Drinking Water Facilities Funding Applications
June 2015

June 25, 2015
Item 18

TITLE: Drinking Water Facilities Funding Applications

EXPLANATION: The following applications have been received by DENR for funding consideration at this meeting. The projects' priority points are shown in parentheses.

a. Edgemont (270)
b. TC&G Water Association, Inc. (98)
c. Florence (53)
d. Conde (42)
e. Emery (38)

COMPLETE APPLICATIONS: The application cover sheets and WRAP summary sheets with financial analysis have been provided as part of the board packet. The complete applications are available online and can be accessed by typing the following address in your internet browser:

http://denr.sd.gov/bwnrapps/BWNRappsdwf0615.pdf

If you would like a hard copy of the applications, please contact Dave Ruhnke at (605) 773-4216.

WRAP Review Sheet
Drinking Water Facilities Funding Application
Applicant: City of Edgemont

Project Title:	Water System Improvements Project
Funding Requested:	$3,890,000
Other Proposed Funding:	None
Total Project Cost:	$3,890,000
Project Description:	This is a comprehensive project to address the city's water source, treatment, distribution and storage systems. The work includes the installation of well casing liner pipe in two existing city wells, construction of well by-pass piping, pit-less adaptors and submersible well pumps for the wells. A water treatment facility with the capabilities to cool the water, reduce radiological contaminants, provide chlorine disinfection, and scaling remediation will be constructed. This project also includes the construction of a 250,000-gallon elevated storage tank, demolition of the existing ground storage tanks and steel standpipe, and the installation of approximately 3,500 feet of new PVC water main to connect to the distribution system.
Alternatives Evaluated:	No Action Alternative: Was evaluated for source, storage, treatment and distribution. This alternative was rejected due to the problems associated with aging infrastructure. Water Source: Three additional water source alternatives were evaluated. These included drilling a new well in the Madison formation and developing a regionalization agreement with Southern Black Hills Water System to construct one or more Madison wells northeast of the city with a pipeline serving Edgemont as a bulk water customer of Southern Black Hills Water System. Rehabilitation of the existing Madison wells is the chosen alternative due to its lower project cost. Water Treatment: Four alternatives were reviewed as Best Available Technologies for radiological contaminant reduction. These were reverse osmosis, ion exchange, lime softening, and adsorptive media filtration (WRT). The recommended alternatives include the WRT adsorptive media system for reduction of radiological contaminants. This project will also use a forced draft closed-loop heat exchanger for temperature reduction, chemical feed of liquid

polyphosphate for hardness mitigation, and liquid sodium hypochlorite feed for disinfection and maintaining disinfection residual in the distribution system.

Water Storage: Two additional water storage alternatives were evaluated. These included a 250,000-gallon elevated storage tank at the existing location and 250,000-gallon ground level cylindrical tank ¾ mile west of the existing tank. The elevated storage tank is the chosen alternative due to its lower project cost and close proximity to the treatment building.

Water Distribution: A small portion of the overall project identifies the need to replace and upsize lines in support of the water storage tank improvements. The distribution project includes removing the existing 10-inch asbestos concrete main from service and installing 2,600 feet of 10-inch PVC and 800 feet of 8-inch PVC to upsize the transmission line and eliminate asbestos concrete pipe under the railroad.

Implementation Schedule: The city of Edgemont anticipates bidding the project in March 2016 with a project completion date of July 2018.

Service Population: 774

Current Domestic Rate: $35.45 per 5,000 gallons/usage

Interest Rate: 0% Term: 30 years Security: Water Surcharge

DEBT SERVICE CAPACITY

Coverage at Maximum Loan Amount:	If all funding is provided as loan Edgemont would have to enact a surcharge of approximately $30. In addition Edgemont's current rate of $35.45 will need a $5 increase to cover the increase in O&M as a result of this project. When the surcharge is added to required base rate of $40.50/5,000 gallons residents would be paying a rate of $70.50/5,000 gallons.

25% Funding Subsidy:	$972,500 subsidy with a loan of $2,917,500.
Coverage at 25% Subsidy:	Based on a 25% subsidy and a loan of $2,917,500 Edgemont would have to enact a surcharge of approximately $22.25. When the surcharge is added to increased base rate of $40.50/5,000 gallons residents would be paying a rate of $62.75/5,000 gallons.

