

April 21, 2023

Mr. Gordon Stankowski, General Manager  
Rural North Vacaville Water District  
4357 Cantelow Road  
Vacaville, CA 95688



Subject: Initial Conditions Assessment

Dear Mr. Stankowski:

Rural North Vacaville Water District (District) is undergoing changes to administration and to operations and management of the water system. In addition, the District is incurring costs for major maintenance and for improvements to the original water system. Considering the age of the system, Coastland | DCCM was asked by the District to provide an initial assessment that identifies potential major maintenance costs and probable facilities replacement costs. The following is the Initial Conditions Assessment. It is anticipated that more detailed testing, task specific reports and project specific cost estimates could be pursued by the District in subsequent studies to refine the initial assessment, and, provide more detailed information on replacement costs and for the timing of those costs, if desired by the District.

## INITIAL CONDITIONS ASSESSMENT

### Rural North Vacaville Water District Description

The District was formed in June of 1996 to provide water for residential uses and water for fire protection. A permit to supply water was issued by the State of California in June of 2000. Water deliveries began in 2003.

The District covers approximately 5,163 acres and is located north of the City of Vacaville. Existing land uses are primarily zoned rural residential (approximately 39 percent) and agricultural uses (approximately 59 percent). The remaining 2% are public purpose uses. Boundaries for the District encompasses geographical areas generally described as English Hills, Gibson Canyon and Steiger Hill.

Potable water for residential use was originally designed to provide for a total maximum daily demand of 660 gpm and a maximum of 533 parcels within the extent of the Service Area for the District. Coastland | DCCM recently estimated a current potable water maximum daily demand of

**Santa Rosa**  
1400 Neotomas Avenue  
Santa Rosa, CA 95405  
Tel: 707.571.8005

**Auburn**  
11641 Blocker Drive, Ste. 170  
Auburn, CA 95603  
Tel: 530.888.9929

**Pleasant Hill**  
3478 Buskirk Avenue, Ste. 1000  
Pleasant Hill, CA 94523  
Tel: 925.233.5333

**Fairfield**  
420 Executive Court North, Ste. G  
Fairfield, CA 94534  
Tel: 707.702.1961

approximately 333 gpm; roughly half of the original design demand. Currently, the District has 398 active residential service connections.

Property owners within the area of the District can opt out of taking delivery of potable water. Therefore, some of the Service Area parcels are considered ‘island parcels’ disconnected from the majority contiguous parcels within the Service Area. The Districts Service Area boundaries are currently being confirmed by Solano Local Agency Formation Commission. Attached is a figure showing the boundaries submitted to LAFCO.

Property owners can also opt out of fire water service. Water for fire protection is currently provided for a total of 711 parcels located within the District’s larger Sphere of Influence. Some of the fire service parcels are also considered ‘island parcels’ disconnected from the majority contiguous parcels within the District’s Sphere of Influence.

### **Original Water Facilities Summary**

Water supply for the District is provided by two water wells. Well 01 is the primary water source and has an associated electrical generator, motor control center, chlorine addition system, arsenic removal system and hydraulic surge protection facilities at the well head. Well 02 is currently for emergency supplemental use and water from Well 02 is passed through Well 01 facilities for chlorination, arsenic reduction and surge protection. Well 02 is expected to begin operating on a regular basis in 2023.

A figure showing a schematic of the existing water system is attached to this study. Potable and fire water is distributed to parcels served by the system via an underground piping network with piping ranging from 4 inches to 12 inches in diameter. Five pressure zones are present in the system. Well pumps lift source water to a steel reservoir in Zone 1. Water from this reservoir is lifted to another steel reservoir in Zone 3 using pumps at Station #3. Zones 1 and 2 can receive water directly from the wells or via gravity from the steel reservoir in Zone 3. Pressure reducing valves keep the pressure in zones 1 and 2 at usable levels when it comes from Zone 3. Water from the steel reservoir in Zone 3 is also lifted to zones 4 and 5 using pumps located at Station #4. The steel hydro-pneumatic tank at Station #4 provides hydraulic surge protection for zones 4 and 5. Additional pressure for water delivered to Zone 5 is provided by small booster pumps at Station #5. Station #5 is also equipped with a small surge tank to reduce hydraulic surge and maintain a more constant pressure in this zone.

Potable water consumption is recorded using meters located at the point of service with backflow devices after the meters to provide separation between the distribution system and privately owned facilities. Fire water is delivered to hydrants and standpipes located at points in the distribution system. These facilities previously summarized are owned by the District.

### **Replacement Capital Cost Projections Summary**

The District maintains a 10-year capital expenditure plan that combines annual system maintenance with major maintenance and repairs together with facilities replacement and with system improvements. Coastland | DCCM has provided an independent assessment of water

system and prepared a capital plan focused solely on replacement of facilities at the end of their useful lifetime. The plan was extended to the Year 2075. Some capital replacement costs will be incurred more than once during the assessment timeframe due to the varying expected lifetimes for facilities. Our opinion of these capital replacement costs is given in the attached tables. The capital amounts include a 20% contingency due to concept level of the estimates.

Our projected plan extends through 2075 to include replacement of most of the existing facilities. We have based our projections on a combination of experience and industry practices. We have also assumed that replacement occurs all at once within a single year at the end of the useful life. This is unlikely to happen in practice. Replacement costs of facilities are usually smoothed over several years to limit the disruption to service and limit the financial burden on users of the system. Given these limitations, our projection is that the District will incur \$53 million in replacement costs throughout the period of study.

Useful service life of facilities depends on the quality of materials, original installation and actual use conditions. Groundwater wells and hydro-pneumatic distribution systems generally experience more wear than stored water gravity systems. Changes in groundwater levels increase horsepower requirements on a frequent basis generating additional heat in electrical components at the well heads. Suspended solids in the aquifer water also wear impellers at the bottom of the wells. Pressure surge transients occur frequently in hydro-pneumatic systems causing greater cycling of regulating valves and rapid changes in stress on pipe walls. As a result of these operating conditions, facilities are replaced sooner in a system with water wells and hydropneumatic distribution than in a gravity system.

Funding options also greatly affect the timing of future improvements. Accumulating money over time is the cheapest funding approach but water system managers typically fund operations on a cash basis (sinking fund) and then fund large capital improvements with bonds. A sinking fund requires a schedule of replacement costs that is updated on a regular basis to insure the fund is accumulating enough money to fund replacement costs. Scheduling of replacement costs will require further study by the District, if the District chooses to evaluate a long term capital improvement program. Projected capital costs for this study are in 2023 dollars due to the uncertainty of funding approach and cost of money over time.

### **Proposed Capital Improvements Summary**

Twenty years of daily operation has already resulted in recent major maintenance and replacement efforts for the system. Maintenance and replacements will continue as equipment approaches the end of its useful life. Improvements to reduce operating effort and to improve system reliability are also planned by the District.

Much of the Districts recent repairs and maintenance have focused on the source wells. Pumps in wells 01 and 02 were replaced, the chlorine addition system located at supply well 01 was replaced and an arsenic removal system was added so well 02 could regularly be used in the system. A spare pump and motor were purchased for use in the supply wells to reduce the time these wells are out of service.

Upgrades to improve operations of the system are planned for key components. Remote monitoring of meters in the system and testing to determine aquifer yield and recovery over many years will reduce effort and improve performance for the existing supply. This information is needed to reduce the effort for meter reading, evaluate how the system will respond to changes in operation, how pressures changes in the system for short-term and long-term changes in water demand, how water quality changes seasonally and how sensitive the system is to changes in groundwater characteristics.

Capital improvements and major repairs forecast for the future include a Bucktown access at Station #4, new coating and corrosion repairs for the steel reservoirs at Station #3 and #4, replacement piping for in the landslide area on Cantelow Road and recurring pressure testing of the hydro-pneumatic tanks at Stations 4 and 5. Inspection of the casing and screens for wells 01 and 02 could also result in major repairs.

While assessing the District's water system, Coastland | DCCM believes that a few improvements could be made by the District beyond replacement of facilities. A brief discussion of these improvements follows.

### **Cantelow Road Transmission Pipe**

Coastland | DCCM identified three potential failure points of the transmission and distribution portions of the water system. The most significant of these is the portion of transmission piping between Station #3 and Station #4 in Cantelow Road. Solano County has identified a slide along approximately 2,000 lineal feet near 3829 Cantelow Road that extends approximately 100 feet below the surface. Realigning the pipe in this vicinity eliminates the potential failure point. Costs for this concept are included in our estimates.

The District has included future capital cost to add connection points at either end of the slide area along Cantelow Road where temporary surface piping can be installed across the slide area after a slide event. This is an approach that has been used elsewhere in Solano County and would restore temporary water distribution after several days. Providing piping on the roadway surface is viable if the length and depth of the slide is limited in extent so that more permanent repairs to the road and existing underground piping can be completed in a few days. We anticipate that after a slide of significant extent, water distribution to the area surrounding Station #4 and much of English Hills (zone 4 and zone 5) could be without water while the surface connection on Cantelow Road is installed and again for a month or more while earthwork is performed to stabilize the larger slide area. The duration for disruption to the distribution system depends on the area and depth of the slide.

### **Added Water Storage**

Another failure point is limited storage in the system for unforeseen events such as fire, landslides or pipeline breaks. State required redundancy is satisfied by the existing tanks. However, the northerly portion of the distribution system lacks any storage. Additional storage in zones 4 or 5,

or both, would provide needed fire storage in the northerly area that would also simplify operations if one of the existing tanks were emptied for repairs and maintenance.

