030 · Hydrant Water Usage		160.020 · Cash WFB Checking #3799		525.00
Check	12/03/2024	3153	Gajkowski, Michael (v)	Hydrant Depo...	160.505 · Hydrant Customer Deposits		160.020 · Cash WFB Checking #3799	1,500.00	
Check	12/11/2024		WFB Bankcard Fees	Bankcard Disc...	160.020 · Cash WFB Checking #3799	X	60.2130 · Bank & Bankcard Fees		115.25
Check	12/11/2024		WFB Bankcard Fees	Bankcard Disc...	60.2130 · Bank & Bankcard Fees		160.020 · Cash WFB Checking #3799	115.25	
Check	12/11/2024		WFB Bankcard Fees	Bankcard Inter...	160.020 · Cash WFB Checking #3799	X	60.2130 · Bank & Bankcard Fees		123.89
Check	12/11/2024		WFB Bankcard Fees	Bankcard Inter...	60.2130 · Bank & Bankcard Fees		160.020 · Cash WFB Checking #3799	123.89	
Check	12/11/2024		WFB Bankcard Fees	Bankcard Fee	160.020 · Cash WFB Checking #3799	X	60.2130 · Bank & Bankcard Fees		183.65
Check	12/11/2024		WFB Bankcard Fees	Bankcard Fee	60.2130 · Bank & Bankcard Fees		160.020 · Cash WFB Checking #3799	183.65	
Check	12/12/2024			Deposit $2,51...	160.020 · Cash WFB Checking #3799	X	60.9075 · Admin Fees, Late Fees		216.90
Check	12/12/2024			Deposit $2,51...	60.9075 · Admin Fees, Late Fees		160.020 · Cash WFB Checking #3799	216.90	
Check	12/12/2024		PG & E		160.020 · Cash WFB Checking #3799	X	60.2115 · Electricity, PGE		492.33
Check	12/12/2024		PG & E		60.2115 · Electricity, PGE		160.020 · Cash WFB Checking #3799	492.33	
Check	12/18/2024	3156	ACWA/JPIA	Invoice 366	160.020 · Cash WFB Checking #3799		60.2105 · Ins. Gen. Liab., Prop., & Bond		2,131.13
Check	12/18/2024	3156	ACWA/JPIA	Invoice 366	60.2105 · Ins. Gen. Liab., Prop., & Bond		160.020 · Cash WFB Checking #3799	2,131.13	
Check	12/18/2024	3154	Eaton Drilling Co LLC	Debt payment ...	160.020 · Cash WFB Checking #3799		60.2510 · Eaton Spare Pump/Shaft		15,000.00
Check	12/18/2024	3154	Eaton Drilling Co LLC	Eaton Spare P...	60.2510 · Eaton Spare Pump/Shaft		160.020 · Cash WFB Checking #3799	15,000.00	
Check	12/19/2024	3157	Trites Backflow Svc Inc	16834	160.020 · Cash WFB Checking #3799		60.2210 · Routine Maintenance & Minor ...		834.01
Check	12/19/2024	3157	Trites Backflow Svc Inc	16834	60.2210 · Routine Maintenance & Minor Rep		160.020 · Cash WFB Checking #3799	834.01	
Check	12/20/2024		PG & E		160.020 · Cash WFB Checking #3799	X	60.2115 · Electricity, PGE		38.23
Check	12/20/2024		PG & E		60.2115 · Electricity, PGE		160.020 · Cash WFB Checking #3799	38.23	
Check	12/23/2024	3161	AWWA	S075255	160.020 · Cash WFB Checking #3799	X	60.2185 · Trade Memberships & Training		336.00
Check	12/23/2024	3161	AWWA	S075255	60.2185 · Trade Memberships & Training		160.020 · Cash WFB Checking #3799	336.00	
Check	12/23/2024	3160	CRWA	12012024 Dues	160.020 · Cash WFB Checking #3799	X	60.2185 · Trade Memberships & Training		631.00
Check	12/23/2024	3160	CRWA	12012024 Dues	60.2185 · Trade Memberships & Training		160.020 · Cash WFB Checking #3799	631.00	
Check	12/23/2024	3162	Eaton Drilling Co LLC	Debt payment ...	160.020 · Cash WFB Checking #3799		60.2510 · Eaton Spare Pump/Shaft		14,467.90
Check	12/23/2024	3162	Eaton Drilling Co LLC	Eaton Spare P...	60.2510 · Eaton Spare Pump/Shaft		160.020 · Cash WFB Checking #3799	14,467.90	
Check	12/23/2024	3158	Sellers (Vendor)		160.020 · Cash WFB Checking #3799	X	-SPLIT-		1,656.00
Check	12/23/2024	3158	Sellers (Vendor)		60.2040 · Engineering		160.020 · Cash WFB Checking #3799		500.00
Check	12/23/2024	3158	Sellers (Vendor)		60.2208 · Underground Leak Repairs		160.020 · Cash WFB Checking #3799		1,600.00
Check	12/23/2024	3158	Sellers (Vendor)		60.2210 · Routine Maintenance & Minor Rep		160.020 · Cash WFB Checking #3799		2,819.76
Check	12/23/2024	3158	Sellers (Vendor)		160.500 · Deposit Payables		160.020 · Cash WFB Checking #3799	6,575.76	
Check	12/23/2024	3159	Solano Irrigation Distr...	44949	160.020 · Cash WFB Checking #3799	X	-SPLIT-		23,169.50
Check	12/23/2024	3159	Solano Irrigation Distr...	Maintenance	60.2210 · Routine Maintenance & Minor Rep		160.020 · Cash WFB Checking #3799	5,235.82	
Check	12/23/2024	3159	Solano Irrigation Distr...	OPS	60.2028 · Plant & Facilities Operations		160.020 · Cash WFB Checking #3799	14,257.39	
Check	12/23/2024	3159	Solano Irrigation Distr...	USA	60.2065 · USA Marking		160.020 · Cash WFB Checking #3799	321.17	
Check	12/23/2024	3159	Solano Irrigation Distr...	ENG	60.2040 · Engineering		160.020 · Cash WFB Checking #3799	1,235.80	
Check	12/23/2024	3159	Solano Irrigation Distr...	44949	60.2150 · Tank Access Rd. Maint. & Gate		160.020 · Cash WFB Checking #3799	0.00	
Check	12/23/2024	3159	Solano Irrigation Distr...	Leaks	60.2208 · Underground Leak Repairs		160.020 · Cash WFB Checking #3799	842.75	

RNVWD - Operating Fund
Check Register
December 2024

Type	Date	Num	Name	Memo	Account	Clr	Split	Debit	Credit
Check	12/23/2024	3159	Morgan (Vendor)	Solano Irrigati...	160.500 · Deposit Payables		160.020 · Cash WFB Checking #3799	69.26	
Check	12/23/2024	3159	Solano Irrigation Distr...	Meter Rpl 794...	60.2210 · Routine Maintenance & Minor Rep		160.020 · Cash WFB Checking #3799	1,207.31	
Check	12/27/2024		PG & E		160.020 · Cash WFB Checking #3799	X	60.2115 · Electricity, PGE		2,103.06
Check	12/27/2024		PG & E		60.2115 · Electricity, PGE		160.020 · Cash WFB Checking #3799	2,103.06	
Check	12/27/2024		PG & E		160.020 · Cash WFB Checking #3799	X	60.2115 · Electricity, PGE		2,579.63
Check	12/27/2024		PG & E		60.2115 · Electricity, PGE		160.020 · Cash WFB Checking #3799	2,579.63	
Check	12/30/2024			ACH Return	160.020 · Cash WFB Checking #3799	X	60.9075 · Admin Fees, Late Fees		276.76
Check	12/30/2024			ACH Return	60.9075 · Admin Fees, Late Fees		160.020 · Cash WFB Checking #3799	276.76	
Check	12/30/2024		Randall Larson Mayn...		160.020 · Cash WFB Checking #3799	X	60.2070 · Webmaster		818.68
Check	12/30/2024		Randall Larson Mayn...		60.2070 · Webmaster		160.020 · Cash WFB Checking #3799	818.68	
Check	12/30/2024	3164	State Water Res. Co...	Inv #SM-1050...	160.020 · Cash WFB Checking #3799		60.2190 · Licenses, Permits & Fees		4,505.36
Check	12/30/2024	3164	State Water Res. Co...	Inv #SM-1050...	60.2190 · Licenses, Permits & Fees		160.020 · Cash WFB Checking #3799	4,505.36	
Check	12/30/2024	3165	Fechter & Company	3329	160.020 · Cash WFB Checking #3799		60.2045 · Audit		1,000.00
Check	12/30/2024	3165	Fechter & Company	6/30/24 audit	60.2045 · Audit		160.020 · Cash WFB Checking #3799	1,000.00	
Check	12/30/2024	3163	Doughty (Vendor)	Deposit Refund	160.020 · Cash WFB Checking #3799		-SPLIT-		4,715.00
Check	12/30/2024	3163	DOUGHTY	Deposit Refund	60.2210 · Routine Maintenance & Minor Rep		160.020 · Cash WFB Checking #3799		2,055.10
Check	12/30/2024	3163	Doughty (Vendor)	Deposit Refund	160.500 · Deposit Payables		160.020 · Cash WFB Checking #3799	6,770.10	
Check	12/30/2024	3166	PACE Supply Corp	39903034-1	160.020 · Cash WFB Checking #3799		-SPLIT-		5,319.53
Check	12/30/2024	3166	Morgan (Vendor)	Pace Supply p...	160.500 · Deposit Payables		160.020 · Cash WFB Checking #3799	2,659.76	
Check	12/30/2024	3166	Marco Del Campo	Pace Supply p...	160.550 · Deposits Clearing Account		160.020 · Cash WFB Checking #3799	1,063.90	
Check	12/30/2024	3166	PACE Supply Corp	39903034-1	60.2210 · Routine Maintenance & Minor Rep		160.020 · Cash WFB Checking #3799	1,595.87	
Check	12/31/2024			Service Charge	160.025 · Cash PayPal Account	X	60.2130 · Bank & Bankcard Fees		273.61
Check	12/31/2024			Service Charge	60.2130 · Bank & Bankcard Fees		160.025 · Cash PayPal Account	273.61	
Check	12/31/2024			Service Charge	160.025 · Cash PayPal Account	X	60.2130 · Bank & Bankcard Fees		266.03
Check	12/31/2024			Service Charge	60.2130 · Bank & Bankcard Fees		160.025 · Cash PayPal Account	266.03	
Check	12/31/2024			Service Charge	160.025 · Cash PayPal Account	X	60.2130 · Bank & Bankcard Fees		302.39
Check	12/31/2024			Service Charge	60.2130 · Bank & Bankcard Fees		160.025 · Cash PayPal Account	302.39	
Check	12/31/2024			Service Charge	160.025 · Cash PayPal Account	X	60.2130 · Bank & Bankcard Fees		194.99
Check	12/31/2024			Service Charge	60.2130 · Bank & Bankcard Fees		160.025 · Cash PayPal Account	194.99	
Dec 24								**114,944.95**	**114,944.95**