50% Funding Subsidy:	$1,945,500 subsidy with a loan of $1,945,000.
Coverage at 50% Subsidy:	Based on a 50% subsidy and a loan of $1,945,000 Edgemont would have to enact a surcharge of approximately $14.85. When the surcharge is added to increased base rate of $40.50/5,000 gallons residents would be paying a rate of $55.35/5,000 gallons.

75% Funding Subsidy:	$2,917,500 subsidy with a loan of $972,500.
Coverage at 75% Subsidy:	Based on a 75% subsidy and a loan of $972,500 Edgemont would have to enact a surcharge of approximately $7.45. When the surcharge is added to increased base rate of $40.50/5,000 gallons residents would be paying a rate of $47.95/5,000 gallons.

ENGINEERING REVIEW COMPLETED BY: CLAIRE PESCHONG

FINANCIAL REVIEW COMPLETED BY: DAVID RUHNKE

Drinking Water Facilities Funding Application

Consolidated Water Facilities Construction Program (CWFCP)
Drinking Water State Revolving Fund Program (DWSRF)

Applicant	Proposed Funding Package	
City of Edgemont, SD	CWFCP / DWSRF	$3,890,000
Address	Local Cash	
PO Box A Edgemont, SD 57735-0809	Other	
	Other	
Subapplicant	Other	
DUNS Number 830590837	**TOTAL**	$3,890,000

Project Title: Edgemont Water System Improvements Project

Description:

The City of Edgemont, population 774, is proposing several major improvements to its existing water system:

- Installation of well casing liner pipe in two existing City wells;
- Construction of well by-pass piping, pitless adaptors & submersible well pumps for these same two wells;
- Construction of a water treatment facility with the capabilities to cool the water, reduce radiological contaminants, chlorine disinfection, and anti-scaling remediation of hard water;
- Construction of a 250,000 gallon elevated storage tank and demolition of existing substandard ground storage tanks and steel standpipe reservoir;
- Installation of new water main to connect the new storage tank to the existing distribution system;
- Other project components identified in the attached engineering facilities plan;
- Other work related to the above improvements as well as necessary engineering, project administration, etc.

Specific details on the above improvements are found in the attached "Executive Summary" and maps or the full facilities plan. Depending upon funding availability, the final project scope may be reduced from that described above. Project need is generally related to system age and condition and specifically related to: supply reliability, water temperature, compliance with State Water Quality Standards, potential sources of bacterial contamination, and inadequate water pressure. The proposed project will remedy these issues.

The Applicant Certifies That:

I declare and affirm under the penalties of perjury that this application has been examined by me and, to the best of my knowledge and belief, is in all things true and correct.

Carl Shaw, Mayor — Carl A Shaw — 3-17-15

Name & Title of Authorized Signatory (Typed) — Signature — Date

Professional Consultants

Application Prepared By: Black Hills Council of Local Governments

Contact Person: William Lass, Senior Planner

Mailing Address: 730 E. Watertown St., Suite 102

City, State, and Zip: Rapid City, SD 57701

Telephone Number: 605-394-2681 Fax: 605-394-6140

Email address: wlass@tie.net

Consulting Engineering Firm: Advanced Engineering & Environmental Services Inc. (AE2S)

Contact Person: Ted Schultz, P.E.

Mailing Address: 1560 Concourse Dr.

City, State, and Zip: Rapid City, SD 57703-4732

Telephone Number: 605-341-7800 Fax: 605-341-7886

Email address: Ted.Schultz@AE2S.com

Legal Counsel's Firm: Farrell Farrell & Ginsbach

Legal Counsel: James Sword

Mailing Address: 441 N. River St.

City, State, and Zip: Hot Springs, SD 57747

Telephone Number: 605-745-5161 Fax: 605-745-3154

Email address: james.sword@gwtc.net

This section applies only to political subdivisions

Bond Counsel's Firm: Meierhenry Sargent LLP

Bond Counsel: Todd Meierhenry

Mailing Address: 315 S. Phillips Ave.