Bypassing potential failure points in the system is also an important criterion for the location of added storage. Water storage in this area could also provide short-term water supply during slide repairs along Cantelow Road. Modeling and operations assessment would determine the quantity and location for added storage.

### **Future Water Supply**

Groundwater is the only supply for the system. This source has been reliable since 2003 and continues to approach a stable drawdown in the Solano SubBasin per the most recent groundwater monitoring report. Population growth in Solano County will increase the use of groundwater in the future. Identifying secondary sources of water for the future is prudent because agreements for water sources can take years to negotiate and receive State approvals. Starting conversations with potential sources should be considered by the District. In addition to alternate long-term sources, providing a short-term emergency source of potable water should also be considered during catastrophic events within the District's system.

### **SCADA and System-Wide Computer Model**

One method to increase reliability of the overall system is to integrate the data from remote monitoring into a computer model. Keeping the complexity of the model to a minimum would provide quick assessment of changes in water age and pressure throughout the system. Models can be used to evaluate locations where added storage or emergency water sources are effective. Databases within the models can also identify facilities maintenance and replacement schedules. These systems also provide continuity during changes in staff or transitions in management.

## LIST OF ATTACHMENTS

### FIGURES

SCHEMATIC FIGURE OF WATER SYSTEM  
BOUNDARIES OF DISTRICT (LAFCO Exhibit)

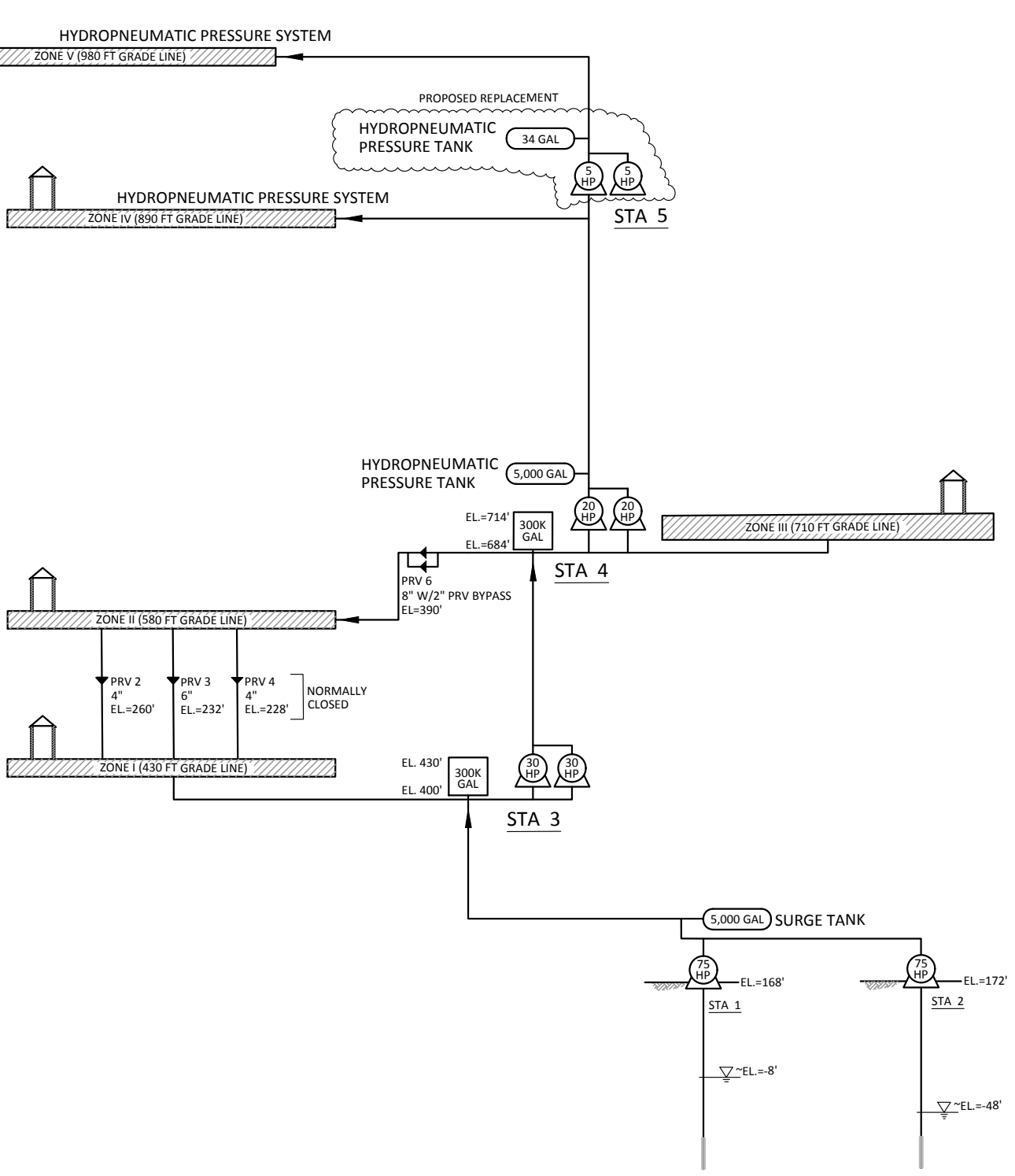
<u>TABLES</u>	<u>PAGES</u>
<b>TABLE OF FACILITY TYPICAL USEFUL LIFETIMES .....</b>	<b>1 OF 1</b>

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PUMP STATION #4 .....	7 – 12 of 18
PUMP STATION #5 (PROPOSED) .....	13 – 18 of 18

# RNVWD SYSTEM SCHEMATIC

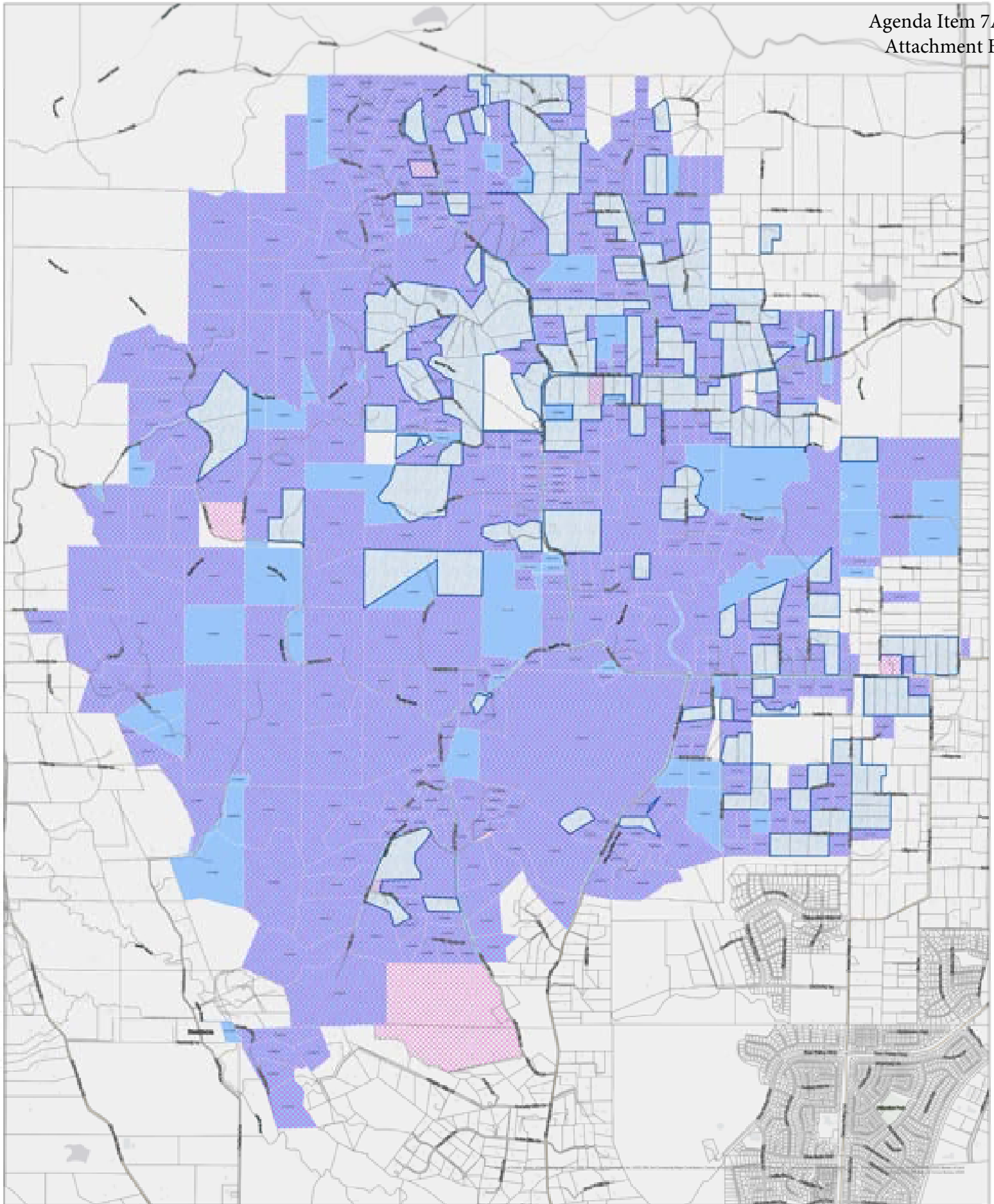
ORIGINAL PLOT DATE: 04/07/2023



Images: Xrefs: F:\Civil 3D Projects\1364945-Rural North Vacaville\1364945-SYS SCHEMATIC.dwg Plot Date: Apr 07, 2023 at 01:00 pm Layout Name: FIG-1

NOT TO SCALE

RURAL N. VACAVILLE WATER DISTRICT  
 FIGURE-1  
 EXISTING DISTRICT WATER  
 SYSTEM SCHEMATIC



**Rural North Vacaville Water District Boundary, Sphere of Influence, Water Rights**

Data Source: LAFCO Database Annexations and Detachments from 1996 to Feb 2022. RNVWD Sphere of Influence Update in April 2016.  
Water Rights Data from RNVWD Control Group 03-07-22



Disclaimer: The information shown is intended to be used for general display only and is not to be used as an official map.



