

Mail to: SD DANR, Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>2900-2</u> Hydrologic Unit <u>10126110</u>
	Basin <u>Cheyenne</u>
	Newspaper <u>Rapid City Journal</u>
	(office use only)

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NOV 10 2025
Water Rights Program

Application for Permit to Appropriate Water in South Dakota

Check use(s) of water:

<input checked="" type="checkbox"/> Municipal	<input type="checkbox"/> Water Distribution System	<input type="checkbox"/> Recreational	<input type="checkbox"/> Institutional
<input type="checkbox"/> Rural Water System	<input type="checkbox"/> Commercial	<input type="checkbox"/> Fish & Wildlife	<input type="checkbox"/> Geothermal
<input type="checkbox"/> Domestic (over 18 gpm)	<input type="checkbox"/> Industrial	<input type="checkbox"/> Other _____	

Type of Application:
(check one)

<input type="checkbox"/> New	<input type="checkbox"/> Vested Right (Use predates Mar 2, 1955)	<input checked="" type="checkbox"/> Future Use Reservation
<input type="checkbox"/> Place to Beneficial Use Water Reserved by Future Use Permit No. _____		
<input type="checkbox"/> Amendment/Correction to Permit No. _____		

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)
Future use reservation for future Madison Aquifer well on RVSD owned property south of Rapid Creek and Redwing Lane. The RVSD customer base is growing quickly and a well is needed in the future. See attached.

1. Name to Appear on Water Permit Rapid Valley Sanitary District - Water Service

Mailing Address 4611 Teak Drive Rapid City SD 57703
(Address) (City) (State) (Zip Code)

Phone 605-393-1050 Mobile 605-381-2904 Email rschmidt@rvsd.com

2. Amount of water claimed _____ *CFS or 1,000 **GPM and 932 ***AF or _____ Gallons
Flow rate and volume are both required. (*Cubic Feet per Second) (**Gallons per Minute) (**Acre Feet - storage capacity of dam/dugout or annual use)

3. Source of water supply Madison Aquifer (NE 1/4 NW 1/4)

4. Location of point of diversion Lot 3R1 Revised, Houks Sub, Section 15, T1N, R8E County Pennington County
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

If not a public water supply (e.g. municipal), will water be used outside of the area described above? Yes No

If "Yes," where will water be used? _____
(example - NW1/4 section 12-T104N-R53W)

5. County or counties where water will be used Pennington

6. Annual period during which water is to be used January 1 to December 31

7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

This is a future well to serve future water demands for the RVSD. The area is growing and the District intends to secure water rights for a future well on property they own to treat and distribute to customers of the RVSD.

The nearest Madison Aquifer Well is owned by the City of Box Elder approximately 3.2 miles of this

I, Rusty Schmidt General Manager, the applicant, certify under
Name of Person Title (if applicable)

penalty of perjury that I have read this application, examined the attached map, and that the matters stated are true. I further certify, if acting on behalf of an entity or individual other than myself, that I am authorized to submit this application.

2021-08 Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Also, attach map and any other technical information. (see instructions)

44. 04950/-103.14459 SE RC

Supplemental Information

(type or print)

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- 1. Well Information** (check one or both as applicable) Drilling new well(s) Using existing well(s)
- a) If new wells, how many 1 Have test holes been drilled? Yes No Drilled by _____
(if yes, please provide copies of logs)
- b) If existing wells, how many _____ Provide copy of log(s), if available. Drilled by _____

For either existing or proposed wells:

- c) Well Depth (required) 4,400' Depth to Top of Water Bearing Material 3900 Depth to Water from Surface 500'
- d) Distance to nearest domestic well on applicant's property 2,300' Property owned by others 3.2 miles

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) Treatment Plant
- b) System Capacity (gallons) 30 MGD Year Constructed 1970-2025
- c) Connected to the City of Rapid City Sanitary System

3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:

b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Primary Outlet Capacity _____