Adjustments Detail Report

From: 12/1/2024 **To: 12/31/2024**

These Adjustments Have Been Posted to the Customer's Balance:

These Adjustments Have Been Billed.

Implement Date	Account Number	Account Status	Revenue	Amount	User	Comment
12/2/2024	20601	ACTIVE	CFEE	$5.00	ADMI	
12/2/2024	2502	ACTIVE	CFEE	$5.00	ADMI	
12/9/2024	27502	OFF AND PAID	CAPR	($118.46)	ADMI	
12/9/2024	27503	ACTIVE	CAPR	$118.46	ADMI	Purchased 11-1-24 Previous owner b
12/9/2024	31502	ACTIVE	CFEE	$5.00	ADMI	
12/9/2024	27503	ACTIVE	BASE	$79.18	ADMI	Home purchased 11-1-24 Previous
12/9/2024	27502	OFF AND PAID	BASE	($79.18)	ADMI	Home sold 10-31-24 New owner bill
12/9/2024	8801	ACTIVE	PR	$207.27	ADMI	Owner deceased. NSF bank returned
12/9/2024	36001	ACTIVE	LC1	($145.51)	ADMI	Owner passed away. Courtesy late fe
12/11/2024	14103	ACTIVE	CFEE	$5.00	ADMI	
12/20/2024	4301	ACTIVE	LC1	$30.96	ADMI	
12/20/2024	11601	ACTIVE	LC1	$32.73	ADMI	
12/20/2024	31701	ACTIVE	LC1	$21.72	ADMI	
12/20/2024	29603	ACTIVE	LC1	$28.39	ADMI	
12/20/2024	27302	ACTIVE	LC1	$26.07	ADMI	
12/20/2024	22503	ACTIVE	LC1	$16.57	ADMI	
12/20/2024	11701	ACTIVE	LC1	$71.59	ADMI	
12/20/2024	9801	ACTIVE	LC1	$21.93	ADMI	
12/20/2024	9102	ACTIVE	LC1	$16.82	ADMI	
12/20/2024	8701	ACTIVE	LC1	$60.69	ADMI	
12/20/2024	33501	ACTIVE	LC1	$21.99	ADMI	
12/20/2024	5602	ACTIVE	LC1	$31.01	ADMI	
12/20/2024	24402	ACTIVE	LC1	$52.70	ADMI	
12/20/2024	3801	ACTIVE	LC1	$52.41	ADMI	
12/20/2024	1802	ACTIVE	LC1	$21.72	ADMI	
12/20/2024	8401	ACTIVE	LC1	$82.82	ADMI	
12/20/2024	29102	ACTIVE	CFEE	$5.00	ADMI	
12/20/2024	38601	ACTIVE	LC1	$60.96	ADMI	
12/20/2024	40902	ACTIVE	LC1	$38.28	ADMI	
12/20/2024	44003	ACTIVE	LC1	$38.23	ADMI	
12/20/2024	44202	ACTIVE	LC1	$39.37	ADMI	
12/20/2024	37903	ACTIVE	CFEE	$5.00	ADMI	
12/20/2024	47001	ACTIVE	LC1	$13.01	ADMI	
12/20/2024	47902	ACTIVE	LC1	$22.07	ADMI	
12/20/2024	18501	ACTIVE	LC1	$35.22	ADMI	
12/20/2024	84601	ACTIVE	CFEE	$5.00	ADMI	
12/20/2024	34403	ACTIVE	LC1	$45.03	ADMI	
12/27/2024	9102	ACTIVE	CFEE	$5.00	ADMI	
12/27/2024	41202	ACTIVE	CFEE	$5.00	ADMI	

12/27/2024	18701	ACTIVE	CFEE	$5.00	ADMI
12/30/2024	2903	ACTIVE	CFEE	$5.00	ADMI
Total Number of Adjustments =	41	Total =	$999.05		
Total Number of Adjustments =	41	Total =	$999.05		
Total Number of Adjustments for Group: 1 =	**41**	**Total =**	**$999.05**		
Total Number of Adjustments for Area: 1 =	***41***	***Total =***	***$999.05***		

These Adjustments Have Been Posted to the Customer's Balance:

These Adjustments Have Been Billed.

Implement Date	Account Number	Account Status	Revenue	Amount	User	Comment
12/9/2024	84501	ACTIVE	CONS3	($48.15)	ADMI	Meter Error approved by GM
12/9/2024	84501	ACTIVE	CONS	($57.78)	ADMI	Meter Error approved by GM
12/9/2024	84501	ACTIVE	CONS2	($80.25)	ADMI	Meter Error approved by GM
12/20/2024	88001	ACTIVE	CONS3	($44.94)	ADMI	Meter read error. Approved by GM
12/20/2024	88001	ACTIVE	CONS2	($80.25)	ADMI	Meter read error. Approved by GM
12/20/2024	88001	ACTIVE	CONS	($70.47)	ADMI	Meter read error. Approved by GM
Total Number of Adjustments =	6	Total =	($381.84)			
Total Number of Adjustments =	6	Total =	($381.84)			
Total Number of Adjustments for Group: 1 =	**6**	**Total =**	**($381.84)**			
Total Number of Adjustments for Area: 2 =	***6***	***Total =***	***($381.84)***			

These Adjustments Have Been Posted to the Customer's Balance:

These Adjustments Have Been Billed.

Implement Date	Account Number	Account Status	Revenue	Amount	User	Comment
12/20/2024	40201	ACTIVE	LC1	$22.07	ADMI	
12/20/2024	28703	ACTIVE	LC1	$22.78	ADMI	
12/20/2024	20801	ACTIVE	LC1	$30.43	ADMI	
Total Number of Adjustments =	3	Total =	$75.28			
Total Number of Adjustments =	3	Total =	$75.28			
Total Number of Adjustments for Group: 1 =	**3**	**Total =**	**$75.28**			
Total Number of Adjustments for Area: 3 =	***3***	***Total =***	***$75.28***			

These Adjustments Have Been Posted to the Customer's Balance:

These Adjustments Have Been Billed.

Implement Date	Account Number	Account Status	Revenue	Amount	User	Comment
12/9/2024	26101	ACTIVE	CFEE	$5.00	ADMI	

12/11/2024	18402	ACTIVE	CFEE	$5.00	ADMI	
12/16/2024	18902	ACTIVE	CAPR	$59.23	ADMI	Home purchased 11-14-24 Previous
12/16/2024	18902	ACTIVE	BASE	$39.59	ADMI	Home purchased 11-14-24 Previous
12/16/2024	18901	OFF AND PAID	BASE	($39.59)	ADMI	Home sold 11-14-24
12/16/2024	18901	OFF AND PAID	CONS	($19.26)	ADMI	Home sold 11-14-24
12/16/2024	18901	OFF AND PAID	CAPR	($59.23)	ADMI	Home sold 11-14-24
12/16/2024	18902	ACTIVE	CONS	$19.26	ADMI	Home purchased 11-14-24 Previous
12/20/2024	30001	ACTIVE	CFEE	$5.00	ADMI	
12/20/2024	32401	ACTIVE	LC1	$10.02	ADMI	
12/20/2024	25302	ACTIVE	LC1	$45.74	ADMI	
12/20/2024	22402	ACTIVE	LC1	$56.36	ADMI	
12/20/2024	15402	ACTIVE	LC1	$15.11	ADMI	
12/20/2024	7502	ACTIVE	LC1	$11.24	ADMI	
12/27/2024	2802	ACTIVE	CFEE	$5.00	ADMI	
Total Number of Adjustments =		15	Total =	$158.47		
Total Number of Adjustments =		15	Total =	$158.47		
Total Number of Adjustments for Group: 1 =		**15**	**Total =**	**$158.47**		
Total Number of Adjustments for Area: 4 =		***15***	***Total =***	***$158.47***		
Total Number of Adjustments for All Areas: =		***65***	***Total =***	***$850.96***		

Evaluation of Solar Power Options

for the Rural North Vacaville Water District

In no particular order:

Option a: Negotiate and Sign a Power Purchase Agreement (PPA)

Pros:

1. **No Upfront Costs**: The District doesn't need to invest capital to install the solar system.
2. **No Maintenance Responsibilities**: The solar company handles all repairs and upkeep.
3. **Predictable Energy Rates**: Locks in energy prices with a fixed 3% annual increase, offering protection against PG&E's historically higher and more variable rate increases.