- Rural North Vacaville Water District
- Rural North Vacaville Water District Sphere of Influence
- Parcels with Water Rights



**RURAL NORTH VACAVILLE WATER DISTRICT  
SUMMARY OF ENGINEER'S OPINION OF TYPICAL FACILITY LIFETIMES**

<b>ITEM</b>	<b>Expected Life Time (years)</b>
Tank Exterior - Coating (polyamide)	25
Tank Interior - Coating (epoxy)	30
Tank Seismic Valve Assembly	40
Electric Motors	20
Booster Pumps	30
Shade Structure	20
Motor Control Center	30
Diesel GenSet	30
Isolation Valves	40
Telemetry/Communications	25
Fencing - Chain Link Fabric	40
Lighting	40
Gates - Chain Link Fabric	25
Grading & Ditch Clearing	25 - 30
Road Culverts	70
Buried Piping	70
Hydrant Assembly	70
Blow-off Valves & Utility Box	70
Air Relief Valve	20
Pressure Reducing Valves	50
Water Service ( Corp Stop & 25' Plastic tube)	40
Water Meter top with AMI & Utility Box	20
Reduced Pressure Devices @ Services	70
Line Valves	25
Well Pump	15
Well Motor	25
Well Downpipe, Instruments Power Cable	25
New Well with Casing & Screen	40
Chlorine Addition System	10
Chemical Building	30
Arsenic Removal Treatment System	20
5,000 Gallon Surge Tank	30
Paving AC	20
Cl2 AB	25
Lighting	40

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SUMMARY**

ITEM	Current Replacement & Contingency Cost	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		Well #1 Station	\$978,090	\$39,750	\$0	\$0	\$0	\$0	\$175,440	\$0	\$0
Well #2 Station	\$609,144	\$3,750	\$0	\$0	\$0	\$0	\$76,044	\$0	\$0	\$0	\$0
Pump Station #3	\$688,805	\$13,315	\$0	\$0	\$0	\$0	\$65,943	\$0	\$0	\$0	\$0
Pump Station #4	\$796,129	\$0	\$0	\$0	\$0	\$0	\$64,143	\$0	\$0	\$0	\$0
Pump Station #5	\$91,560	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Distribution System	\$40,405,662	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Services & Appurtenances	\$7,772,520	\$611,460	\$0	\$0	\$0	\$0	\$484,380	\$0	\$0	\$0	\$0
Cantelow Road Pipe Realignment	\$1,181,275	\$0	\$0	\$0	\$0	\$0	\$1,181,275	\$0	\$0	\$0	\$0
<b>TOTAL CAPITAL COST =</b>	<b>\$52,523,185</b>	<b>\$668,275</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,047,226</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Well #1 Station	\$485,700	\$0	\$0	\$0	\$0	\$39,600	\$0	\$0	\$0	\$0	\$324,750	\$0
Well #2 Station	\$60,000	\$0	\$0	\$0	\$0	\$39,600	\$0	\$0	\$0	\$0	\$236,400	\$0
Pump Station #3	\$251,345	\$0	\$0	\$0	\$0	\$0	\$0	\$10,500	\$0	\$0	\$106,315	\$0
Pump Station #4	\$181,898	\$0	\$0	\$10,800	\$0	\$0	\$0	\$10,500	\$0	\$0	\$177,000	\$0
Pump Station #5	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,800	\$0
Distribution System	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Services & Appurtenances	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,855,860	\$0
Cantelow Road Pipe Realignment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Annual Totals =	\$978,943	\$0	\$0	\$10,800	\$0	\$79,200	\$0	\$21,000	\$0	\$0	\$5,708,125	\$0

	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
Well #1 Station	\$0	\$0	\$0	\$9,600	\$0	\$0	\$0	\$0	\$84,000	\$0	\$0	\$0
Well #2 Station	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$54,000	\$0	\$0	\$0
Pump Station #3	\$0	\$0	\$0	\$110,343	\$0	\$0	\$0	\$0	\$15,600	\$0	\$0	\$16,800
Pump Station #4	\$0	\$0	\$0	\$140,343	\$0	\$30,000	\$0	\$0	\$13,800	\$0	\$0	\$10,800
Pump Station #5	\$0	\$0	\$0	\$6,338	\$0	\$0	\$0	\$0	\$64,823	\$0	\$0	\$0
Distribution System	\$0	\$0	\$0	\$0	\$0	\$40,405,662	\$0	\$0	\$0	\$0	\$0	\$0
Services & Appurtenances	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$611,460	\$0	\$0
Cantelow Road Pipe Realignment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Annual Totals =	\$0	\$0	\$0	\$266,624	\$0	\$40,435,662	\$0	\$0	\$232,223	\$611,460	\$0	\$27,600

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SUMMARY**

ITEM	2057	2058	2059	2060	2061	2062	2064
Well #1 Station	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Well #2 Station	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pump Station #3	\$0	\$0	\$0	\$10,500	\$0	\$0	\$0
Pump Station #4	\$0	\$0	\$0	\$10,500	\$0	\$0	\$0
Pump Station #5	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Distribution System	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Services & Appurtenances	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cantelow Road Pipe Realignment	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL CAPITAL COST =</b>	\$0	\$0	\$0	\$21,000	\$0	\$0	\$0

	2063	2065	2066	2067	2068	2070
Well #1 Station	\$225,750	\$0	\$0	\$0	\$39,600	\$0
Well #2 Station	\$159,750	\$0	\$0	\$0	\$39,600	\$0
Pump Station #3	\$220,145	\$0	\$0	\$0	\$50,343	\$0
Pump Station #4	\$181,898	\$0	\$0	\$0	\$50,343	\$0
Pump Station #5	\$12,600	\$0	\$0	\$0	\$0	\$0
Distribution System	\$0	\$0	\$0	\$0	\$0	\$0
Services & Appurtenances	\$611,460	\$0	\$0	\$0	\$0	\$0
Cantelow Road Pipe Realignment	\$0	\$0	\$0	\$0	\$0	\$0
Annual Total	\$1,411,603	\$0	\$0	\$0	\$179,887	\$0

	2069	2071	2072	2073	2074	2075
Well #1 Station	\$0	\$0	\$0	\$39,600	\$0	\$0
Well #2 Station	\$0	\$0	\$0	\$0	\$0	\$0
Pump Station #3	\$0	\$0	\$0	\$69,000	\$0	\$0
Pump Station #4	\$0	\$0	\$0	\$96,000	\$0	\$0
Pump Station #5	\$0	\$0	\$0	\$0	\$0	\$0
Distribution System	\$0	\$0	\$0	\$0	\$0	\$0
Services & Appurtenances	\$0	\$0	\$0	\$597,900	\$0	\$0
Cantelow Road Pipe Realignment	\$0	\$0	\$0	\$0	\$0	\$0
Annual Total	\$0	\$0	\$0	\$802,500	\$0	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
DISTRIBUTION PIPING REPLACEMENT

	Totals (LF)	Replacement Cost (LF)	Expected Life Time (years)	Current Age (years)	Expected Remaining Use (years)	Latest Year to Start CIP	Present Cost Year 2023	Contingency	Replacement & Contingency Cost
4"	85,185	\$135	70	20	50	2050	\$11,499,975	20%	\$13,799,970
6"	76,860	\$145	70	20	50	2050	\$11,144,700	20%	\$13,373,640
8"	1,112	\$180	70	20	50	2050	\$200,160	20%	\$240,192
12"	48,118	\$225	70	20	50	2050	\$10,826,550	20%	\$12,991,860
								TOTAL =	\$40,405,662

2023	2024	2025	2026	2027
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
\$0	\$0	\$0	\$0	\$0

	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
4"	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6"	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8"	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12"	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
4"	--	--	--	--	--	--	--	\$13,799,970	--	--	--	--	--	--	--
6"	--	--	--	--	--	--	--	\$13,373,640	--	--	--	--	--	--	--
8"	--	--	--	--	--	--	--	\$240,192	--	--	--	--	--	--	--
12"	--	--	--	--	--	--	--	\$12,991,860	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,405,662	\$0	\$0	\$0	\$0	\$0	\$0	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
 ENGINEER'S OPINION OF PROBABLE COST  
 DISTRIBUTION PIPING REPLACEMENT

Totals (LF)		2058	2059	2060	2061	2062	2040	2041
4"	85,185	--	--	--	--	--	--	--
6"	76,860	--	--	--	--	--	--	--
8"	1,112	--	--	--	--	--	--	--
12"	48,118	--	--	--	--	--	--	--
		\$0	\$0	\$0	\$0	\$0	\$0	\$0

	2028	2063	2064	2065	2066	2067	2068	2069
4"	--	--	--	--	--	--	--	--
6"	--	--	--	--	--	--	--	--
8"	--	--	--	--	--	--	--	--
12"	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

	2043	2070	2071	2072	2073	2074	2075
4"	--	--	--	--	--	--	--
6"	--	--	--	--	--	--	--
8"	--	--	--	--	--	--	--
12"	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
CANTELOW ROAD REALIGNMENT**