If pipe, diameter _____

f) Secondary Spillway Capacity _____

Spillway Width _____

g) X & Y Slope (e.g. 3 to 1 is a typical slope)

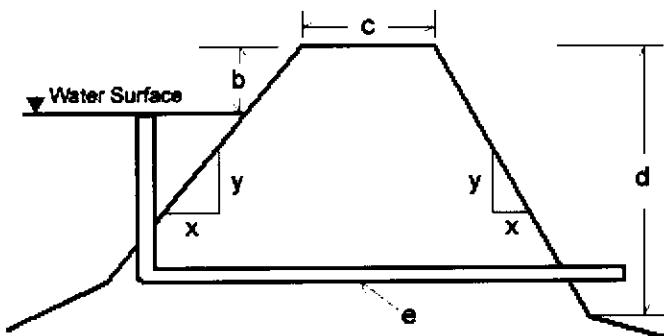
Upstream _____

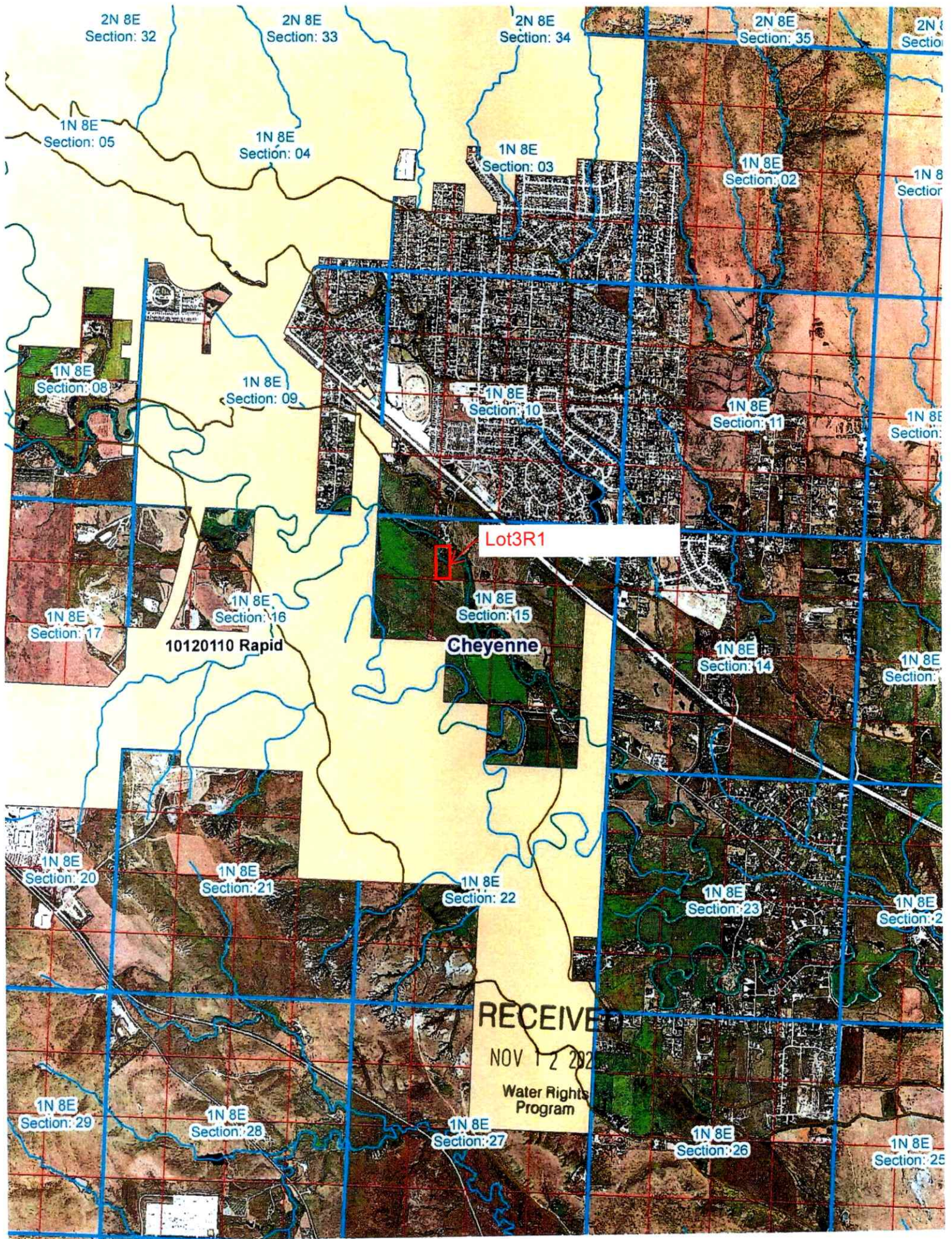
Downstream _____

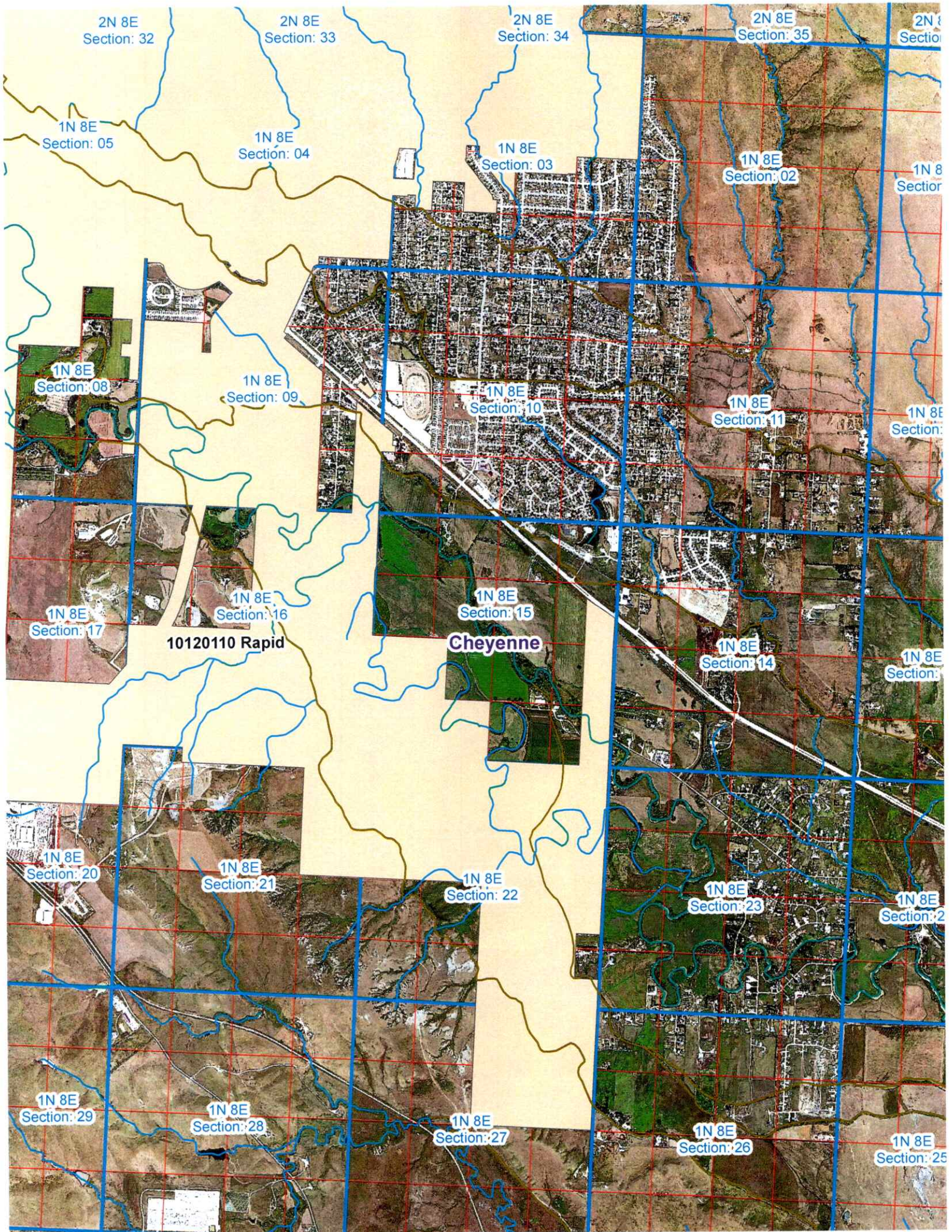
h) Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres







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November 10, 2025

SDDANR
Water Rights Program
DANRmail@state.sd.us
523 E. Capitol Avenue
Pierre, SD 57501
Sent via email

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**Future Use Reservation Application for Permit to Appropriate Water in South Dakota
Water Distribution - Non-Irrigation Use Request for Future Madison Well No. 2
Rapid Valley Sanitary District – Water Service (RVSD)**

Supporting Information

On behalf of the RVSD, Foth is submitting supporting information in addition to the online application submitted to SDDANR. The Future Use Permit Application is being submitted due to the growth and anticipated expansion of the water system for the entire Rapid Valley area including an existing bulk meter connection to the City of Box Elder.

RVSD was formed in the 1960's to serve a growing need and customers in the Rapid Valley area east of Rapid City. Rapid Valley later became a relocation area for those displaced by the 1972 Rapid City Flood and desirable location to live in the Rapid City area. The RVSD population and water demand have steadily grown and RVSD has continued to expand and make upgrades to their water supply, storage and distribution system. The District originally operated a small surface water treatment on Rapid Creek from the 1970's to early 2000's. As growth occurred the old treatment plant on Valley Drive could not provide adequate supply and the District became reliant on the City of Rapid City to provide water supply until a new water source could be developed.

RVSD has worked to secure available additional water rights on Rapid Creek from 2005 to 2025, but there are limited water rights available and many of these water rights are low in priority. The current surface water rights that RVSD owns will not provide adequate water supply to operate future water demands during dry years and reduced releases from Pactola. In 2007, RVSD secured funding to construct a new water treatment plant, storage, and distribution improvements to serve the growing demands and to allow RVSD to provide a stable and reliable water supply for the entire Rapid Valley area. The water treatment plant construction allowed the District to meet 100% of their water demands and growth continued to occur in the District. RVSD also added the Green Valley Sanitary District as a bulk water customer following completion of the treatment plant which has provided safe drinking water to customers without another alternative.

RVSD has continued to make improvements to the water treatment plant and from 2017 to 2025 as the original polymeric microfiltration filters reached the end of their expected useful life. The District has replaced the original filters with ceramic ultrafiltration filters which increased their treatment capacity. The District also recently made major improvements to their system and in 2025 completed a new 2.0 MG storage facility, bulk metering facility, and distribution improvements to serve the City of Box Elder.

RVSD is currently constructing a new Madison Aquifer well and well house to provide additional supply to the District and planned growth areas which will be operational in 2026. This Well No. 1 will provide approximately 1,000 gpm in water supply capacity.

The District is proactively planning for the future and has become an active participant in regionalization of water systems in western South Dakota. The District has made water demand projections and have determined that a second new well will be necessary in about 10 to 15 years and if surface water right availability is reduced by 25% due to drought or other extreme conditions in Rapid Creek that a new well could be needed in as little as 5 to 10 years. The District has secured land for a new well site south of Rapid Creek and Redwing Lane which aligns with RVSD owned properties and water distribution facilities in the area.