Cons:

1. **No Ownership**: The District doesn't own the system and cannot make future changes or upgrades.
2. **Long-Term Commitment**: A 25-year contract ties the District down for a significant period.
3. **Potentially Outdated Technology**: Proposed system design is 2 years old; newer, more efficient technology is available.
4. **Expensive Buyout Option**: Buying the system after 6 years would cost more than purchasing it outright now.
5. **No Battery Storage Included**: Initial setup doesn't include batteries for backup power during outages.

Option b: Drop the Solar Project NEM 2 Completely

Pros:

1. **No Immediate Costs**: Avoids spending money or taking on new debt.
2. **Flexibility**: Allows the District to wait for better technology or an improved financial situation.
3. **No Contracts or Obligations**: Not tied to any agreements with third parties.

Cons:

1. **Rising Energy Costs**: Continues to face increasing PG&E rates without any reduction.

2. **Missed Savings Opportunities**: Loses out on potential savings from generating own electricity.
3. **Loss of Current Incentives**: Misses out on benefits like favorable net energy metering rates (NEM 2).

Option c: Evaluate Outside Funding to Do the Solar Installation Without a PPA

Pros:

1. **Full Ownership**: The District owns the system and can upgrade or modify it as needed.
2. **Long-Term Savings**: After any loans are paid off, the District saves more over the system's lifespan.
3. **Access to Latest Technology**: Can install up-to-date and efficient solar panels and batteries.
4. **Energy Independence**: By integrating battery storage the District can bypass PG&E during periods of low solar production, providing greater control and savings over energy usage and reducing reliance on the grid.
5. **No Long-Term Contracts**: Not locked into agreements with third parties.

Cons:

1. **Financing Challenges**: Securing funding may be difficult due to existing debts and financial situation.
2. **Upfront Costs**: Requires a significant initial investment.
3. **Maintenance Responsibilities**: Responsible for all upkeep, repairs, and insurance costs (estimated at about $10,000 annually).
4. **Equipment Replacement Costs**: Components like inverters may need replacing every 10 years, adding to expenses.

Option d: Evaluate Other Reduced Scope Scenarios Such as for Only Well 1 and 2 and Obtain Additional Bids

Pros:

1. **Lower Initial Costs**: Smaller system is less expensive, making it easier to finance.
2. **Focus on Critical Needs**: Addresses the most important energy requirements of Wells 1 and 2.
3. **Potential for Better Deals**: New bids might offer more competitive pricing and terms.

4. **Access to Newer Technology**: Updated proposals could include more efficient and advanced equipment.

Cons:

1. **Reduced Overall Savings**: Offsetting a smaller portion of energy use means less total savings.
2. **Time-Consuming Process**: Seeking new bids and evaluating options delays potential benefits.
3. **Financing Still Required**: May still face challenges securing funds due to financial health.
4. **Maintenance Responsibilities**: If owned, the District would handle upkeep and associated costs.

Summary

- **Option a (PPA)** no upfront costs but lacks ownership and involves a long-term contract with potentially outdated technology.
- **Option b (Drop the Project)** avoids immediate expenses and obligations but continues to face rising energy costs and misses out on savings and incentives.
- **Option c (Outside Funding without PPA)** provides ownership and long-term savings with the latest technology but presents financing challenges and adds maintenance responsibilities.
- **Option d (Reduced Scope and New Bids)** lowers initial costs and targets critical facilities with potential access to better deals but results in less overall savings and requires additional time and effort to implement.

Discussion Item: The District needs to discuss these options to provide direction on how to proceed with the solar power project.

Coastland | DCCM

January 2, 2025

Mr. Gordon Stankowski
General Manager
Rural North Vacaville Water District
P.O. Box 5097
Vacaville, CA 95696-5097
Via email: gordon@rnvwd.com

Subject: **FINAL** Engineering Modeling of Distribution System (rev1)

Dear Mr. Stankowski,

Coastland | DCCM is pleased to provide the following engineering evaluation of Rural North Vacaville Water District's existing potable water distribution system. Coastland | DCCM was contracted by the District to evaluate the capability of the existing potable water distribution system to supply potable water and firewater to parcels within the District's sphere of influence. The following is a description of the methods used to evaluate the existing system and the sources of data used in the evaluation methods.

Solano Local Area Formation Organization (LAFCO) uses a current capacity rating for the existing distribution system of 533 services. However, this capacity rating of 533 is actually the number of properties included in the original annexation to form the Rural North Vacaville Water District and support a bond issue for capital improvements. Recently, Coastland | DCCM issued an opinion letter dated February 09, 2023, that determined that the District's water supply could support 873 connections given the yield of the existing wells combined with the amount of available storage in the system. Coastland | DCCM's higher estimated connection capacity was the result of following the methodology outlined in Title 22, Section 64554. In general, Coastland | DCCM estimated a well production capacity of 442MGD and existing system storage capacity of 611 MG.

SUMMARY OF APPROACH

This modeling effort estimates the pressure throughout the current distribution piping system for various steady state conditions, for example average day, peak day and pressure at specific fire hydrant locations. This approach assumes an unlimited supply of water is available at all locations in the distribution system, ie the pipes and reservoirs are always full of water. The goals are to evaluate the system pressures for the current number of services using the system and then predict a potential maximum hydraulic capacity of the current piping system. This potential maximum hydraulic capacity is an estimate based on current conditions. If desired by the District, future modifications to the existing piping system could increase the piping and the pumping systems hydraulic capacities. Recommendations for increasing the capacity of piping pumping systems is not part of this effort.

Our engineering evaluation of the potable water distribution system was prepared in three steps. First, confirm required performance criteria. Second, build a computer model of the District's distribution system; Third, compare the model predictions for residual pressure to the required performance criteria. Performance criteria was developed from meetings with Solano County Local Formation Committee (LAFCO) and Vacaville Fire Protection District (VFPD). The District provided historical water consumption data as well as digital files of the distribution system facilities that were used to setup a computer model. With this model, predictions were made to locate areas within the existing distribution system where residual pressure and/or flow rate was insufficient to meet the performance requirements.

The District primarily serves rural properties with significant topographic elevation changes throughout the service area. Pressures in the system are affected by these topography changes. These changes in elevation were included in the model.

Please note that potable water consumption in many smaller community water systems in California is significantly less than the flow rate requirements for fire water supply. Therefore, it is generally true that if the distribution system can meet the performance requirement for fire supply, then the distribution system is typically, but not always, also capable of providing potable water supply.

DISTRIBUTION SYSTEM PERFORMANCE CRITERIA

Coastland | DCCM and the District met with LAFCO in August 2023. LAFCO approved the use of modeling to evaluate the distribution system for fire supply and also requested hydrant testing of the current system to establish current residual pressure in the service area. LAFCO agreed that the performance requirements for fire water supply are established by the Vacaville Fire Protection (VFPD) fire marshal. LAFCO also expressed a concern that accessory dwelling units could increase the demand for potable water within the District's distribution system.

The District has also had discussions with the VFPD regarding minimum fire water supply performance requirements. VFPD allows residents to receive fire water by connecting directly to the District's distribution system provided to pressure outside occupied structures is a minimum of 20 psi. When the pressure at the exterior of a structure is less than 20 psi, VFPD will allow residents to store fire water onsite. VFPD requires a minimum of 5,000 gallons of water stored on the resident's property. Fire water supply can also be achieved via hydrants throughout the service area if the hydrant can provide 250 gpm at 20 psi and is located within 300 feet of a structure. It is not a requirement of the District to construct, maintain or operated fire water storage tanks. Rather, the District only needs to provide 40 psi in the distribution system at the frontage property line, which is sufficient to fill the private supply tank located at the frontage.

Most 5,000-gallon capacity tanks that are NSF/ANSI 61 approved for potable water use have a typical fill height of 10 – 20 feet. For modeling purposes, the pressure loss through a water meter and backflow prevention device is 10 psi. Therefore, approximately 20 psi residual pressure in the distribution pipes is necessary to fill a water storage tank for properties using a private fire water storage system. However, this system pressure is inadequate for potable water service.

DISTRIBUTION SYSTEM SUMMARY

The District operates a distribution system composed of wells supplying potable water to an elevated storage system with pump stations to lift water between the elevated storage and users located at elevations above the elevation of the storage system. There are two wells supplying potable water. In general, water from the supply wells are pumped to storage reservoir #3. Pump station 3 then pumps water from reservoir #3 to reservoir #4. Pump station 4 then lifts water from Reservoir #4 to the higher elevations in the service area with the help of booster pump station 5. Water pressure in the system is maintained by a combination of pump pressure and gravity flow out of the reservoirs. Water pressure in the system is soley provided by gravity flow out of the reservoirs when the pumps are off except for services located above the elevation of 665 feet mean sea level. Services above this elevation require pumps 4 and pump 5 to provide service pressure at all times.

The following is a summary of the distribution components. The pump in Well #1 can provide approximately 500 gpm. Well #2 pump can provide approximately 350 gpm and water supplied by this well flows through a system to remove arsenic. Supply wells 1 & 2 fill reservoir #3 to a maximum elevation of 427 feet.