	<b>Totals (LF)</b>	<b>Unit</b>	<b>Unit Current Cost</b>	<b>Latest Year to Start CIP</b>	<b>Present Cost Year 2023</b>	<b>Contingency</b>	<b>Replacement &amp; Contingency Cost</b>
Permanent 20' Easement	1.06	ACRE	\$8,000	2028	\$8,448	20%	\$10,138
40' Construction Easement	2.11	ACRE	\$4,000	2028	\$8,448	20%	\$10,138
New CL2 AB Access Road over Realignment	12,800	SF	\$25	2028	\$320,000	20%	\$384,000
6" Pressure Reducing Valves	2	EACH	\$9,000	2028	\$18,000	20%	\$21,600
12" Isolation Valves (Manual)	8	EACH	\$14,000	2028	\$112,000	20%	\$134,400
12" Pipe	2,300	LF	\$225	2028	\$517,500	20%	\$621,000
						<b>TOTAL =</b>	<b>\$1,181,275</b>

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

<b>ITEM</b>	<b>SIZE</b>	<b>QUANTITY</b>	<b>TYPICAL LIFETIME</b>	<b>Remaining Service Life</b>	<b>Anticipated Replacement Year</b>	<b>Unit</b>	<b>Per Unit Replacement Cost</b>
Hydrant Assembly (Riser, valves, Fittings)	6"	67	70	50	2073	each	\$3,700
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	2"	57	70	50	2073	each	\$600
Air Relief Valve	2"	90	20	0	2023	each	\$1,950
Pressure Reducing Valves (Valve & Isolation Valves)	3"	5	50	30	2053	each	\$1,950
Water Service ( Corp Stop & 25' Plastic)	1"	393	40	20	2043	each	\$9,000
Water Meter top with AMI & Utility Box	1"	393	20	0	2023	each	\$850
Reduced Pressure Devices @ Services	1"	393	70	50	2073	each	\$550
Line Valves (various sizes)	4" - 12'	117	25	5	2028	each	\$3,450

Projected Annual Funding =

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	Present Year Replacement		Contingency	Replacement & Contingency Cost
	Cost			
Hydrant Assembly (Riser, valves, Fittings)	\$247,900		20%	\$297,480
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	\$34,200		20%	\$41,040
Air Relief Valve	\$175,500		20%	\$210,600
Pressure Reducing Valves (Valve & Isolation Valves)	\$9,750		20%	\$11,700
Water Service ( Corp Stop & 25' Plastic)	\$3,537,000		20%	\$4,244,400
Water Meter top with AMI & Utility Box	\$334,050		20%	\$400,860
Reduced Pressure Devices @ Services	\$216,150		20%	\$259,380
Line Valves (various sizes)	\$403,650		20%	\$484,380
Projected Annual Funding =				

2023	2024	2025
--	--	--
--	--	--
\$210,600	--	--
--	--	--
--	--	--
\$400,860	--	--
--	--	--
--	--	--
\$611,460	\$0	\$0



**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2026	2027	2028	2029	2030	2031	2032
Hydrant Assembly (Riser, valves, Fittings)	--	--	--	--	--	--	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--	--	--	--	--	--	--
Air Relief Valve	--	--	--	--	--	--	--
Pressure Reducing Valves (Valve & Isolation Valves)	--	--	--	--	--	--	--
Water Service ( Corp Stop & 25' Plastic)	--	--	--	--	--	--	--
Water Meter top with AMI & Utility Box	--	--	--	--	--	--	--
Reduced Pressure Devices @ Services	--	--	--	--	--	--	--
Line Valves (various sizes)	--	--	\$484,380	--	--	--	--
Projected Annual Funding =	\$0	\$0	\$484,380	\$0	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2033	2034	2035	2036	2037	2038	2039
Hydrant Assembly (Riser, valves, Fittings)	--	--	--	--	--	--	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--	--	--	--	--	--	--
Air Relief Valve	--	--	--	--	--	--	--
Pressure Reducing Valves (Valve & Isolation Valves)	--	--	--	--	--	--	--
Water Service ( Corp Stop & 25' Plastic)	--	--	--	--	--	--	--
Water Meter top with AMI & Utility Box	--	--	--	--	--	--	--
Reduced Pressure Devices @ Services	--	--	--	--	--	--	--
Line Valves (various sizes)	--	--	--	--	--	--	--
Projected Annual Funding =	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2040	2041	2042	2043	2044	2045	2046
Hydrant Assembly (Riser, valves, Fittings)	--	--	--	--	--	--	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--	--	--	--	--	--	--
Air Relief Valve	--	--	--	\$210,600	--	--	--
Pressure Reducing Valves (Valve & Isolation Valves)	--	--	--	--	--	--	--
Water Service ( Corp Stop & 25' Plastic)	--	--	--	\$4,244,400	--	--	--
Water Meter top with AMI & Utility Box	--	--	--	\$400,860	--	--	--
Reduced Pressure Devices @ Services	--	--	--	--	--	--	--
Line Valves (various sizes)	--	--	--	--	--	--	--
Projected Annual Funding =	\$0	\$0	\$0	\$4,855,860	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2047	2048	2049	2050	2051	2052	2053
Hydrant Assembly (Riser, valves, Fittings)	--	--	--	--	--	--	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--	--	--	--	--	--	--
Air Relief Valve	--	--	--	--	--	--	--
Pressure Reducing Valves (Valve & Isolation Valves)	--	--	--	--	--	--	\$11,700
Water Service ( Corp Stop & 25' Plastic)	--	--	--	--	--	--	--
Water Meter top with AMI & Utility Box	--	--	--	--	--	--	--
Reduced Pressure Devices @ Services	--	--	--	--	--	--	--
Line Valves (various sizes)	--	--	--	--	--	--	\$484,380
Projected Annual Funding =	\$0	\$0	\$0	\$0	\$0	\$0	\$496,080

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2054	2055	2056	2057	2058	2059	2060
Hydrant Assembly (Riser, valves, Fittings)	--	--	--	--	--	--	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--	--	--	--	--	--	--
Air Relief Valve	--	--	--	--	--	--	--
Pressure Reducing Valves (Valve & Isolation Valves)	--	--	--	--	--	--	--
Water Service ( Corp Stop & 25' Plastic)	--	--	--	--	--	--	--
Water Meter top with AMI & Utility Box	--	--	--	--	--	--	--
Reduced Pressure Devices @ Services	--	--	--	--	--	--	--
Line Valves (various sizes)	--	--	--	--	--	--	--
Projected Annual Funding =	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2061	2062	2063	2064	2065	2066	2067
Hydrant Assembly (Riser, valves, Fittings)	--	--	--	--	--	--	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--	--	--	--	--	--	--
Air Relief Valve	--	--	\$210,600	--	--	--	--
Pressure Reducing Valves (Valve & Isolation Valves)	--	--	--	--	--	--	--
Water Service ( Corp Stop & 25' Plastic)	--	--	--	--	--	--	--
Water Meter top with AMI & Utility Box	--	--	\$400,860	--	--	--	--
Reduced Pressure Devices @ Services	--	--	--	--	--	--	--
Line Valves (various sizes)	--	--	--	--	--	--	--
Projected Annual Funding =	\$0	\$0	\$611,460	\$0	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2068	2069	2070	2071	2072	2073	2074
Hydrant Assembly (Riser, valves, Fittings)	--	--	--	--	--	\$297,480	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--	--	--	--	--	\$41,040	--
Air Relief Valve	--	--	--	--	--	--	--
Pressure Reducing Valves (Valve & Isolation Valves)	--	--	--	--	--	--	--
Water Service ( Corp Stop & 25' Plastic)	--	--	--	--	--	--	--
Water Meter top with AMI & Utility Box	--	--	--	--	--	--	--
Reduced Pressure Devices @ Services	--	--	--	--	--	\$259,380	--
Line Valves (various sizes)	--	--	--	--	--	--	--
Projected Annual Funding =	\$0	\$0	\$0	\$0	\$0	\$597,900	\$0

TOTAL COST =

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
SERVICES AND APPURTENANCES**

ITEM	2075
Hydrant Assembly (Riser, valves, Fittings)	--
Blow-off Valves & Utility Boxes (2" Riser, valves, Fittings, & Fill Pipe)	--
Air Relief Valve	--
Pressure Reducing Valves (Valve & Isolation Valves)	--
Water Service ( Corp Stop & 25' Plastic)	--
Water Meter top with AMI & Utility Box	--
Reduced Pressure Devices @ Services	--
Line Valves (various sizes)	--
Projected Annual Funding =	\$0