City, State, and Zip: Sioux Falls, SD 57103

Telephone Number: 605-336-3075 Fax: 605-336-2593

Email address: todd@meierhenrylaw.com

BUDGET SHEET

Cost Classification	A CWFCP / DWSRF	B	C	D	E	Total Funds
1. Administrative Expenses						
A. Personal Services						
B. Travel						
C. Legal including Bond Counsel	$10,000.00					$10,000.00
D. Other						
2. Land, Structure, Right-of-Way						
3. Engineering						
A. Bidding and Design Fees	$253,000.00					$253,000.00
B. Project Inspection Fees	$253,000.00					$253,000.00
C. Other						
4. Construction and Project Improvement	$3,374,000.00					$3,374,000.00
5. Equipment						
6. Contractual Services						
7. Other						
8. Other						
9. Subtotal (Lines 1-8)	$3,890,000.00					$3,890,000.00
10. Contingencies						
11. Total (Lines 9 and 10)	$3,890,000.00					$3,890,000.00
12. Total %	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%

Columns A - E: Identify each funding source and enter the amounts budgeted by cost category.

Comments:

Method of Financing

Source Header	Secured Funds	Unsecured Funds (Date Anticipated)
Local Cash (Identify Source)		
Other (Explain) DENR (SRF and/or CWFCP)		$3,890,000.00 June, 2015
Other (Explain)		
Other (Explain)		
Other (Explain)		
Other (Explain)		
TOTAL		$3,890,000.00

Comments:

7.3.1 Repayment Information

Interest rate and term you are applying for: 0 %, 30 years.

What security is being pledged toward the repayment of this loan?
(Political Subdivisions Only)

- ☐ 1. General Obligation bond (requires bond election)
- ☐ 2. Water Revenue bond
- ☒ 3. Project Surcharge Revenue bond
- ☐ 4. Sales Tax Revenue bond

7.3.2 Documents That Must Be Submitted With The Application

Financial Documents

1. Most recent audit or unaudited financial statement to include specific accounting of pledged funds.
2. Current year's budget.

Planning and Legal Documents

1. Governing user charge ordinance or resolution and its effective date.
2. Resolution of authorized signatory for submission of the Drinking Water SRF application and signing of payment requests. This resolution must also include the maximum loan amount requested, interest rate and term being applied for, description of proposed project, and security pledged towards repayment of the loan.
3. Facilities Plan (8.3.18).
4. Capacity Assessment Worksheets (section 8.3.16).

Items 5-7 apply to Nonprofit Entities only

5. By-laws
6. Articles of Incorporation
7. Certificate of Good Standing from Secretary of State

7.3.3 General Information

The month and day your fiscal year begins: January 1

Population Served

Current 774 2000 859 1990 901

Top Five Employers Within 30 Miles	Number of Employees	Type of Business
BNSF Railroad	130	Railroad
Edgemont School District	30	School
PJ's Hi-D-Way	20	Convenience Store
Fresh Start	20	Convenience Store
Barker's Concrete/Rancher's Feed	10	Construction/Feed Store

Please indicate employers within boundary of issuing entity with an asterisk (*).

7.3.4 Drinking Water Utility Information

Current Water Utility Debt

Year	No Water Debt					
Purpose						
Security Pledged						
Amount						
Maturity Date (mo/yr)						
Debt Holder						
Debt Coverage Requirement						
Avg. Annual Required Payment						
Outstanding Balance						

Use additional sheets if more room is required to list all current water utility debt.