Pump station 3 is located adjacent to Reservoir #3. Two pumps at Pump station 3 can each provide approximately 250 gpm. These pumps fill reservoir 4 to a maximum elevation of 710 feet. These pumps also provide water directly to the distribution piping when operating.

Like pump station 3, pump station 4 Is located adjacent to a reservoir, in this case Reservoir #4. Pump station 4 is equipped with two pumps that can each provide approximately 250 gpm. Pumps at this station pump water directly into the distribution piping providing pressure for services above elevation 665 feet mean sea level.

Pump station 5 is located at an elevation of approximately 755 feet and is connected directly to the piping system. Pump station 5 is not located adjacent to a reservoir. Pump station 5 has two pumps. Each pump can provide approximately 65 gpm. Pumps at this station boost the pressure in the piping system for services above elevation 755 feet.

Reservoir #3 has a 300,000-gallon capacity. The fill elevation is approximately 407 feet in elevation and an overflow outlet of 427 feet. Reservation #4 also has a 300,000-gallon capacity. The fill elevation for Reservoir #4 is approximately 694 feet and an overflow outlet of 720 feet.

DISTRIBUTION SYSTEM COMPUTER MODEL

Several steps are required to develop a model for evaluating a distribution system. Components of the distribution system are added to the engineering model to provide the horizontal and vertical layout of piping system. Components that produce pressure to operate the system such as reservoirs and pumps are also added to the model along with the characteristics of how pressure changes with changes in flow ratees in the system. Water consumption is also added at each service location throughout the service area. However, the water consumption data is typically first evaluated to determine trends or patterns in the consumption data. Figure 1 shows the layout of the existing distribution system. Figure 2 provides a graphical presentation of the pressure zones in the system that was prepared by Solano Irrigation District (SID).

These basic steps result in an engineering representation of the physical distribution system but do not exactly reproduce the as-built system. Some simplifying assumptions about how to mathematically represent components such as pumps and pressure regulating valves are needed to insure the software mathematical iterations can converge to an acceptable answer. The inputs for the engineering model and some of the simplifying assumptions are summarized in the following paragraphs.

Piping, Valves, Meters

The distribution system computer model was prepared using WaterCAD software developed by Bentley Systems. Much of the system components in the model used record information provided by the District. RNVWD also provided electronic files containing Graphical Information System (GIS) data that provided the horizontal layout of the system. Horizontal coordinates for the GIS data imported into the model were referenced to California State Plane Zone 2 – feet (NAD83 State Plane IIF).

Pumps

Record information for pump curves for pumps in supply wells 1 & 2 were retrieved from manufacturers websites by using the pump model and the number of pump stages provided by Luhdorff & Scalmanini Civil Engineers. Record information for the pumps installed at pump stations 3 & 4 first required recording the make and model for each pump in the field and then retrieving historical pump curves. Manufacturers for these pumps have merged with other manufacturers and the historical information is not available from the original manufacturers nor the current manufacturer. However, general pump curves for the make and model of pumps at stations 3 and 4 were available from the US Department of Agriculture. Solano Irrigation District provided record information for the new pumps at station 5 and the operating conditions for the arsenic treatment system at Pump Station 1.

Design operating points for each of the pumps were converted to total dynamic head (TDH). As the modeling effort evaluated the ability of the distribution to serve water at a steady state with flow in the system determined by consumption, pumps were replaced in the model by reservoirs with a fixed hydraulic elevation and the reservoir provides an unlimited quantity of water. The hydraulic elevation was calculated by adding the TDH to the ground elevation of the pump station. Pumps stations 3 and 4 were simply eliminated from the model as these stations were represented by existing reservoirs 3 and 4. Pump stations 3 and 4 are located immediately adjacent to reservoirs 3 and 4.

Pump stations 1 and 2 were represented by a single reservoir with a fixed hydraulic elevation of 430 feet. Pump station 3 was eliminated and represented by reservoir 3 as previously mentioned. The fixed elevation for reservoir was set at half of the tanks operating range added to elevation of inlet/outlet; 407 feet. The fixed elevation for reservoir 4 was calculated like reservoir 3 with the elevation set at 706 feet.

Pump station 5 was replaced with a reservoir with a fixed elevation equivalent to maintaining at least 70 psi in the hydropneumatic tank; which is 950 feet. Replacing pump station 5 with a reservoir supplying an unlimited supply of water assumes that the distribution system is capable of continuously producing the net positive suction head (NPSH) required for the pumps at pump station 5.

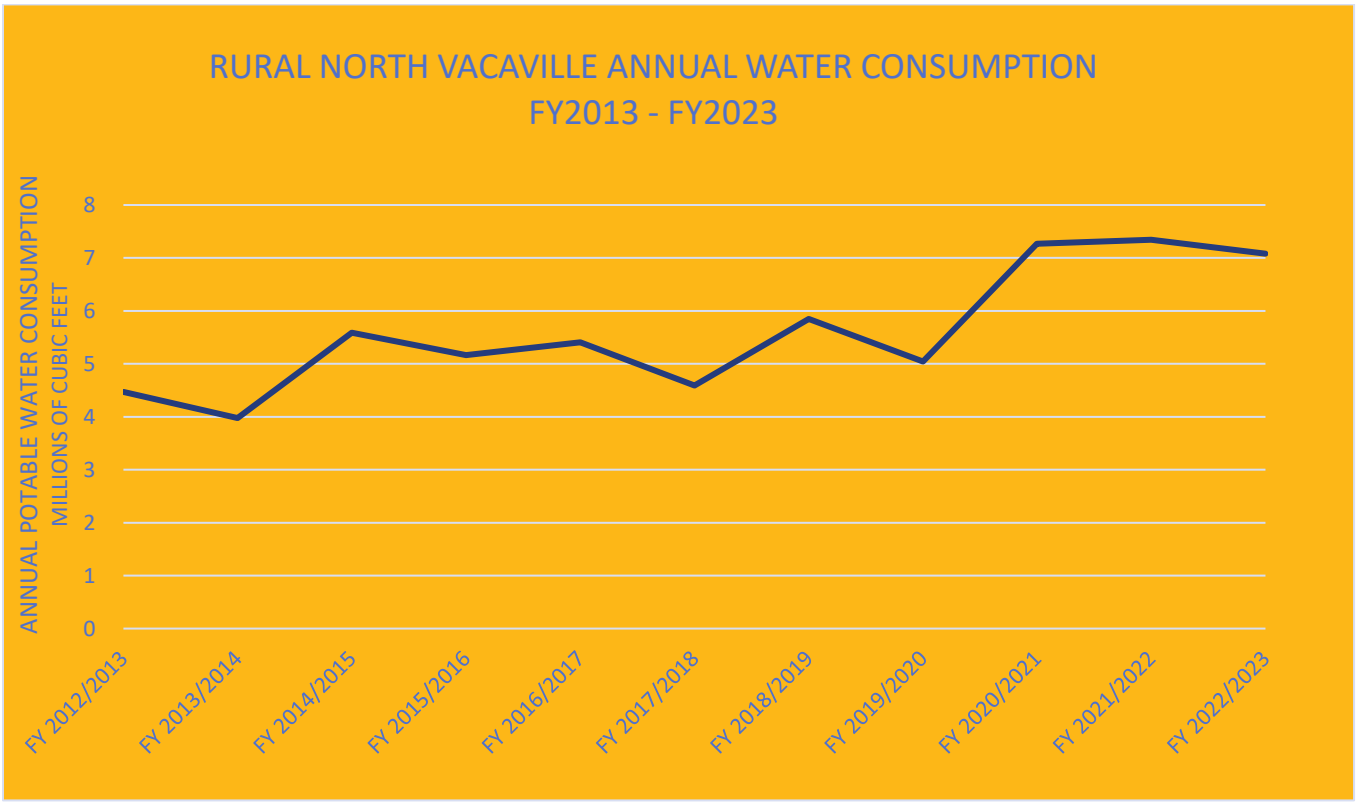
Reservoirs

Record information for existing reservoirs 3 and 4 was provided by the District. The record information included elevations for the tank inlet and tank overflow height from design drawings prepared by California Water Service Company in 2003. Coastland | DCCM confirmed the record information using topography. Water level recordings for the reservoirs was provided by Solano Irrigation District. These readings confirmed that the water levels in the reservoirs are generally maintained between 12 and 29 feet above the inlet of the reservoir. Twelve feet above the inlet/outlet was used in the model for the fixed elevation in reservoirs 3 and 4.

Water Consumption

The District provided the total annual water consumption based on meter readings for 10 calendar years 2013 - 2023. Partial data for 2024 through August was also evaluated. This data was used to evaluate the overall trend of water consumption within the District and identify years of peak annual consumption. Trends identified a significant gain in water consumption from 2019 to 2020 with a leveling in demand during the period between 2020 – 2022. Annual consumption declined in 2023. The trend in 2024 is on track to increase consumption compared to the consumption pattern in 2023. See Figure 1.