\$5,951,700



**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
GROUNDWATER WELLS, CHLORINATION AND ARSENIC REMOVAL**

	Total Quantity	Unit	Unit Replacement Cost	Year Installed	Expected Life Time (years)	Current Age (years)	Expected Remaining Use (years)	Latest Year to Start CIP	Present Cost Year 2023	Contingency	Replacement & Contingency Cost	2023
<b>WELL 01</b>												
Well #1 Pump Grundfos SP215-7	1	EACH	\$15,000	2023	15	0	15	2038	\$15,000	20%	\$18,000	--
Well #1 Motor 75HP Grundfos MMS8000	1	EACH	\$8,000	2023	25	0	25	2048	\$8,000	20%	\$9,600	--
Well Downpipe	1,200	LF	\$10	2003	25	20	5	2028	\$12,000	20%	\$14,400	--
Well Level Probe, Lanyard, Restraint String, Power Cable	1,200	LF	\$15	2023	15	0	15	2038	\$18,000	20%	\$21,600	--
New Well with Casing & Screen	1,200	LF	\$35	2003	40	20	20	2043	\$42,000	20%	\$50,400	--
Motor Covers	125	SF	\$25	2003	20	20	0	2023	\$3,125	20%	\$3,750	\$3,750
Motor Control Center	1	EACH	\$100,000	2003	30	20	10	2033	\$100,000	20%	\$120,000	--
Genset Replacement (55 Kw) 75HP	1	EACH	\$130,000	2023	20	0	20	2043	\$130,000	20%	\$156,000	--
Chlorine Chemical Pump Skid System Rebuild	1	EACH	\$25,000	2023	10	0	10	2033	\$25,000	20%	\$30,000	--
Chemical Building/Enclosure/Storage Restoration/Modification	455	SF	\$450	2003	30	20	10	2033	\$204,750	20%	\$245,700	--
Arsenic Removal Treatment System Rebuild/Replacement	1	EACH	\$45,000	2023	20	0	20	2043	\$45,000	20%	\$54,000	--
5,000 Gallon Surge Tank Coating & Bladder	5,000	GALLON	\$15	2003	30	20	10	2033	\$75,000	20%	\$90,000	--
Paving AC (Site Only)	1,200	SF	\$25	2003	20	20	0	2023	\$30,000	20%	\$36,000	\$36,000
CI2 AB (Access Rd & Site non-AC)	1,628	TON	\$80	2003	25	20	5	2028	\$130,200	20%	\$156,240	--
Fencing	545	LF	\$25	2003	40	20	20	2043	\$13,625	20%	\$16,350	--
Gates	1	SET	\$4,000	2003	25	20	5	2028	\$4,000	20%	\$4,800	--
Lighting	1	ALLOWANCE	\$15,000	2003	40	20	20	2043	\$15,000	20%	\$18,000	--
												\$39,750
<b>WELL 02</b>												
Well #2 Pump Grundfos SP215-7	1	EACH	\$15,000	2023	15	0	15	2038	\$15,000	20%	\$18,000	--
Well Downpipe	1,200	LF	\$10	2003	25	20	5	2028	\$12,000	20%	\$14,400	--
Well Level Probe, Lanyard, Restraint String, Power Cable	1,200	LF	\$15	2023	15	0	15	2038	\$18,000	20%	\$21,600	--
New Well with Casing & Screen	1,200	LF	\$35	2003	40	20	20	2043	\$42,000	20%	\$50,400	--
Motor Covers	125	SF	\$25	2003	20	20	0	2023	\$3,125	20%	\$3,750	\$3,750
Motor Control Center	1	EACH	\$50,000	2003	30	20	10	2033	\$50,000	20%	\$60,000	--
Genset Replacement (55 Kw) 75HP	1	EACH	\$130,000	2023	20	0	20	2043	\$130,000	20%	\$156,000	--
CI2 AB (Access Rd & Site)	592	TON	\$80	2003	25	20	5	2028	\$47,370	20%	\$56,844	--
Fencing	400	LF	\$25	2003	40	20	20	2043	\$10,000	20%	\$12,000	--
Gates	1	SET	\$4,000	2003	25	20	5	2028	\$4,000	20%	\$4,800	--
Lighting	1	ALLOWANCE	\$15,000	2003	40	20	20	2043	\$15,000	20%	\$18,000	--
												TOTAL = \$415,794
												\$3,750

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
GROUNDWATER WELLS, CHLORINATION AND ARSENIC REMOVAL**

**WELL 01**

- Well #1 Pump Grundfos SP215-7
- Well #1 Motor 75HP Grundfos MMS8000
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- Chlorine Chemical Pump Skid System Rebuild
- Chemical Building/Enclosure/Storage Restoration/Modification
- Arsenic Removal Treatment System Rebuild/Replacement
- 5,000 Gallon Surge Tank Coating & Bladder
- Paving AC (Site Only)
- CI2 AB (Access Rd & Site non-AC)
- Fencing
- Gates
- Lighting

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Well #1 Pump Grundfos SP215-7	--	--	--	--	--	--	--	--	--	--	--	--
Well #1 Motor 75HP Grundfos MMS8000	--	--	--	--	--	--	--	--	--	--	--	--
Well Downpipe	--	--	--	--	\$14,400	--	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--	--	--	--	--	--	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	--	--	--	--	--
Motor Covers	--	--	--	--	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	\$120,000	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--	--	--	--	--	--	--	--	--
Chlorine Chemical Pump Skid System Rebuild	--	--	--	--	--	--	--	--	--	\$30,000	--	--
Chemical Building/Enclosure/Storage Restoration/Modification	--	--	--	--	--	--	--	--	--	\$245,700	--	--
Arsenic Removal Treatment System Rebuild/Replacement	--	--	--	--	--	--	--	--	--	--	--	--
5,000 Gallon Surge Tank Coating & Bladder	--	--	--	--	--	--	--	--	--	\$90,000	--	--
Paving AC (Site Only)	--	--	--	--	--	--	--	--	--	--	--	--
CI2 AB (Access Rd & Site non-AC)	--	--	--	--	\$156,240	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Gates	--	--	--	--	\$4,800	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$175,440	\$0	\$0	\$0	\$0	\$485,700	\$0	\$0

**WELL 02**

- Well #2 Pump Grundfos SP215-7
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- CI2 AB (Access Rd & Site)
- Fencing
- Gates
- Lighting

Well #2 Pump Grundfos SP215-7	--	--	--	--	--	--	--	--	--	--	--	--
Well Downpipe	--	--	--	--	\$14,400	--	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--	--	--	--	--	--	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	--	--	--	--	--
Motor Covers	--	--	--	--	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	\$60,000	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--	--	--	--	--	--	--	--	--
CI2 AB (Access Rd & Site)	--	--	--	--	\$56,844	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Gates	--	--	--	--	\$4,800	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$76,044	\$0	\$0	\$0	\$0	\$60,000	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
GROUNDWATER WELLS, CHLORINATION AND ARSENIC REMOVAL**

**WELL 01**

	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Well #1 Pump Grundfos SP215-7	--	--	\$18,000	--	--	--	--	--	--	--	--	--
Well #1 Motor 75HP Grundfos MMS8000	--	--	--	--	--	--	--	--	--	--	--	--
Well Downpipe	--	--	--	--	--	--	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	\$21,600	--	--	--	--	--	--	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	\$50,400	--	--	--	--
Motor Covers	--	--	--	--	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--	--	--	--	\$156,000	--	--	--	--
Chlorine Chemical Pump Skid System Rebuild	--	--	--	--	--	--	--	\$30,000	--	--	--	--
Chemical Building/Enclosure/Storage Restoration/Modification	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic Removal Treatment System Rebuild/Replacement	--	--	--	--	--	--	--	\$54,000	--	--	--	--
5,000 Gallon Surge Tank Coating & Bladder	--	--	--	--	--	--	--	--	--	--	--	--
Paving AC (Site Only)	--	--	--	--	--	--	--	--	--	--	--	--
CI2 AB (Access Rd & Site non-AC)	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	\$16,350	--	--	--	--
Gates	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	\$18,000	--	--	--	--
	\$0	\$0	\$39,600	\$0	\$0	\$0	\$0	\$324,750	\$0	\$0	\$0	\$0

**WELL 02**

Well #2 Pump Grundfos SP215-7	--	--	\$18,000	--	--	--	--	--	--	--	--	--
Well Downpipe	--	--	--	--	--	--	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	\$21,600	--	--	--	--	--	--	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	\$50,400	--	--	--	--
Motor Covers	--	--	--	--	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--	--	--	--	\$156,000	--	--	--	--
CI2 AB (Access Rd & Site)	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	\$12,000	--	--	--	--
Gates	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	\$18,000	--	--	--	--
	\$0	\$0	\$39,600	\$0	\$0	\$0	\$0	\$236,400	\$0	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
GROUNDWATER WELLS, CHLORINATION AND ARSENIC REMOVAL**

**WELL 01**

- Well #1 Pump Grundfos SP215-7
- Well #1 Motor 75HP Grundfos MMS8000
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- Chlorine Chemical Pump Skid System Rebuild
- Chemical Building/Enclosure/Storage Restoration/Modification
- Arsenic Removal Treatment System Rebuild/Replacement
- 5,000 Gallon Surge Tank Coating & Bladder
- Paving AC (Site Only)
- CI2 AB (Access Rd & Site non-AC)
- Fencing
- Gates
- Lighting

	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059
Well #1 Pump Grundfos SP215-7	--	--	--	--	--	\$18,000	--	--	--	--	--	--
Well #1 Motor 75HP Grundfos MMS8000	\$9,600	--	--	--	--	--	--	--	--	--	--	--
Well Downpipe	--	--	--	--	--	\$14,400	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--	--	\$21,600	--	--	--	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	--	--	--	--	--
Motor Covers	--	--	--	--	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--	--	--	--	--	--	--	--	--
Chlorine Chemical Pump Skid System Rebuild	--	--	--	--	--	\$30,000	--	--	--	--	--	--
Chemical Building/Enclosure/Storage Restoration/Modification	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic Removal Treatment System Rebuild/Replacement	--	--	--	--	--	--	--	--	--	--	--	--
5,000 Gallon Surge Tank Coating & Bladder	--	--	--	--	--	--	--	--	--	--	--	--
Paving AC (Site Only)	--	--	--	--	--	--	--	--	--	--	--	--
CI2 AB (Access Rd & Site non-AC)	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Gates	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
	\$9,600	\$0	\$0	\$0	\$0	\$84,000	\$0	\$0	\$0	\$0	\$0	\$0