Drinking Water Utility Cash Flow

	Prior Year	Prior Year	Current Year	Future Year #
Fiscal Year	2013	2014	2015	2016 (not fut. yr.)
OPERATING CASH FLOW				
Water Sales	$157,336	$147,170.00	$147,200.00	$147,200.00
Surcharge Fee				
Other (Explain) -Connection Fees	$1,941	$1,770.00	$1,800.00	$1,800.00
- Replacement & Reserve Fee Revenue	$60,084	$53,414.00	$55,000.00	$55,000.00
OPERATING PAYMENTS				
Personal Services	($41,972)	($32,295.00)	($33,400.00)	($34,000.00)
Chemical, Material & Supplies	($51,284)	($26,134.00)	($32,300.00)	($32,300.00)
Electric & Other Utilities	($5,848)	($8,420.00)	($8,600.00)	($8,600.00)
Other (Explain) contracts, equip., transp.,	($30,950)	($46,724.00)	($46,700.00)	($46,800.00)
labs, insurance, regulatory, misc.				
NET CASH FROM OPERATIONS	$89,307	$88,781.00	$83,000.00	$82,300.00
NONOPERATING CASH FLOW				
Interest Income	$548.00	$753.00	$750.00	$750.00
Other Revenue (Explain)				
late fees	$9,435.00	$14,667.00	$10,000.00	$10,000.00
Transfers In (Explain)				
Fixed Asset Sale (Explain)				
Transfers Out (Explain)				
Transfer to General Fund	($231,330.00)	($8,500.00)		
Fixed Asset Purchases (Explain)				
Debt Payment (Principal Only)				
Debt Payment (Interest Only)				
Other Expenses (Explain)				
Water Infrastructure Replacement	($24,870.00)	($51,512.00)	($50,000.00)	($50,000.00)
NET CASH FROM NONOPERATING	($246,217)	($44,592.00)	($39,250.00)	($39,250.00)
Net Increase (Decrease) in Cash	($156,910)	$44,189.00	$43,750.00	$43,050.00
Beginning Cash Balance	$236,709	$79,799.00	$123,988.00	$167,738.00
Ending Cash Balance	$79,799	$123,988.00	$167,738.00	$210,788.00
RESTRICTED BALANCE	$22,871	$25,876.00	$73,996.00	$122,116.00
UNRESTRICTED BALANCE	$56,928	$98,112.00	$93,742.00	$88,672.00

Future Year: First full year after project completion.

Revised 5/1/15

Drinking Water Utility Cash Flow

	Prior Year	Prior Year	Current Year	Future Year #
Fiscal Year			Future Yr. 2017	Future Yr. 2018
OPERATING CASH FLOW				
Water Sales			$147,200.00	$147,200.00
Surcharge Fee				
Other (Explain) - Connection Fees			$1,800.00	$1,800.00
- Replacement & Reserve Fee Revenue			$55,000.00	$55,000.00
OPERATING PAYMENTS				
Personal Services			($34,600.00)	($35,300.00)
Chemical, Material & Supplies			($32,400.00)	($32,400.00)
Electric & Other Utilities			($8,800.00)	($8,800.00)
Other (Explain) contract,equip,transp,lab..			($47,000.00)	($47,200.00)
...insrnc,regulatory,misc. (This line:New O&M)			($70,255.00)	($70,255.00)
NET CASH FROM OPERATIONS			$10,945.00	$10,045.00
NONOPERATING CASH FLOW				
Interest Income			$750.00	$750.00
Other Revenue (Explain)				
late fees			$10,000.00	$10,000.00
Transfers In (Explain)				
Fixed Asset Sale (Explain)				
Transfers Out (Explain)				
Fixed Asset Purchases (Explain)				
Debt Payment (Principal Only)			($129,667.00)	($129,667.00)
Debt Payment (Interest Only)				
Other Expenses (Explain)				
Water Infrastructure Replacement (if needed)			($50,000.00)	($50,000.00)
NET CASH FROM NONOPERATING			($168,917.00)	($168,917.00)
Net Increase (Decrease) in Cash			($157,972.00)	($158,872.00)
Beginning Cash Balance			$210,788.00	$52,816.00
Ending Cash Balance			$52,816.00	($106,056.00)
RESTRICTED BALANCE			$122,116.00	$122,116.00
UNRESTRICTED BALANCE			($69,300.00)	($228,172.00)

Future Year: First full year after project completion.

Footnotes to Drinking Water Utility Cash Flow Spreadsheet (Revised 5/1/15):

- Year 2017 is the first full year after project completion.

- The "Debt Payment (Principal Only)" line reflects proposed loan payments for this project beginning in 2017 on a 30-year, 0% SRF loan for $3,890,000 which equals $129,667.

- Under "Operating Payments" the second "Other" line item reflects $70,255 of estimated new operation and maintenance costs associated with the proposed project and as found in the Engineering feasibility study.

Restricted Funds Breakdown:

Amount	Anticipated Expense	Method Used to Encumber
$25,876.00	Water - Replace & Reserve	Water Rate Ordinance

Water Fees:

Attach current and proposed rate ordinances or resolutions and rate schedules.