FIGURE 1

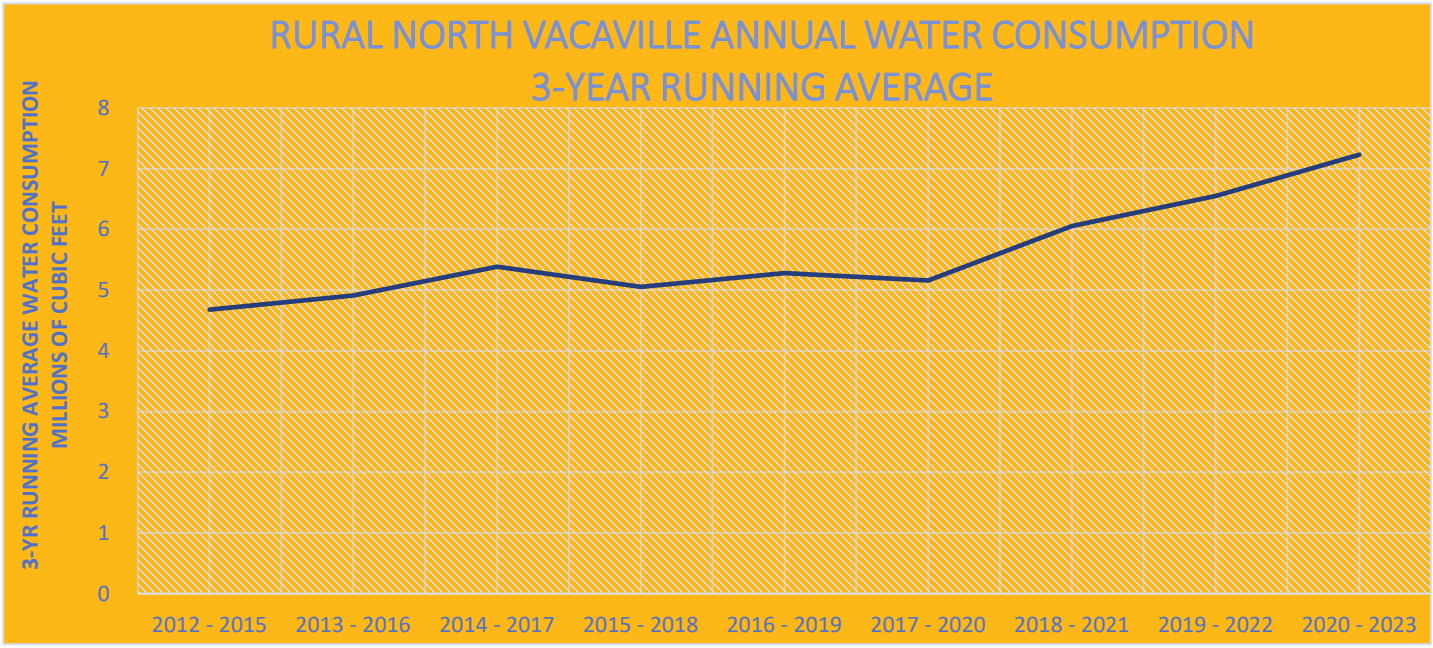


It is assumed that observed increases in potable water consumption during the period 2020 – 2022 were due to the LMU fire reconstruction and possibly due to COVID-19 restrictions. Coastland | DCCM has observed increases of water consumption during 2021 – 2022 in other water district's consumption data that correspond to COVID.

Annual water consumption was then averaged over a running three-year period to evaluate the trend in water consumption and smooth out year to year differences for weather and other

variables that affect consumption. No effort was made to account for increases in water consumption due to unusual events such as the LNU Lightning Complex Fire in 2020.

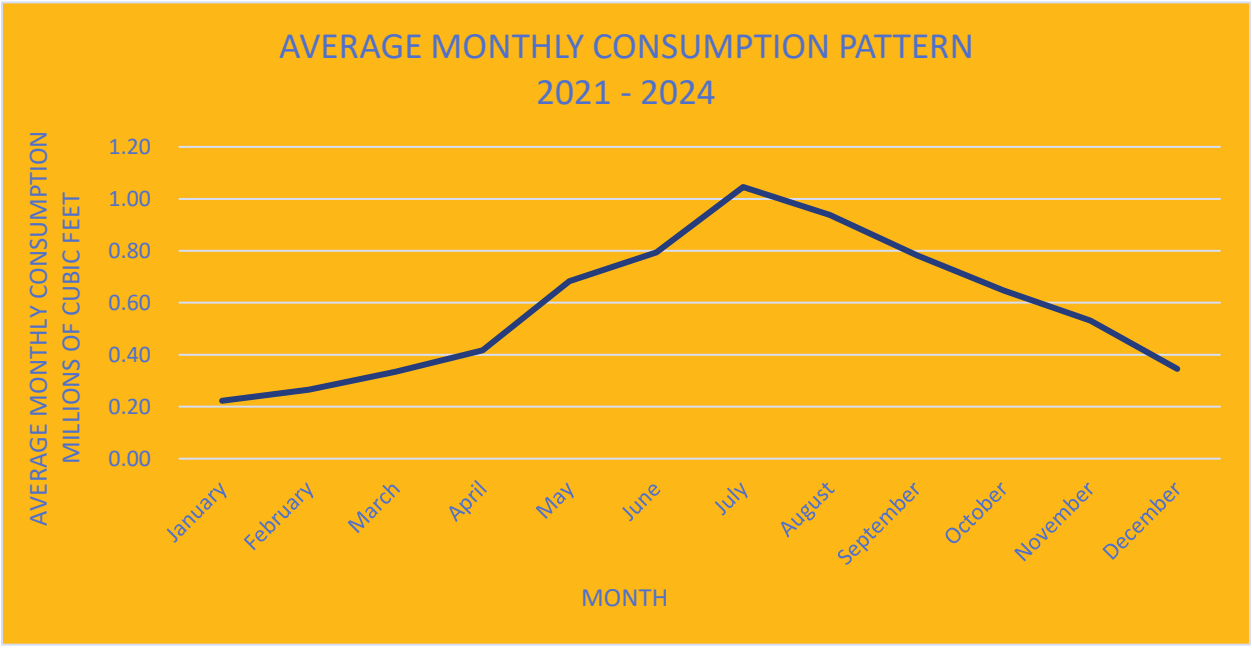
FIGURE 2



The trend shows an increase in consumption year by year within the District through 2021. Annual consumption levels off through 2023 around 7.1 million cubic feet. The running 3-year average also shows a steady increase in consumption. See Figure 2.

Water consumption within each year varies month to month due to weather related uses and user agreements by the District. There are 287 users every month of the year. In addition to these 287 users, there are another 50 users during the months starting May through October. Water consumption patterns averaged each month from 2021 through August of 2024 showed average consumption peaks in July for the District. See Figure 3.

FIGURE 3



Water demand for the model was developed from monthly consumption for January 2021 through August 2024. Because the number of users changed during the year, daily consumption per user (water service) was estimated for months with the 287 annual users separate for the months May through October when that additional 50 users consume water. Then the daily consumption per user for the two sets of users were averaged together to get the average daily consumption based on the total annual consumption that is typical for most municipal water systems. This later average was the daily consumption value used in the model to represent a typical user in the system.

The following tables 1 through 3 summarize the procedure.

TABLE 1

	AVERAGE CONSUMPTION January - April & November - December				
	2021	2022	2023	2024	Average
Jan - Apr & Nov - Dec Total (gallons)	15,355,692	21,187,100	12,178,936	8,082,140	15,840,458
Total Days	181	181	181	120	
Ave Daily Demand (gallons)	84,838	117,056	67,287	67,351	84,133
Daily Users	287	287	287	287	287
Ave Daily Demand Per User (gpd)	296	408	234	235	293
Ave Daily Demand Per User (gpm)	0.205	0.283	0.163	0.163	0.204

TABLE 2

	AVERAGE CONSUMPTION May - October				
	2021	2022	2023	2024	Average
May - Oct Total (gallons)	37,470,312	36,711,840	35,370,676	26,082,760	33,908,897
Total Days	184	184	184	123	
Ave Daily Demand	203,643	199,521	192,232	212,055	201,863
Daily Users	337	337	337	337	
Ave Daily Demand Per User (gpd)	604	592	570	629	599
Ave Daily Demand Per User (gpm)	0.420	0.411	0.396	0.437	0.416

TABLE 3

	OVERALL AVERAGE ANNUAL CONSUMPTION				
	2021	2022	2023	2024	Average
Annual Average per user (gpd)	450	500	402	432	446
Annual Average per user (gpm)	0.31	0.35	0.28	0.30	0.31

Peak daily demand was also estimated based on the peak month demand. July has the highest average monthly consumption. The maximum number of users also consume water during the

month of July. Therefore, 337 users were included in the calculation to determine the peak daily consumption per user summarized in Table 4.

TABLE 4

PEAK CONSUMPTION - JULY

	2021	2022	2023	2024	Average
July Total (gallons)	7,674,480	7,505,432	7,693,928	8,409,764	7,820,901
Total Days	31	31	31	31	
Ave Peak Demand (gpd)	247,564	242,111	248,191	271,283	252,287
Daily Users	337	337	337	337	
Ave Peak Demand per User (gpd)	735	718	736	805	749
Ave Peak Demand per User (gpmd)	0.51	0.50	0.51	0.56	0.52

The final model input related to consumption is the peaking factor. This factor is the ratio of the average peak daily demand to the average daily demand. Table 5 summarizes the calculation.

TABLE 5

MODEL PEAKING FACTOR ESTIMATE

	2021	2022	2023	2024	Average
Annual Average per user (gpm)	0.31	0.35	0.28	0.30	0.31
Ave Peak Demand per User (gpmd)	0.51	0.50	0.51	0.56	0.52
Peaking Factor	1.6	1.4	1.8	1.9	1.7

Distribution Model Data Import

The model for the District's distribution system was developed in WaterCAD software. Components from the GIS data were first extracted into CAD software and then imported into WaterCAD modeling software using the ModelBuilder application in WaterCAD. ModelBuilder was then used to verify that all of the components were connected together forming a unified distribution system.

GIS records lacked elevation data for system components. Two approaches were used to assign elevation data. There are relatively few reservoir and pump components. Therefore, it was quickest to assign elevation data by hand to these components. Hand input data came from record drawing information.