The Future Well No. 2 is anticipated to produce approximately 1,000 gpm and deliver 932 acre-ft annually to customers in the District within 5 to 15 years based on growth and water availability in Rapid Creek. The attached table identifies the anticipated treatment plant capacity at 75% and 100% of water production availability and identifies that with the anticipated water demands the District will need to begin planning and engineering design for this well in the next 2 to 5 years. The following summary lists the potential timeline of a new well project:

Future Well No. 2 Tentative Schedule:

Future Water Right Reservation:	2026
Facility Plan for the Project:	2027
New Water Right Application:	2027-2028
Secure Funding for the Project:	2028
Engineering Design & Permits:	2028-2030
Bidding & Contract Award:	2029-2031
Complete Well Drilling:	2030-2032
Construct Well House:	2031-2033
Operational Startup:	2032-2034

This future well and water right allocation is critical to the stability and reliability within the RVSD water system and is essential to provide safe drinking water to customers served by the District.

The nearest Madison Aquifer well is the RVSD Well No. 1 approximately 2,300 feet north of the proposed Well No. 2 site. The next closest Madison Aquifer well is approximately 3.2 miles north in the City of Box Elder. Foth does not anticipate any adverse effects on Well No. 1 or other Madison Wells in the vicinity.

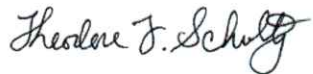
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On behalf of RVSD, please find this summary report and application that was submitted online for the Future Use Reservation Application for Well No. 2. Please contact me with any questions.

Sincerely,
Foth Infrastructure & Environment, LLC



Ted Schultz, P.E.
Senior Project Manager

ATTACHMENTS:

FUTURE USE RESERVATION APPLICATION (SUBMITTED ONLINE)
FUTURE WELL NO. 2 VICINITY MAP
WATER DEMAND FORECASTS
POPULATION GROWTH ESTIMATES
WELL NO. 2 WATER PRODUCTION ESTIMATES

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Rapid Valley Sanitary District - Drinking Water Projections

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Future Water Demands and Population Forecasts (Estimated)