**WELL 02**

- Well #2 Pump Grundfos SP215-7
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- CI2 AB (Access Rd & Site)
- Fencing
- Gates
- Lighting

Well #2 Pump Grundfos SP215-7	--	--	--	--	--	\$18,000	--	--	--	--	--	--
Well Downpipe	--	--	--	--	--	\$14,400	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--	--	\$21,600	--	--	--	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	--	--	--	--	--
Motor Covers	--	--	--	--	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--	--	--	--	--	--	--	--	--
CI2 AB (Access Rd & Site)	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Gates	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$0	\$54,000	\$0	\$0	\$0	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
GROUNDWATER WELLS, CHLORINATION AND ARSENIC REMOVAL**

**WELL 01**

- Well #1 Pump Grundfos SP215-7
- Well #1 Motor 75HP Grundfos MMS8000
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- Chlorine Chemical Pump Skid System Rebuild
- Chemical Building/Enclosure/Storage Restoration/Modification
- Arsenic Removal Treatment System Rebuild/Replacement
- 5,000 Gallon Surge Tank Coating & Bladder
- Paving AC (Site Only)
- CI2 AB (Access Rd & Site non-AC)
- Fencing
- Gates
- Lighting

	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071
Well #1 Pump Grundfos SP215-7	--	--	--	--	--	--	--	--	\$18,000	--	--	--
Well #1 Motor 75HP Grundfos MMS8000	--	--	--	--	--	--	--	--	--	--	--	--
Well Downpipe	--	--	--	--	--	--	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--	--	--	--	--	\$21,600	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	--	--	--	--	--
Motor Covers	--	--	--	\$3,750	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	\$156,000	--	--	--	--	--	--	--	--
Chlorine Chemical Pump Skid System Rebuild	--	--	--	\$30,000	--	--	--	--	--	--	--	--
Chemical Building/Enclosure/Storage Restoration/Modification	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic Removal Treatment System Rebuild/Replacement	--	--	--	--	--	--	--	--	--	--	--	--
5,000 Gallon Surge Tank Coating & Bladder	--	--	--	--	--	--	--	--	--	--	--	--
Paving AC (Site Only)	--	--	--	\$36,000	--	--	--	--	--	--	--	--
CI2 AB (Access Rd & Site non-AC)	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Gates	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$225,750	\$0	\$0	\$0	\$0	\$39,600	\$0	\$0	\$0

**WELL 02**

- Well #2 Pump Grundfos SP215-7
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- CI2 AB (Access Rd & Site)
- Fencing
- Gates
- Lighting

Well #2 Pump Grundfos SP215-7	--	--	--	--	--	--	--	--	\$18,000	--	--	--
Well Downpipe	--	--	--	--	--	--	--	--	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--	--	--	--	--	\$21,600	--	--	--
New Well with Casing & Screen	--	--	--	--	--	--	--	--	--	--	--	--
Motor Covers	--	--	--	\$3,750	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	\$156,000	--	--	--	--	--	--	--	--
CI2 AB (Access Rd & Site)	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Gates	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$159,750	\$0	\$0	\$0	\$0	\$39,600	\$0	\$0	\$0

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
GROUNDWATER WELLS, CHLORINATION AND ARSENIC REMOVAL**

**WELL 01**

- Well #1 Pump Grundfos SP215-7
- Well #1 Motor 75HP Grundfos MMS8000
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- Chlorine Chemical Pump Skid System Rebuild
- Chemical Building/Enclosure/Storage Restoration/Modification
- Arsenic Removal Treatment System Rebuild/Replacement
- 5,000 Gallon Surge Tank Coating & Bladder
- Paving AC (Site Only)
- CI2 AB (Access Rd & Site non-AC)
- Fencing
- Gates
- Lighting

	2072	2073	2074	2075
Well #1 Pump Grundfos SP215-7	--	--	--	--
Well #1 Motor 75HP Grundfos MMS8000	--	\$9,600	--	--
Well Downpipe	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--
New Well with Casing & Screen	--	--	--	--
Motor Covers	--	--	--	--
Motor Control Center	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--
Chlorine Chemical Pump Skid System Rebuild	--	\$30,000	--	--
Chemical Building/Enclosure/Storage Restoration/Modification	--	--	--	--
Arsenic Removal Treatment System Rebuild/Replacement	--	--	--	--
5,000 Gallon Surge Tank Coating & Bladder	--	--	--	--
Paving AC (Site Only)	--	--	--	--
CI2 AB (Access Rd & Site non-AC)	--	--	--	--
Fencing	--	--	--	--
Gates	--	--	--	--
Lighting	--	--	--	--
<b>TOTAL COST</b>	\$0	\$39,600	\$0	\$0

TOTAL COST

\$1,463,790

**WELL 02**

- Well #2 Pump Grundfos SP215-7
- Well Downpipe
- Well Level Probe, Lanyard, Restraint String, Power Cable
- New Well with Casing & Screen
- Motor Covers
- Motor Control Center
- Genset Replacement (55 Kw) 75HP
- CI2 AB (Access Rd & Site)
- Fencing
- Gates
- Lighting

Well #2 Pump Grundfos SP215-7	--	--	--	--
Well Downpipe	--	--	--	--
Well Level Probe, Lanyard, Restraint String, Power Cable	--	--	--	--
New Well with Casing & Screen	--	--	--	--
Motor Covers	--	--	--	--
Motor Control Center	--	--	--	--
Genset Replacement (55 Kw) 75HP	--	--	--	--
CI2 AB (Access Rd & Site)	--	--	--	--
Fencing	--	--	--	--
Gates	--	--	--	--
Lighting	--	--	--	--
<b>TOTAL COST</b>	\$0	\$0	\$0	\$0

\$669,144

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS**

	<b>Total Quantity</b>	<b>Unit</b>	<b>Unit Replacement Cost</b>	<b>Year Installed</b>	<b>Current Age (years)</b>	<b>Expected Life Time (years)</b>	<b>Expected Remaining Use (years)</b>	<b>Latest Year to Start CIP</b>	<b>Present Cost Year 2023</b>	<b>Contingency</b>
<b>Pump Station #3</b>										
Tank Exterior - Coating (polyamide)	5,387	SF	\$7.79	2003	20	25	5	2028	\$41,953	20%
Tank Interior - Coating (epoxy)	5,387	SF	\$8.12	2003	20	30	10	2033	\$43,754	20%
Tank Seismic Valve Assembly	1	EACH	\$14,000.00	2016	7	40	33	2056	\$14,000	20%
Electric Motors - 30 HP	2	EACH	\$5,548	2003	20	20	0	2023	\$11,096	20%
Booster Pumps 450 gpm	2	EACH	\$13,000	2003	20	30	10	2033	\$26,000	20%
Shade Structure - Power Cabinet	125	SF	\$25	2020	3	20	17	2040	\$3,125	20%
Shade Structure - Pumps	225	SF	\$25	2020	3	20	17	2040	\$5,625	20%
Motor Control Center	1	ALLOWANCE	\$75,000	2003	20	30	10	2033	\$75,000	20%
Genset 30 HP (25kW)	1	EACH	\$40,000	2003	20	30	10	2033	\$40,000	20%
Isolation Valves 6"	6	EACH	\$7,500	2003	20	40	20	2043	\$45,000	20%
Telemetry/Communications	1	ALLOWANCE	\$50,000	2023	0	25	25	2048	\$50,000	20%
Fencing	700	LF	\$25	2003	20	40	20	2043	\$17,500	20%
Lighting	1	ALLOWANCE	\$15,000	2003	20	40	20	2043	\$15,000	20%
Gates (Double Leaf)	1	SET	\$4,000	2003	20	25	5	2028	\$4,000	20%
Site Gravel & Grading	7,200	SF	\$1.25	2003	20	25	5	2028	\$9,000	20%
Access Road Grading/ Ditch Clearing	15,200	SF	\$1.25	2003	20	30	10	2033	\$19,000	20%
Access Road Culverts	3	EACH	\$2,500	2003	20	70	50	2073	\$7,500	20%
Access Road 6" CL2 AB	71	ton	\$80	2003	20	30	10	2033	\$5,700	20%