While reservoir and pump elevations were assigned by hand, elevations for other distribution system components such as pipes, valves, hydrants, pressure reducing valves, and meter locations were assigned automatically using the TerrainBuilder application of WaterCAD. This process required importing a freely available digital elevation model (DEM) created by the USGS in 2018 and then 'draping' the distribution model components onto the DEM. These elevations reference North American Vertical Datum (NAVD88). Elevations derived from the DEM should be considered accurate to plus or minus 1/2 meter (1.6 feet) as the source of data is satellite LiDAR (1 meter resolution).

Water Consumption Values Assigned to Meters

Evaluation of month-to-month water consumption for meters throughout the system varied significantly. However, the changes in monthly consumption did not seem to correlate with predictable patterns of use such as irrigating crops or landscaping, cold versus warm weather patterns, or morning versus evening uses. To compensate for the apparent lack of water consumption patterns, the average monthly consumption from 2020 through August of 2024 was converted to an average daily demand in the overall system and then converted to an

average demand per day per service. Peak daily demand for the District services were estimated by examining the total consumption per month to identify the highest month of consumption and then convert that average monthly consumption to an average peak day demand per service.

MODELING SCENARIOS

WaterCAD evaluates the performance of the distribution system for potable water supply by distributing the potable water demand to each service location in the system and then calculating the residual pressure at each node/junction defined in the network. Fire water supply to hydrants was evaluated differently. WaterCAD sets a minimum pressure for all hydrants in the system, sets the potable water demand at the defined flow rates for all potable water service locations and then calculates the flow rate that the system can supply at each fire hydrant location. Model results identify locations in the distribution system where the required flow rate for a hydrant is less than 250 gpm at 20 psi.

Two scenarios were used to evaluate the system's capacity to provide potable water at 40 psi residual pressure: average day consumption per water service location and peak day demand per location. Two additional fire water scenarios were evaluated as a companion to the potable water scenarios; 250 gpm at a hydrant with 20 psi residual for fire flow supply and the average day water potable water consumption in the piping system and 250 gpm at a hydrant with 20 psi residual for fire flow and the peak day water potable water consumption in the piping system.

One additional scenario was performed to determine the maximum hydraulic capacity of the piping system (maximum flow rate of water) at 40 psi while also delivering fire water to hydrants in the system at a flow rate of 250 gpm with a pressure of 20 psi. This was an iterative process. The consumption for the services in the model was incrementally increased until the potable water pressures dropped below 40 psi in a pipe segment other than pipe segments identified in the average day and peak day scenarios described in previous paragraphs. For example, there are locations in the piping system where 4-inch diameter pipes exceed 150 lineal feet in length that are estimated to be less than 40 psi and there are a couple of services at high elevations in the system that receive potable water at less than 40 psi pressure. The maximum hydraulic capacity condition occurred when 471,750 gallons per day flowed through the piping system.

DISTRIBUTION CAPACITY CONCLUSIONS

Model results for the distribution system identified limited areas where estimated pressure in the piping system would fall below 40 psi during average day water consumption. These areas also correspond to areas where hydrant fire flow would drop below 250 gpm when the pressure reaches 20 psi at than individual hydrant during average day water consumption. The aerial extent of the locations increases slightly when the peak day water consumption is used in the model. There are also areas where the distribution system can provide a residual pressure of 40 psi but fall short of the need fire flow at 20 psi. Areas where the distribution system pressure is below requirements are shown in Figure 3.

It should be noted that the pressures in the water system were calculated for the elevation of the water meter. Pressures at habitable structures on a property could be higher or lower than the

estimated pressures at the meter if the finished floor of the structure is higher or lower in elevation relative to the service meter.

It should also be noted that the residual pressures are calculated values based on several assumptions about water use in the system and friction characteristics of the pipe material. There could also be small errors in the topographic elevation for components. Five percent should be considered the assumed accuracy of the model. Therefore, three areas identified on Figure 1a may provide the required residual pressure when measured in the field.

An estimate of the maximum hydraulic capacity of the current piping system is predicted to be 471,750 gallons. Because the hydraulic capacity is a maximum capacity, the maximum number of available services for the piping system was estimated using the average peak day demand per service. Therefore, the piping system can supply 630 services consuming 749 gallons per day during the peak month of consumption of July.

Modeling of fire hydrants demands throughout the distribution system identified hydrants at or below the required flow rate for fire hydrants. Results identified hydrants in geographical areas that are below the 250-gpm flow rate when the residual pressure is 20 psi. These areas are generally located near the perimeter areas of the system or at the end of short distribution runs serving areas with higher topographic elevations.

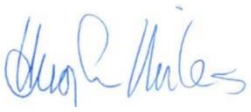
Extending the existing hydrant network beyond its current aerial extent has limited possibilities. Mains in many locations within the distribution system are 4-inch diameter pipes. Adding hydrants beyond the current extent of the distribution system would not likely meet the minimum flow criteria for a hydrant of 250 gpm when the residual pressure is 20 psi if extending an existing 4-inch pipe. High flow rates through small diameter pipes resulting in significant friction head loss due to high velocities in the pipes. Therefore, extending 4-inch diameter pipes would fail to provide needed pressures and flow rates. The variability of the topography also limits expanding into areas outside the current service area that are high in elevation. Opportunities to extend the network of hydrants might be possible further west on Cantelow Road and further south on Gibson Canyon Road. These locations have 6-inch distribution mains.

Within the limits of the current service area, sufficient pressure is available to provide service for both potable water and fire water to 630 services. This estimated number of services is the capacity of the buried distribution piping for the estimated peak average day demand. As stated previously, the ultimate capacity of the District was 873 services based solely on the current available supply of water for the District. While there is water to supply 873 connections, the buried piping system can only distribute water to 630 services.

Because the terrain varies within the District, the County and VFPD will likely require that owners of new service connections demonstrate that residual pressure and flow rate requirements are met given the available pressure in the distribution main. The District's current distribution system model can be used to predict the pressure in the distribution main at the property frontage. Owners of the new connections will need to demonstrate compliance with regulations between the distribution main and structures on the parcel.

We appreciate the opportunity to provide this evaluation of your distribution. If you have any questions regarding the report and its conclusions, please contact me.

Sincerely,



Hugh Miles, PE C49427
Supervising Engineer

LEGEND

- 4" WATER PIPE
- 6" WATER PIPE
- 12" WATER PIPE

PUMP STATION 5
50 GALLON HYDROPNEUMATIC TANK
65 GPM, 5 HP (TYP OF 2)

SUPPLY WELL #2 450 GPM, 75 HP

SUPPLY WELL #1
450 GPM, 75 HP
ARSENIC REMOVAL PLANT
FOR WELL #2

RESERVOIR #4
300,000 GALLONS
PUMP STATION 4
250 GPM, 20 HP (TYP OF 2)
5,000 GALLON
HYDROPNEUMATIC TANK

RESERVOIR #3
300,000 GALLONS
PUMP STATION 3
250 GPM, 30 HP (TYP OF 2)
5,000 GALLON
HYDROPNEUMATIC TANK

ENGLISH HILLS RD
PEACEFUL GLEN RD
CANTELOW RD
MIDWAY RD
VACA VALLEY RD
VACA VALLEY PKWY
BROWNS VALLEY RD
GIBSON CANYON RD
TIMM RD
STEIGER HILLS RD
SWEANEY CREEK
ENGLISH CREEK
SOUTH FORK ENGLISH CREEK
ULATIS CREEK
GIBSON CANYON CREEK
PUTAH SOUTH CANAL
Weylard Canal
Hartley
Nut Tree Airport
Centennial Park