		gpcpd	gpcpd	Well 1 (2848-2,2894-2)	Water treatment plant		Future Water Needs Program	
		100	260	Peak Day Production of 1000 gpm @ 13.7 Hours, 917AF annually	Treatment Plant 100% AF available 2181.8 (April-October ~213 days)	Treatment Plant 75% AF available 1636.3 (April-October ~213 days)	Future Water Supply Needed for peak day if 100% surface rights are available Start Well 2	Future Water Supply Needed for peak day if 75% surface rights are available Start Well 2
Population		(GPD)	(GPD)	(GPD)	(GPD)	(GPD)	(GPM)	(GPM)
Year	2.98%	Average Day	*Peak Day	Daily Total	Daily Total	Daily Total		
2025	13,018	1,301,800	3,384,680		3,337,527	2,503,145		612
2026	13,406	1,340,594	3,485,543	822,000	3,337,527	2,503,145		111
2027	13,805	1,380,543	3,589,413	822,000	3,337,527	2,503,145		184
2028	14,217	1,421,684	3,696,377	822,000	3,337,527	2,503,145		258
2029	14,640	1,464,050	3,806,529	822,000	3,337,527	2,503,145		334
2030	15,077	1,507,678	3,919,964	822,000	3,337,527	2,503,145		413
2031	15,526	1,552,607	4,036,779	822,000	3,337,527	2,503,145		494
2032	15,989	1,598,875	4,157,075	822,000	3,337,527	2,503,145		578
2033	16,465	1,646,521	4,280,956	822,000	3,337,527	2,503,145		664
2034	16,956	1,695,588	4,408,528	822,000	3,337,527	2,503,145		752
2035	17,461	1,746,116	4,539,902	822,000	3,337,527	2,503,145	264	844
2036	17,982	1,798,150	4,675,191	822,000	3,337,527	2,503,145	358	938
2037	18,517	1,851,735	4,814,512	822,000	3,337,527	2,503,145	455	1,034
2038	19,069	1,906,917	4,957,984	822,000	3,337,527	2,503,145	554	1,134
2039	19,637	1,963,743	5,105,732	822,000	3,337,527	2,503,145	657	1,237
2040	20,223	2,022,263	5,257,883	822,000	3,337,527	2,503,145	763	1,342
2041	20,825	2,082,526	5,414,568	822,000	3,337,527	2,503,145	872	1,451
2042	21,446	2,144,585	5,575,922	822,000	3,337,527	2,503,145	984	1,563
2043	22,085	2,208,494	5,742,085	822,000	3,337,527	2,503,145	1,099	1,678
2044	22,743	2,274,307	5,913,199	822,000	3,337,527	2,503,145	1,218	1,797
2045	23,421	2,342,082	6,089,412	822,000	3,337,527	2,503,145	1,340	1,920
2046	24,119	2,411,876	6,270,877	822,000	3,337,527	2,503,145	1,466	2,046
2047	24,837	2,483,749	6,457,749	822,000	3,337,527	2,503,145	1,596	2,175
2048	25,578	2,557,765	6,650,190	822,000	3,337,527	2,503,145	1,730	2,309
2049	26,340	2,633,987	6,848,365	822,000	3,337,527	2,503,145	1,867	2,447
2050	27,125	2,712,479	7,052,447	822,000	3,337,527	2,503,145	2,009	2,588
2051	27,933	2,793,311	7,262,609	822,000	3,337,527	2,503,145	2,155	2,734
2052	28,766	2,876,552	7,479,035	822,000	3,337,527	2,503,145	2,305	2,885
2053	29,623	2,962,273	7,701,910	822,000	3,337,527	2,503,145	2,460	3,039
2054	30,505	3,050,549	7,931,427	822,000	3,337,527	2,503,145	2,619	3,199
Future	31,415	3,141,455	8,167,784	822,000	3,337,527	2,503,145	2,784	3,363
Future	32,351	3,235,071	8,411,184	822,000	3,337,527	2,503,145	2,953	3,532
Future	33,315	3,331,476	8,661,837	822,000	3,337,527	2,503,145	3,127	3,706
Future	34,308	3,430,754	8,919,960	822,000	3,337,527	2,503,145	3,306	3,885
Future	35,330	3,532,990	9,185,775	822,000	3,337,527	2,503,145	3,490	4,070
Future	36,383	3,638,273	9,459,511	822,000	3,337,527	2,503,145	3,681	4,260
Future	37,467	3,746,694	9,741,404	822,000	3,337,527	2,503,145	3,876	4,456
Future	38,583	3,858,345	10,031,698	822,000	3,337,527	2,503,145	4,078	4,657
Future	39,733	3,973,324	10,330,643	822,000	3,337,527	2,503,145	4,285	4,865
Future	40,917	4,091,729	10,638,496	822,000	3,337,527	2,503,145	4,499	5,079
Future	24,000	2,400,000	6,240,000	822,000	3,337,527	2,503,145	1,445	2,024
Future	28,000	2,800,000	7,280,000	822,000	3,337,527	2,503,145	2,167	2,746
Future	32,000	3,200,000	8,320,000	822,000	3,337,527	2,503,145	2,889	3,469
Future	36,000	3,600,000	9,360,000	822,000	3,337,527	2,503,145	3,611	4,191
Future	40,000	4,000,000	10,400,000	822,000	3,337,527	2,503,145	4,334	4,913

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Data from 2020 Census and Historical Data

1. Pennington County population census growth from 2010-2020: 12.7% (1.27%/year)
2. Rapid City population census growth from 2010-2020: 12.3% (1.23%/year)
3. Rapid Valley Sanitary District growth from 2020-2025: 14.9% (2.98%/year)
4. Rapid Valley Sanitary District growth from 2010-2025ytd:34.5% (2.30%/year) actual
5. Box Elder population census growth from 2010-2020: 28.8% (2.88%/year)
6. Estimated Rapid Valley population in 2020: 9500
7. Persons per household in Pennington County: 2.42
8. Persons per household in Rapid Valley: 2.81.
9. Historical population growth from 1960 to 2010 = 1.5%

Peaking Factor 2.6 (Ave x Peak Day)

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