Municipal or Sanitary District - monthly rates at 5,000 gallons (670 cubic feet)

Other Community Water System - monthly rates at 7,000 gallons (935 cubic feet)

Check one: ✓ Incorporated Municipality or Sanitary District

or

___ Other Community Water System

Monthly:	Current Rate	Proposed Rate	# of Accounts	Average use gallons/cubic feet
Domestic	$35.45		359	6,681 g./mo.
Business	$35.45		42	6,681 g./mo.
Other:				

Are fees based on usage or flat rate? Usage

When is proposed fee scheduled to take effect? _____

When did the current fee take effect? February, 2013

What was the fee prior to the current rate? $35.00

Attach current and proposed rate ordinances or resolutions and rate schedules.

Five Largest Customers	Type of Business	% of System Revenues
Travelliance	BNSF RR Complex	.5
Fresh Start	Convenience Store	.3
Sunrise Properties and...	Bed and Breakfast	.3
...Sunrise Properties	Apartments	—
Fall River Housing	Apartments	.4

7.3.5 Property Tax Information

(Complete only if General Obligation bond is pledged to repay your loan.)

Three year valuation trend:

Year	N/A-No G.O. Bond.		
Assessed Valuation			
Full & True Valuation			

Three year levies and collection trend:

Year			
Amount Levied			
Collected			
Penalties/Interest			
Late Payments			

Five Largest Taxpayers	Description	Assessed Valuation

Comments:

List all current debt secured by General Obligation bond:

Year					
Purpose	All N/A				
Security Pledged					
Amount					
Maturity Date (mo/yr)					
Debt Holder					
Debt Coverage Requirement					
Avg. Annual Required Payment					
Outstanding Balance					

Use additional sheets if more room is required to list all current G.O. debt.

Comments:

7.3.6 Sales Tax Information

(Complete only if sales tax is pledged to repay your loan.)

Sales tax revenue history for the most current fifteen months:

Month/Year	Amount Collected
N/A - No Sales Tax Bond	

Comments:

List all current debt secured by sales tax:

Year Issued					
Purpose	All N/A				
Amount					
Maturity Date (mo/yr)					
Debt Holder					
Debt Coverage Requirement					
Avg. Annual Required Payment					
Outstanding Balance					

Use additional sheets if more room is required to list all current sales tax debt.

Comments:

7.3.7 Facilities Plan Checklist.

Before submitting the application, please take a few moments to complete the following checklist. Addressing these items prior to submitting the application will expedite the review process

Checklist of SRF Facilities Plan Requirements	
Have the following items been addressed?	
♦ Submission of a Facilities Plan to the department that addresses those items found in section 8.3.18.	×
♦ A public hearing held discussing the project and the use of an SRF loan to finance the project. (See section 8.3.15)	×
♦ Minutes of the public hearing prepared and submitted to the department for inclusion into the final Facilities Plan.	×
♦ The affidavit of publication of the public hearing received and submitted to the department for inclusion into the final Facilities Plan. (See section 8.3.15)	×
♦ The four review agencies contacted and responses received for inclusion into the final Facilities Plan. (See section 8.3.18)	×
♦ The Cultural Resources Effects Assessment Summary and supporting documentation, such as an archaeological survey or Historic Register database search. (See section 8.3.20)	×

7.3.8 Certification of Drinking Water Needs Categories

Identify the loan amount associated with the needs category or categories described below. If the loan addresses needs in more than one category, please break down the total amount into estimated amounts for each category.

Definition	Loan Amount
Transmission/Distribution	$585,400.00
Treatment	$1,360,600.00
Storage	$1,257,120.00
Source	$686,880.00
System Purchase	
Restructuring	
1452(k) Loan Activities	
1. To acquire land or a conservation easement for source water protection.	
2. To implement voluntary, incentive-based source water quality protection measures.	
TOTAL	$3,890,000.00

City of Edgemont

Name of Applicant

Carl A Shaw

Signature of Authorized Representative

3-17-15

Date

7.3.9 Preaward Compliance Review

FORM Approved By OMB: No. 2030-0020 Expires 12-31-2011

United States Environmental Protection Agency
Washington, DC 20460

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note : Read instructions on other side before completing form.

I. Applicant/Recipient (Name, Address, State, Zip Code).	DUNS No.
City of Edgemont, PO Box A, Edgemont, SD 57735-0809	830590837

II. Is the applicant currently receiving EPA assistance? No.

III. List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) None.

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective action taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) N/A

V. List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3)). N/A

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below. Yes.

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable bypersons with disabilities, explain how a regulatory exception (40 C.F.R. § 7.70) applies. Regulatory exception applies. Improvements consist of mechanical equipment with no public access needed.