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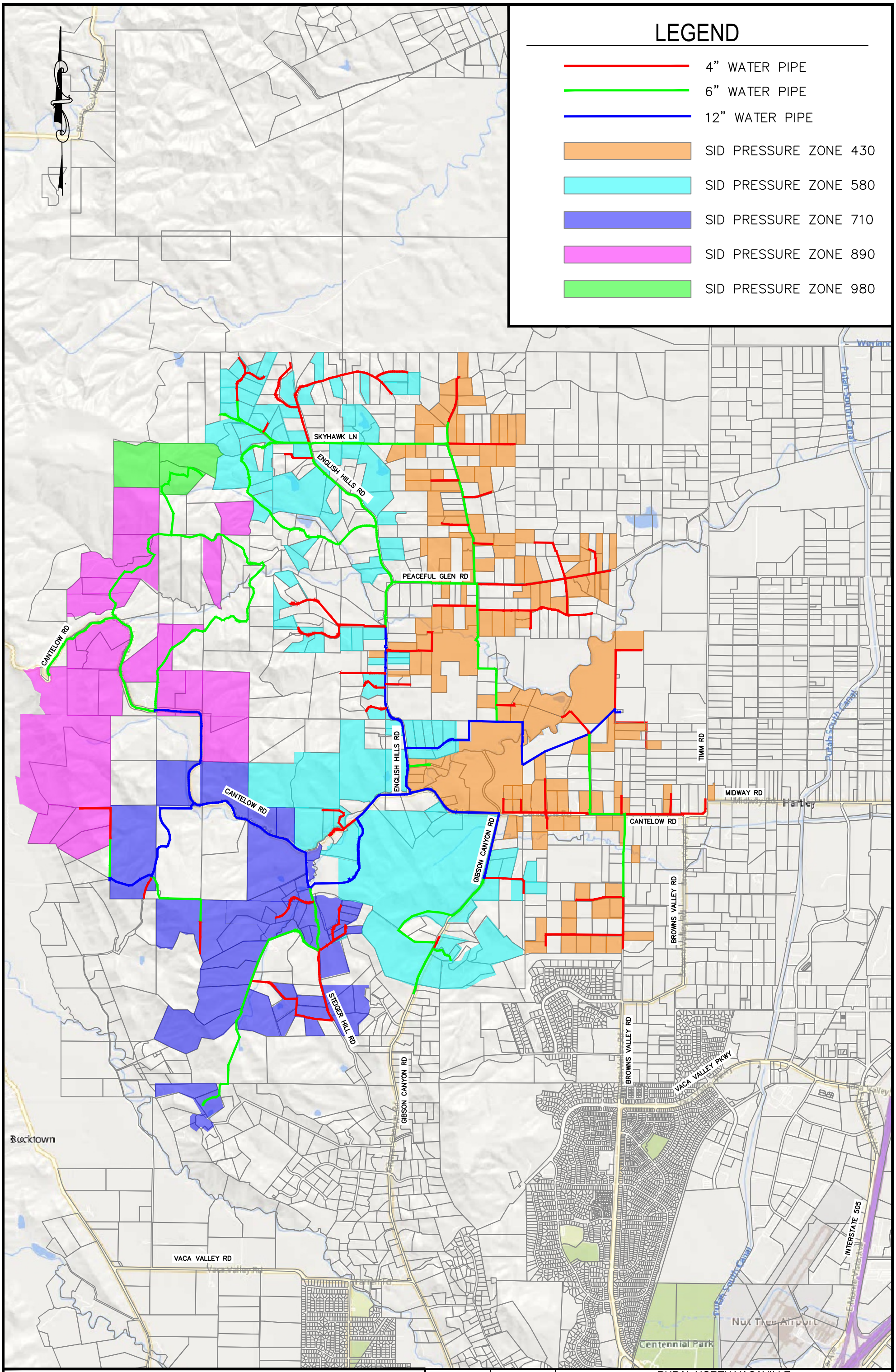
09/12/2024	KL
1"=2500'	HM

RURAL NORTH VACAVILLE WATER DISTRICT

FIGURE 1
EXISTING DISTRIBUTION SYSTEM



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09/13/2024	KL
1"=2500'	HM

RURAL NORTH VACAVILLE

FIGURE 2
SID PRESSURE ZONES MAP

LEGEND

- 4” WATER PIPE
- 6” WATER PIPE
- 12” WATER PIPE

1” = 2500’

1

2

3

4

SKYHAWK LN

SKYHAWK LN

ENGLISH HILLS RD

PEACEFUL GLEN RD

ENGLISH HILLS RD

SWEANEY CREEK

CANTELOW RD

SUPPLY WELLS #1 & #2

TIMM RD

MIDWAY RD

CANTELOW RD

CANTELOW RD

BROWNS VALLEY RD

STEIGER HILL RD

GIBSON CANYON RD

SHELTON LN

Pleasants Valley Rd

STEIGER HILL RD

GIBSON CANYON RD

BROWNS VALLEY RD

VACA VALLEY PKWY

Bucktown

VACA VALLEY RD

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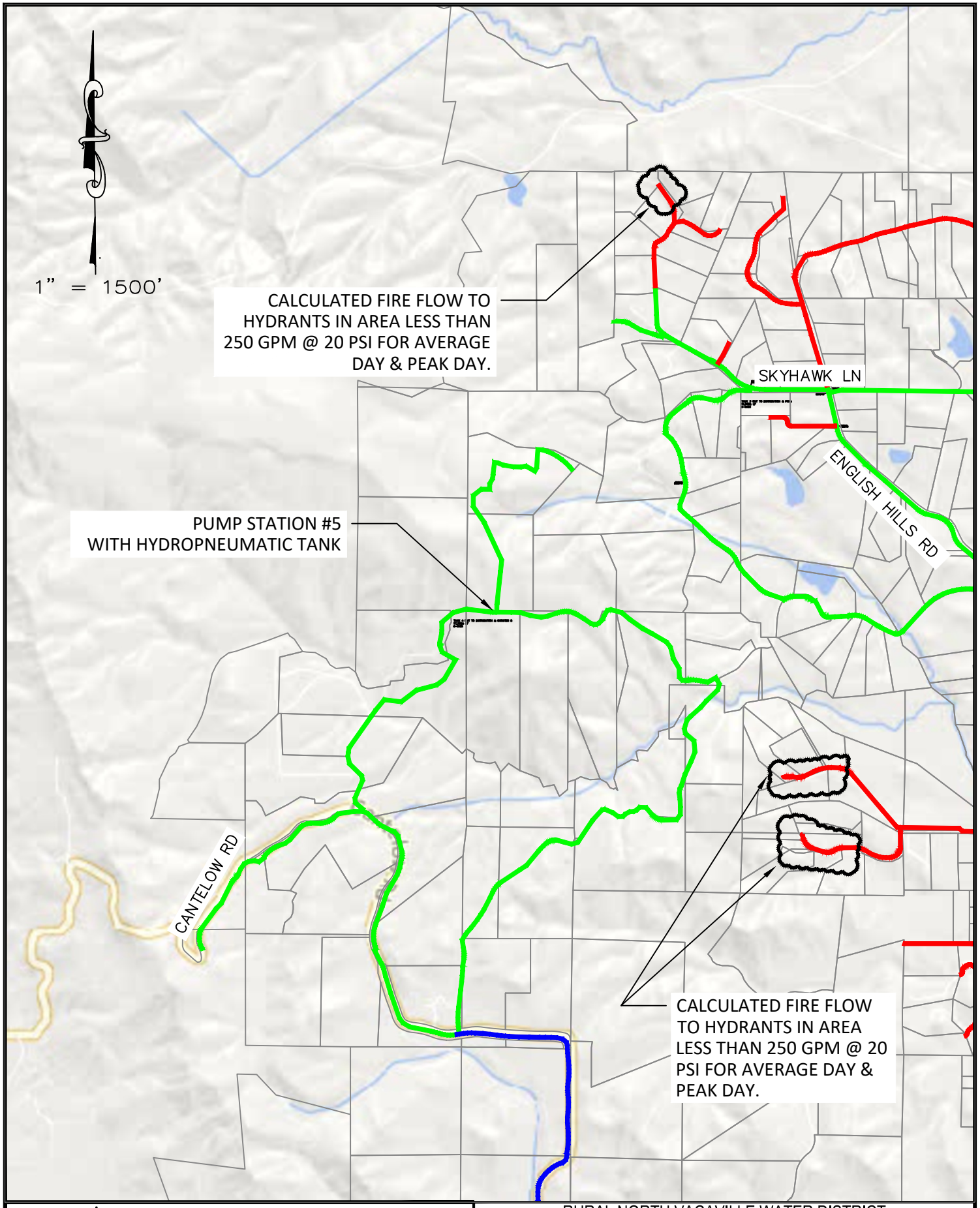
09/13/2024	KL
1" = 2500'	HJM
SHEET 1 OF 5	

RURAL NORTH VACAVILE WATER DISTRICT

FIGURE 3 SYSTEM MODEL RESULTS KEY MAP



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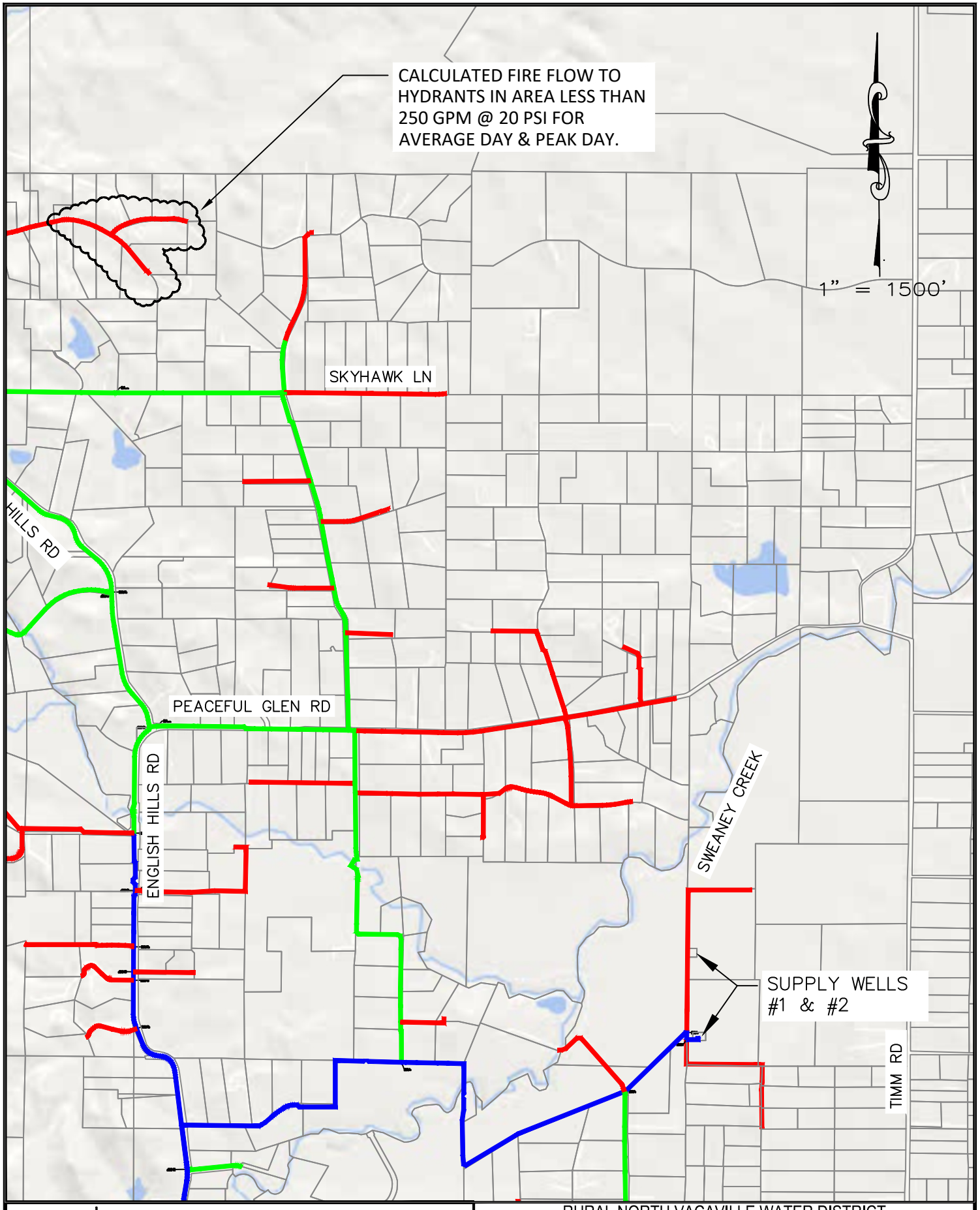
RURAL NORTH VACAVILLE WATER DISTRICT