**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS**

	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Pump Station #3												
Tank Exterior - Coating (polyamide)	--	--	--	--	--	--	--	--	--	--	--	--
Tank Interior - Coating (epoxy)	\$52,505	--	--	--	--	--	--	--	--	--	--	--
Tank Seismic Valve Assembly	--	--	--	--	--	--	--	--	--	--	--	--
Electric Motors - 30 HP	--	--	--	--	--	--	--	--	--	--	\$13,315	--
Booster Pumps 450 gpm	\$31,200	--	--	--	--	--	--	--	--	--	--	--
Shade Structure - Power Cabinet	--	--	--	--	--	--	--	\$3,750	--	--	--	--
Shade Structure - Pumps	--	--	--	--	--	--	--	\$6,750	--	--	--	--
Motor Control Center	\$90,000	--	--	--	--	--	--	--	--	--	--	--
Genset 30 HP (25kW)	\$48,000	--	--	--	--	--	--	--	--	--	--	--
Isolation Valves 6"	--	--	--	--	--	--	--	--	--	--	\$54,000	--
Telemetry/Communications	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	\$21,000	--
Lighting	--	--	--	--	--	--	--	--	--	--	\$18,000	--
Gates (Double Leaf)	--	--	--	--	--	--	--	--	--	--	--	--
Site Gravel & Grading	--	--	--	--	--	--	--	--	--	--	--	--
Access Road Grading/ Ditch Clearing	\$22,800	--	--	--	--	--	--	--	--	--	--	--
Access Road Culverts	--	--	--	--	--	--	--	--	--	--	--	--
Access Road 6" CL2 AB	\$6,840	--	--	--	--	--	--	--	--	--	--	--
	\$251,345	\$0	\$0	\$0	\$0	\$0	\$0	\$10,500	\$0	\$0	\$106,315	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
Pump Station #3												
Tank Exterior - Coating (polyamide)	--	--	--	\$50,343	--	--	--	--	--	--	--	--
Tank Interior - Coating (epoxy)	--	--	--	--	--	--	--	--	--	--	--	--
Tank Seismic Valve Assembly	--	--	--	--	--	--	--	--	--	--	--	\$16,800
Electric Motors - 30 HP	--	--	--	--	--	--	--	--	--	--	--	--
Booster Pumps 450 gpm	--	--	--	--	--	--	--	--	--	--	--	--
Shade Structure - Power Cabinet	--	--	--	--	--	--	--	--	--	--	--	--
Shade Structure - Pumps	--	--	--	--	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--	--	--	--	--	--
Genset 30 HP (25kW)	--	--	--	--	--	--	--	--	--	--	--	--
Isolation Valves 6"	--	--	--	--	--	--	--	--	--	--	--	--
Telemetry/Communications	--	--	--	\$60,000	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
Gates (Double Leaf)	--	--	--	--	--	--	--	--	\$4,800	--	--	--
Site Gravel & Grading	--	--	--	--	--	--	--	--	\$10,800	--	--	--
Access Road Grading/ Ditch Clearing	--	--	--	--	--	--	--	--	--	--	--	--
Access Road Culverts	--	--	--	--	--	--	--	--	--	--	--	--
Access Road 6" CL2 AB	--	--	--	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$110,343	\$0	\$0	\$0	\$0	\$15,600	\$0	\$0	\$16,800

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS**

	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068
Pump Station #3												
Tank Exterior - Coating (polyamide)	--	--	--	--	--	--	--	--	--	--	--	\$50,343
Tank Interior - Coating (epoxy)	--	--	--	--	--	--	\$52,505	--	--	--	--	--
Tank Seismic Valve Assembly	--	--	--	--	--	--	--	--	--	--	--	--
Electric Motors - 30 HP	--	--	--	--	--	--	--	--	--	--	--	--
Booster Pumps 450 gpm	--	--	--	--	--	--	--	--	--	--	--	--
Shade Structure - Power Cabinet	--	--	--	\$3,750	--	--	--	--	--	--	--	--
Shade Structure - Pumps	--	--	--	\$6,750	--	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	\$90,000	--	--	--	--	--
Genset 30 HP (25kW)	--	--	--	--	--	--	\$48,000	--	--	--	--	--
Isolation Valves 6"	--	--	--	--	--	--	--	--	--	--	--	--
Telemetry/Communications	--	--	--	--	--	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--	--	--	--	--	--
Gates (Double Leaf)	--	--	--	--	--	--	--	--	--	--	--	--
Site Gravel & Grading	--	--	--	--	--	--	--	--	--	--	--	--
Access Road Grading/ Ditch Clearing	--	--	--	--	--	--	\$22,800	--	--	--	--	--
Access Road Culverts	--	--	--	--	--	--	--	--	--	--	--	--
Access Road 6" CL2 AB	--	--	--	--	--	--	\$6,840	--	--	--	--	--
	\$0	\$0	\$0	\$10,500	\$0	\$0	\$220,145	\$0	\$0	\$0	\$0	\$50,343

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS**

	2069	2070	2071	2072	2073	2074	2075	TOTAL COST
Pump Station #3								
Tank Exterior - Coating (polyamide)	--	--	--	--	--	--	--	
Tank Interior - Coating (epoxy)	--	--	--	--	--	--	--	
Tank Seismic Valve Assembly	--	--	--	--	--	--	--	
Electric Motors - 30 HP	--	--	--	--	--	--	--	
Booster Pumps 450 gpm	--	--	--	--	--	--	--	
Shade Structure - Power Cabinet	--	--	--	--	--	--	--	
Shade Structure - Pumps	--	--	--	--	--	--	--	
Motor Control Center	--	--	--	--	--	--	--	
Genset 30 HP (25kW)	--	--	--	--	--	--	--	
Isolation Valves 6"	--	--	--	--	--	--	--	
Telemetry/Communications	--	--	--	--	\$60,000	--	--	
Fencing	--	--	--	--	--	--	--	
Lighting	--	--	--	--	--	--	--	
Gates (Double Leaf)	--	--	--	--	--	--	--	
Site Gravel & Grading	--	--	--	--	--	--	--	
Access Road Grading/ Ditch Clearing	--	--	--	--	--	--	--	
Access Road Culverts	--	--	--	--	\$9,000	--	--	
Access Road 6" CL2 AB	--	--	--	--	--	--	--	
	\$0	\$0	\$0	\$0	\$69,000	\$0	\$0	\$940,150

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS**

	<b>Total Quantity</b>	<b>Unit</b>	<b>Unit Replacement Cost</b>	<b>Year Installed</b>	<b>Current Age (years)</b>	<b>Expected Life Time (years)</b>	<b>Expected Remaining Use (years)</b>	<b>Latest Year to Start CIP</b>	<b>Present Cost Year 2023</b>	<b>Contingency</b>
<b>Pump Station #4</b>										
Tank Exterior - Coating (polyamide)	5,387	SF	\$7.79	2003	20	25	5	2028	\$41,953	20%
Tank Interior - Coating (epoxy)	5,387	SF	\$8.12	2003	20	30	10	2033	\$43,754	20%
Electric Motors - 20 HP	2	EACH	\$4,500	2016	7	20	13	2036	\$9,000	20%
Booster Pumps 250 gpm	2	EACH	\$3,500	2003	20	30	10	2033	\$7,000	20%
5,000 Gallon Pressure Vessel & INST.	5,000	GALLON	\$15	2003	20	40	20	2043	\$75,000	20%
Shade Structure - Power Cabinet	125	SF	\$25	2020	3	20	17	2040	\$3,125	20%
Shade Structure - Pumps	225	SF	\$25	2020	3	20	17	2040	\$5,625	20%
Motor Control Center	1	ALLOWANCE	\$75,000	2003	20	30	10	2033	\$75,000	20%
Genset 20 HP (15kW)	1	EACH	\$25,000	2020	3	30	27	2050	\$25,000	20%
Isolation Valves 6"	6	EACH	\$7,500	2003	20	40	20	2043	\$45,000	20%
Telemetry/Communications	1	ALLOWANCE	\$75,000	2023	0	25	25	2048	\$75,000	20%
Fencing	500	LF	\$25	2003	20	40	20	2043	\$12,500	20%
Lighting	1	ALLOWANCE	\$15,000	2003	20	40	20	2043	\$15,000	20%
Gates (Double Leaf)	1	SET	\$4,000	2003	20	25	5	2028	\$4,000	20%
Site Gravel & Grading	6,000	SF	\$1.25	2003	20	25	5	2028	\$7,500	20%
Access Road Grading (1/2 Distance)	17,400	SF	\$1.25	2003	20	30	10	2033	\$21,750	20%
Access Road Culverts	2	EACH	\$2,500	2003	20	70	50	2073	\$5,000	20%
Access Road Gravel	163	ton	\$80	2003	20	30	10	2033	\$4,078	20%

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

Replacement &  
Contingency  
Cost

2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
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Pump Station #4

Tank Exterior - Coating (polyamide)	\$50,343
Tank Interior - Coating (epoxy)	\$52,505
Electric Motors - 20 HP	\$10,800
Booster Pumps 250 gpm	\$8,400
5,000 Gallon Pressure Vessel & INST.	\$90,000
Shade Structure - Power Cabinet	\$3,750
Shade Structure - Pumps	\$6,750
Motor Control Center	\$90,000
Genset 20 HP (15kW)	\$30,000
Isolation Valves 6"	\$54,000
Telemetry/Communications	\$90,000
Fencing	\$15,000
Lighting	\$18,000
Gates (Double Leaf)	\$4,800
Site Gravel & Grading	\$9,000
Access Road Grading (1/2 Distance)	\$26,100
Access Road Culverts	\$6,000
Access Road Gravel	\$4,894

--	--	--	--	--	\$50,343	--	--	--	--
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\$0	\$0	\$0	\$0	\$0	\$64,143	\$0	\$0	\$0	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
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Pump Station #4

- Tank Exterior - Coating (polyamide)
- Tank Interior - Coating (epoxy)
- Electric Motors - 20 HP
- Booster Pumps 250 gpm
- 5,000 Gallon Pressure Vessel & INST.
- Shade Structure - Power Cabinet
- Shade Structure - Pumps
- Motor Control Center
- Genset 20 HP (15kW)
- Isolation Valves 6"
- Telemetry/Communications
- Fencing
- Lighting
- Gates (Double Leaf)
- Site Gravel & Grading
- Access Road Grading (1/2 Distance)
- Access Road Culverts
- Access Road Gravel

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\$52,505	--	--	--	--	--	--	--	--	--	--	--
--	--	--	\$10,800	--	--	--	--	--	--	--	--
\$8,400	--	--	--	--	--	--	--	--	--	--	--
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--	--	--	--	--	--	--	\$3,750	--	--	--	--
--	--	--	--	--	--	--	\$6,750	--	--	--	--
\$90,000	--	--	--	--	--	--	--	--	--	--	--
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--	--	--	--	--	--	--	--	--	--	\$54,000	--
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\$26,100	--	--	--	--	--	--	--	--	--	--	--
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\$4,894	--	--	--	--	--	--	--	--	--	--	--
\$181,898	\$0	\$0	\$10,800	\$0	\$0	\$0	\$10,500	\$0	\$0	\$177,000	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
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Pump Station #4