VII.* Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex,age, or disability in its programs or activities? (40 C.F.R. § 5.140 and § 7.95) Yes.

a. Do the methods of notice accommodate those with impaired vision or hearing? Yes. b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communication? Yes. c. Does the notice identify a designated civil rights coordinator? No.

VIII.* Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. § 7.85(a)) Yes.

IX.* Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166) Yes.

X.* If the applicant/recipient is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator. N/A

XI* If the applicant/recipient is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet address for, or a copy of, the procedures. N/A

For the Applicant/Recipient I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official	B. Title of Authorized Official	C. Date
Carl A Shaw	Mayor	3-17-15

For the U.S. Environmental Protection Agency I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preawardcompliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisionsof 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized EPA Official See ** note on reverse side.	B. Title of Authorized EPA Official	C. Date

EPA Form 4700-4 (Rev. 03/2008). Previous editions are obsolete.

7.3.10 Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) Have not within a three year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Carl Shaw, Mayor

Name & Title of Authorized Representative

Carl A Shaw 3-17-15

Signature of Authorized Representative Date

____ I am unable to certify to the above statements. Attached is my explanation

8.3.16 Capacity Assessment Worksheets for Public Water Systems

Department of Environment and Natural Resources

Revised January 2007

Introduction

Because you are in the process of applying for a Drinking Water State Revolving Fund (DWSRF) loan, it is necessary for you to complete the following worksheets. The Safe Drinking Water Act requires that a system applying for a DWSRF loan must demonstrate that it has financial, managerial, and technical capacity. What exactly does that mean?

- ***Technical capacity*** - the physical infrastructure of the water system, including but not limited to the source water adequacy, infrastructure adequacy, and technical knowledge. In other words, does your treatment system work the way it is supposed to? Are you providing the safest and cleanest water possible and required by law to your customers right now, and will you be able to in the future?

- ***Managerial capacity*** - the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages. In simpler terms, do you have a capable and trained staff? Do you have an effective management structure?

- ***Financial capacity*** - the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness, and fiscal controls. Basically, does your system have a budget and enough revenue coming in to cover costs, repairs, and replacements?

If it is determined that your system does NOT have the required capacity, you may still qualify for a DWSRF loan if it is going to be used to ensure that your system will have the necessary capacity. If you have questions while completing the following worksheets, please call our office at **(605) 773-3754** , and we will be happy to help.

After DENR receives these worksheets, we will study them and other information located in our files to make a determination whether or not your public water system has the technical, financial, and managerial capacity to be eligible to apply for a DWSRF loan. A final report will be available upon completion of the analysis.

Applicant: City of Edgemont

Prepared by: Karen Cain, Finance Officer

Phone #: 605-662-5207

Date: 2/2015

Glossary of Terms

Contaminant: Any physical, chemical, biological, or radiological substance or matter in water;

Disinfectant: Any oxidant, including chlorine, chlorine dioxide, chloramine, and ozone, that is added to water in any part of the treatment or distribution process and that is intended to kill or inactivate pathogenic microorganisms;

Disinfectant contact time: The time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration is measured;

Filtration: A process for removing particulate matter from the water by passing the water through porous media;

Ground Water: The supply of fresh water found beneath the surface of the ground, usually in aquifers, which is often used for supplying wells and springs;

Ground Water Under the Direct Influence of Surface Water: Any water beneath the surface of the ground with a significant occurrence of insects, macroorganisms, algae, or large-diameter pathogens such a *Giardia lamblia* ; or any water with significant and relatively rapid shifts in water quality characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions;

Maximum Contaminant Level (MCLs): The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards;

mg/L: milligrams per liter - equivalent to parts per million;

µg/L: micrograms per liter - equivalent to parts per billion;

NTU: nephelometric turbidity unit;

psi: pounds per square inch

Surface Water: All water that is open to the atmosphere and subject to surface runoff;

Turbidity: A cloudy condition in water due to suspended silt or organic matter; and

Waiver: A process used by the Department of Environment and Natural Resources that allows a public water system to reduce or eliminate monitoring for a particular chemical.