FIGURE 3a SYSTEM MODEL RESULTS MAP 1



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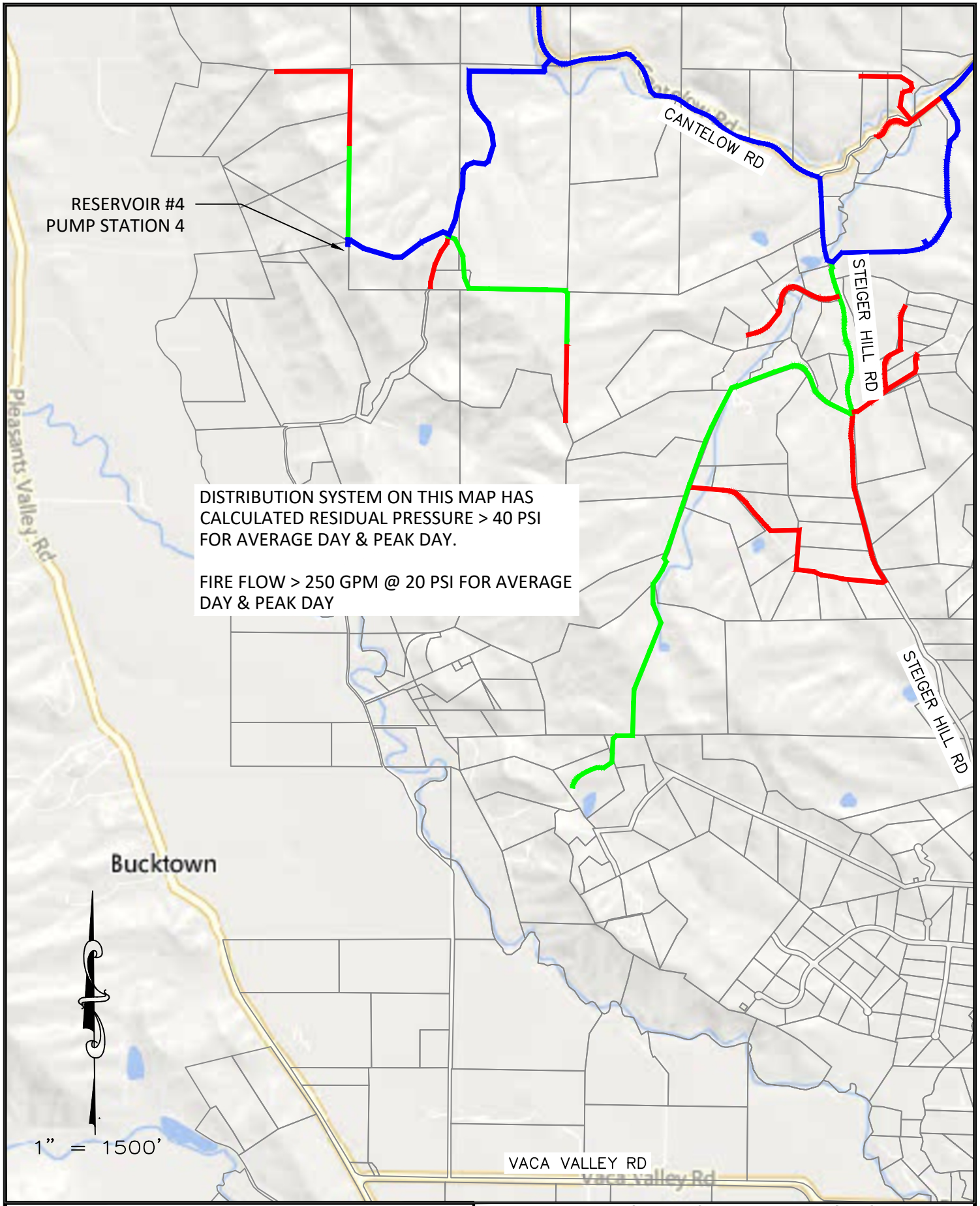
RURAL NORTH VACAVILLE WATER DISTRICT

FIGURE 3b SYSTEM MODEL RESULTS MAP 2



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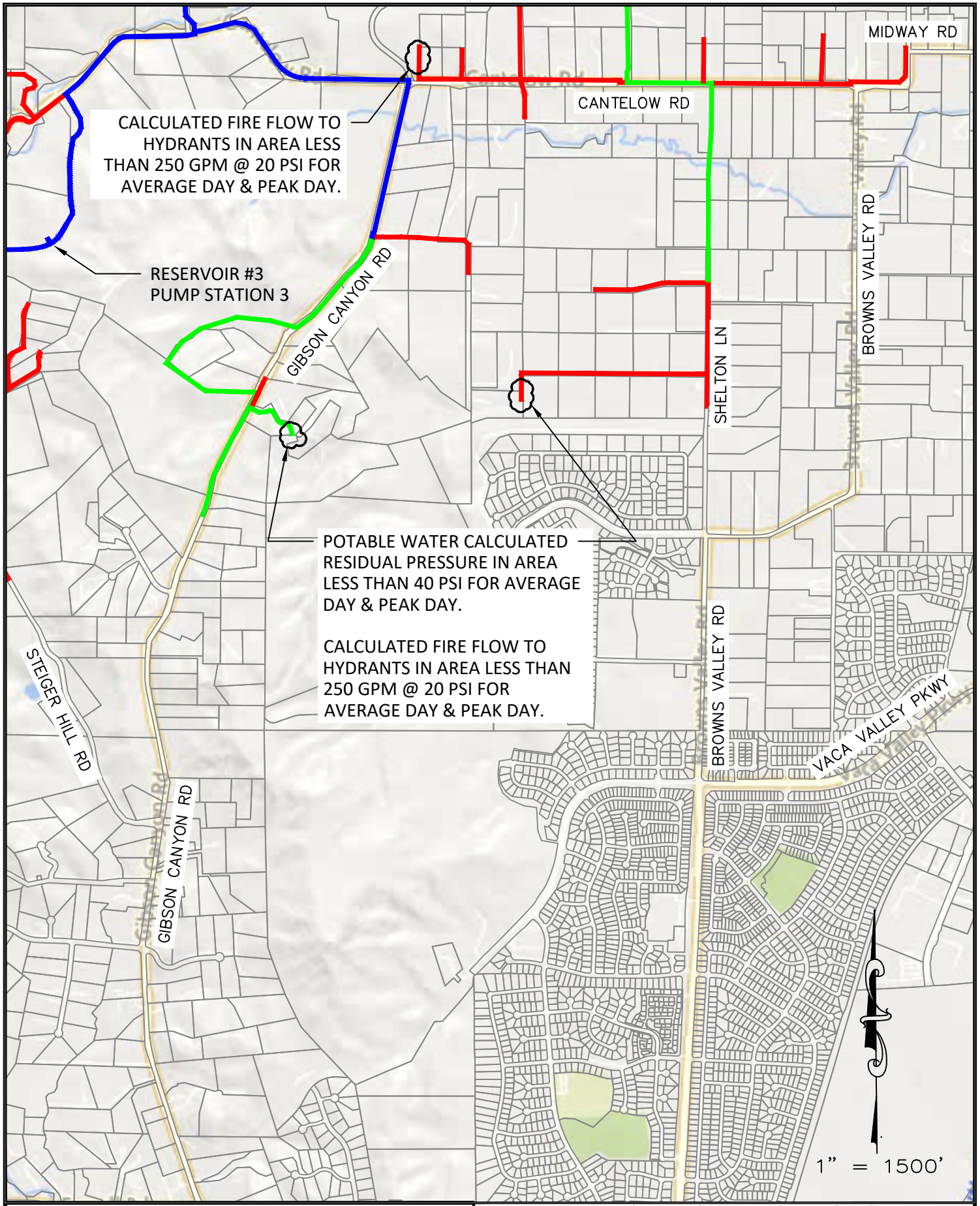
RURAL NORTH VACAVILLE WATER DISTRICT

FIGURE 3c SYSTEM MODEL RESULTS MAP 3



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RURAL NORTH VACAVILLE WATER DISTRICT

FIGURE 3d SYSTEM MODEL RESULTS MAP 4