- Tank Exterior - Coating (polyamide)
- Tank Interior - Coating (epoxy)
- Electric Motors - 20 HP
- Booster Pumps 250 gpm
- 5,000 Gallon Pressure Vessel & INST.
- Shade Structure - Power Cabinet
- Shade Structure - Pumps
- Motor Control Center
- Genset 20 HP (15kW)
- Isolation Valves 6"
- Telemetry/Communications
- Fencing
- Lighting
- Gates (Double Leaf)
- Site Gravel & Grading
- Access Road Grading (1/2 Distance)
- Access Road Culverts
- Access Road Gravel

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\$0	\$0	\$0	\$140,343	\$0	\$30,000	\$0	\$0	\$13,800	\$0	\$0	\$10,800



**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS**

2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068
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Pump Station #4

- Tank Exterior - Coating (polyamide)
- Tank Interior - Coating (epoxy)
- Electric Motors - 20 HP
- Booster Pumps 250 gpm
- 5,000 Gallon Pressure Vessel & INST.
- Shade Structure - Power Cabinet
- Shade Structure - Pumps
- Motor Control Center
- Genset 20 HP (15kW)
- Isolation Valves 6"
- Telemetry/Communications
- Fencing
- Lighting
- Gates (Double Leaf)
- Site Gravel & Grading
- Access Road Grading (1/2 Distance)
- Access Road Culverts
- Access Road Gravel

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--	--	--	--	--	--	\$52,505	--	--	--	--	--
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--	--	--	--	--	--	\$8,400	--	--	--	--	--
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--	--	--	\$3,750	--	--	--	--	--	--	--	--
--	--	--	\$6,750	--	--	--	--	--	--	--	--
--	--	--	--	--	--	\$90,000	--	--	--	--	--
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--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	\$4,894	--	--	--	--	--
\$0	\$0	\$0	\$10,500	\$0	\$0	\$181,898	\$0	\$0	\$0	\$0	\$50,343

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

	2069	2070	2071	2072	2073	2074	2075	TOTAL COST
Pump Station #4								TOTAL COST
Tank Exterior - Coating (polyamide)	--	--	--	--	--	--	--	
Tank Interior - Coating (epoxy)	--	--	--	--	--	--	--	
Electric Motors - 20 HP	--	--	--	--	--	--	--	
Booster Pumps 250 gpm	--	--	--	--	--	--	--	
5,000 Gallon Pressure Vessel & INST.	--	--	--	--	--	--	--	
Shade Structure - Power Cabinet	--	--	--	--	--	--	--	
Shade Structure - Pumps	--	--	--	--	--	--	--	
Motor Control Center	--	--	--	--	--	--	--	
Genset 20 HP (15kW)	--	--	--	--	--	--	--	
Isolation Valves 6"	--	--	--	--	--	--	--	
Telemetry/Communications	--	--	--	--	\$90,000	--	--	
Fencing	--	--	--	--	--	--	--	
Lighting	--	--	--	--	--	--	--	
Gates (Double Leaf)	--	--	--	--	--	--	--	
Site Gravel & Grading	--	--	--	--	--	--	--	
Access Road Grading (1/2 Distance)	--	--	--	--	--	--	--	
Access Road Culverts	--	--	--	--	\$6,000	--	--	
Access Road Gravel	--	--	--	--	--	--	--	
	\$0	\$0	\$0	\$0	\$96,000	\$0	\$0	\$978,027

**RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS**

	<b>Total Quantity</b>	<b>Unit</b>	<b>Unit Replacement Cost</b>	<b>Year Installed</b>	<b>Current Age (years)</b>	<b>Expected Life Time (years)</b>	<b>Expected Remaining Use (years)</b>	<b>Latest Year to Start CIP</b>	<b>Present Cost Year 2023</b>	<b>Contingency</b>
<b>Pump Station #5 (PROPOSED)</b>										
Booster Pumps & Motor 5 PH	1	EACH	\$4,000	2023	0	30	30	2053	\$4,000	20%
34 Gallon Hydropneumatic	1	EACH	\$1,500	2023	0	40	40	2063	\$1,500	20%
Shade Structure - Power Cabinet	160	SF	\$25	2023	0	20	20	2043	\$4,000	20%
Shade Structure - Pumps	100	SF	\$25	2023	0	20	20	2043	\$2,500	20%
Motor Control Center	1	ALLOWANCE	\$35,000	2023	0	30	30	2053	\$35,000	20%
Genset 5 HP (5kW)	1	EACH	\$15,000	2023	0	30	30	2053	\$15,000	20%
Telemetry/Communications	1	ALLOWANCE	\$4,500	2023	0	25	25	2048	\$4,500	20%
Fencing	60	LF	\$25	2023	0	40	40	2063	\$1,500	20%
Lighting	1	ALLOWANCE	\$7,500	2023	0	40	40	2063	\$7,500	20%
Gates (pedestrian)	2	EACH	\$250	2023	0	25	25	2048	\$500	20%
Site Gravel & Grading	225	SF	\$1.25	2023	0	25	25	2048	\$281	20%
Access Road Gravel	1	ton	\$80	2023	0	30	30	2053	\$19	20%

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

Replacement & Contingency Cost	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
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Pump Station #5 (PROPOSED)

Booster Pumps & Motor 5 PH	\$4,800	--	--	--	--	--	--	--	--	--
34 Gallon Hydropneumatic	\$1,800	--	--	--	--	--	--	--	--	--
Shade Structure - Power Cabinet	\$4,800	--	--	--	--	--	--	--	--	--
Shade Structure - Pumps	\$3,000	--	--	--	--	--	--	--	--	--
Motor Control Center	\$42,000	--	--	--	--	--	--	--	--	--
Genset 5 HP (5kW)	\$18,000	--	--	--	--	--	--	--	--	--
Telemetry/Communications	\$5,400	--	--	--	--	--	--	--	--	--
Fencing	\$1,800	--	--	--	--	--	--	--	--	--
Lighting	\$9,000	--	--	--	--	--	--	--	--	--
Gates (pedestrian)	\$600	--	--	--	--	--	--	--	--	--
Site Gravel & Grading	\$338	--	--	--	--	--	--	--	--	--
Access Road Gravel	\$23	--	--	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
 ENGINEER'S OPINION OF PROBABLE COST  
 PUMP STATION REPLACEMENT COSTS

2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
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Pump Station #5 (PROPOSED)

- Booster Pumps & Motor 5 PH
- 34 Gallon Hydropneumatic
- Shade Structure - Power Cabinet
- Shade Structure - Pumps
- Motor Control Center
- Genset 5 HP (5kW)
- Telemetry/Communications
- Fencing
- Lighting
- Gates (pedestrian)
- Site Gravel & Grading
- Access Road Gravel

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\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,800	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
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Pump Station #5 (PROPOSED)

- Booster Pumps & Motor 5 PH
- 34 Gallon Hydropneumatic
- Shade Structure - Power Cabinet
- Shade Structure - Pumps
- Motor Control Center
- Genset 5 HP (5kW)
- Telemetry/Communications
- Fencing
- Lighting
- Gates (pedestrian)
- Site Gravel & Grading
- Access Road Gravel

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--	--	--	--	--	--	--	--	\$42,000	--	--	--
--	--	--	--	--	--	--	--	\$18,000	--	--	--
--	--	--	\$5,400	--	--	--	--	--	--	--	--
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--	--	--	\$600	--	--	--	--	--	--	--	--
--	--	--	\$338	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	\$23	--	--	--
\$0	\$0	\$0	\$6,338	\$0	\$0	\$0	\$0	\$64,823	\$0	\$0	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
ENGINEER'S OPINION OF PROBABLE COST  
PUMP STATION REPLACEMENT COSTS

2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068
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Pump Station #5 (PROPOSED)

- Booster Pumps & Motor 5 PH
- 34 Gallon Hydropneumatic
- Shade Structure - Power Cabinet
- Shade Structure - Pumps
- Motor Control Center
- Genset 5 HP (5kW)
- Telemetry/Communications
- Fencing
- Lighting
- Gates (pedestrian)
- Site Gravel & Grading
- Access Road Gravel

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\$0	\$0	\$0	\$0	\$0	\$0	\$12,600	\$0	\$0	\$0	\$0	\$0

RURAL NORTH VACAVILLE WATER DISTRICT  
 ENGINEER'S OPINION OF PROBABLE COST  
 PUMP STATION REPLACEMENT COSTS

2069	2070	2071	2072	2073	2074	2075	TOTAL COST
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Pump Station #5 (PROPOSED)

TOTAL COST

Booster Pumps & Motor 5 PH	--	--	--	--	--	--	--
34 Gallon Hydropneumatic	--	--	--	--	--	--	--
Shade Structure - Power Cabinet	--	--	--	--	--	--	--
Shade Structure - Pumps	--	--	--	--	--	--	--
Motor Control Center	--	--	--	--	--	--	--
Genset 5 HP (5kW)	--	--	--	--	--	--	--
Telemetry/Communications	--	--	--	--	--	--	--
Fencing	--	--	--	--	--	--	--
Lighting	--	--	--	--	--	--	--
Gates (pedestrian)	--	--	--	--	--	--	--
Site Gravel & Grading	--	--	--	--	--	--	--
Access Road Gravel	--	--	--	--	--	--	--
	\$0	\$0	\$0	\$0	\$0	\$0	\$0

\$91,560