The Technical Portion of your System

Your Water Supply

Please check the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section or question does not apply to your system, please check NA for not applicable.***

Water Supply and Existing Demands	**Yes**	**No**	**Unknown**	**NA**
Do you know how much water you pump on an average day? ***Amount:*** 116,947	☑	☐	☐	☐
Do you know how much water you pump on a peak day? ***Amount:***	☐	☑	☐	☐
Do you know the maximum amount of water you can pump from your source? ***Amount:*** approx. 500 gallons per minute	☑	☐	☐	☐
Is your source capacity higher than your peak day demand? ***Percentage higher or lower:*** 30%	☑	☐	☐	☐
Can you meet peak demand without pumping at peak capacity for extended periods? ***Longest time pumping at peak demand:***	☐	☐	☑	☐
Have you been able to provide adequate volumes of water during drought cycles?	☑	☐	☐	☐
Have you had to restrict usage at any time for any reason? ***Please specify:*** lawn watering	☑	☐	☐	☐
Does your system have an emergency or supplemental water supply? ***Please specify:*** two wells currently not in use	☑	☐	☐	☐
Do you have an Emergency Response Plan that will allow you to meet system demand during a drought or shortage, such as the loss of the largest source? ***If yes, please attach.***	☑	☐	☐	☐
Water Demand	**Yes**	**No**	**Unknown**	**NA**
Do you know whether your system demands will be growing, declining, or remain stable over the next ten years? ***Please check:*** ☐ ***growing,*** ☐ ***declining, or*** ☐ ***stable.***	☑	☐	☐	☐
Does your source have additional water available for appropriation?	☐	☐	☑	☐
Do you have a water right? ***Water right permit number(s):***	☐	☐	☑	☐
If you have large commercial, industrial, or irrigation users, do you know their long-term plans and understand their needs?	☐	☐	☐	☑
Purchased Water	**Yes**	**No**	**Unknown**	**NA**
If you purchase water from another system or a wholesaler, do you know their long-term plans?	☐	☐	☐	☑
Do you have a contract to purchase water? ***If yes, with whom?***	☐	☑	☐	☐
Are you currently staying within your contract?	☐	☐	☐	☑
Are you knowledgeable about other demands being placed on the same water source that you are using?	☑	☐	☐	☐

Alternative Sources	Yes	No	Unknown	NA
Are alternative water sources possibly available to you?	☐	☑	☐	☐
Are you knowledgeable of the characteristics and costs of using alternative sources?	☑	☐	☐	☐
Water Source	**Yes**	**No**	**Unknown**	**NA**
Do you know the depth of your well? ***Depth*** 3100-3500 feet	☑	☐	☐	☐
Do you know the geologic name of the aquifer system from which your water is drawn? ***If yes, geologic name:*** Madison	☑	☐	☐	☐
Are all abandoned water sources properly managed and disconnected to prevent accidental contamination or problems with current water system facilities?	☑	☐	☐	☐

Treatment - Microbiological Contamination

Is your system using surface water or ground water under the influence of surface water? ☐ **yes** ☑ **no**

(If you checked "no", skip to the next section - Ground Water Systems – unless your water system requires treatment other than just disinfection.)

Surface Water Systems

Filtration Plant Condition	Yes	No	Unknown	NA
Is your filter plant in good physical condition (free from spalling concrete, peeling paint)?	☐	☐	☐	☑
If constructed more than 20 years ago, have treatment processes been upgraded to meet current standards?	☐	☐	☐	☑
Are repair parts available?	☐	☐	☐	☑
Do you have redundancy (back-ups/automatic switch-overs) for all major mechanical units? ***If no, list units you do NOT have redundancy for:***	☐	☐	☐	☑
Can your plant achieve a filtered water turbidity of 0.3 NTU?	☐	☐	☐	☑
Do you have on-line continuous turbidimeters on each filter?	☐	☐	☐	☑
Have you adopted a turbidity goal lower than the standard? ***If yes, list goal:*** 3Xwk. #:	☐	☐	☐	☑
Do you have the capability to add coagulant before the filter?	☐	☐	☐	☑

Ground Water Systems

Ground Water Under the Influence of Surface Water	Yes	No	Unknown	NA
Is your water free from variations in turbidity and temperature after storm events?	☐	☐	☐	☑
Well Construction and Protection				

Do you know when your well was constructed? ***List year:*** *(see below)	☑	☐	☐	☐
Is your well(s) constructed according to current South Dakota regulations?	☐	☐	☑	☐
Do you have a source water protection plan?	☐	☐	☑	☐
Is your wellhead finished with a pitless adapter that will prevent contamination from surface water?	☐	☑	☐	☐

Disinfection

Do you disinfect? ☐ **yes** ☐ **no** ***(If "no", skip to the Infrastructure - Pumping section)***

Disinfection	**Yes**	**No**	**Unknown**	**NA**
Do you regularly inspect and maintain your disinfection / chlorination equipment? ***Type of Equipment:*** Chlorine injector. (*Well Construction:... #2-'46,#4-'64,BN&... ***How often?*** 3Xwk. ***Disinfectant used:*** Chlorine. TVA-'50's).	☑	☐	☐	☐
Do you have back-up equipment? ***Type:*** _____	☐	☑	☐	☐
Do you have adequate contact time following disinfection and before the first user in the distribution system (30 minutes for ground water systems)? ***Contact time:*** 30 minutes	☑	☐	☐	☐
Can you detect a chlorine residual at taps at the ends of the distribution system? ***Free Chlorine Residual:*** _____ ***Total Chlorine Residual:*** _____ (if using chloramines)	☐	☐	☑	☐

Disinfection By-Products

Treatment for the Control of Disinfection By-Products	**Yes**	**No**	**Unknown**	**NA**
If you treat surface water, are you already practicing or could you adopt "enhanced coagulation" in your current plant?	☐	☐	☐	☑
If you treat surface water, could you still meet current contact-time requirements if disinfection were not allowed before sedimentation?	☐	☐	☐	☑

Treatment - Security

Treatment Security	**Yes**	**No**	**Unknown**	**NA**
Has the system implemented procedures to improve security of its facilities? (i.e. limiting access to sensitive sites, protecting computer and control equipment etc.)	☑	☐	☐	☐
Are chemicals used for treatment properly stored and secure?	☑	☐	☐	☐
Does the water system track chemical usage? (i.e. a sudden	☐	☑	☐	☐

increase in usage may signal potential contamination or tampering.

Infrastructure - Pumping

Condition of Pumping Equipment	**Yes**	**No**	**Unknown**	**NA**
Do you routinely inspect for signs of pump or pump motor problems? ***How often:*** 3x week.	☑	☐	☐	☐
Once diagnosed, are problems corrected in a timely enough manner to avoid crisis financing, costly repairs, and unscheduled downtime?	☑	☐	☐	☐
Do you hire a qualified pump contractor to perform an inspection of all pumping equipment, identify potential problems, and perform maintenance, on an annual basis?	☑	☐	☐	☐
Standby/Emergency Power Equipment	**Yes**	**No**	**Unknown**	**NA**
Is there sufficient standby/emergency power capacity to supply 100% of the average daily demand of the system (excluding fire demand)?	☐	☑	☐	☐
Are any existing standby/emergency power equipment, controls and switches tested or exercised routinely under load conditions, for at least 30 minutes at a time?	☐	☑	☐	☐
Has the local electric utility been made aware of the standby/emergency power provisions made by the water system, so that they can reinforce and safeguard the electrical facilities serving the water operations?	☐	☐	☐	☑

Infrastructure - Storage

Storage Capacity	**Yes**	**No**	**Unknown**	**NA**
Does the system have sufficient gravity-flow (non-pumped) or emergency generator-supported pumping capability to ensure adequate distribution storage to provide safe and adequate service for up to 24 hours without power? ***If no, how long:*** Grant awarded for future generator installation.	☐	☑	☐	☐
Is there reserve capacity in the tank for fire protection support? ***Amount:*** 20 minutes	☑	☐	☐	☐
Security Measures	**Yes**	**No**	**Unknown**	**NA**
Are any openings, such as vent pipes, screened to protect against the entrance of small animals, birds, and small insects?	☑	☐	☐	☐
Are access hatches locked?	☑	☐	☐	☐
Is the tank and the immediate surrounding area fenced?	☑	☐	☐	☐
Control Systems				
Is there a high and low water level signal system to control the pumps?	☑	☐	☐	☐

Is there a drain valve or hydrant to allow for draining of the tank?	☑	☐	☐	☐
Tank Maintenance				
Is the tank inspected at least every three years by a qualified tank contractor for evidence of corrosion or pitting, leakage, and structural weakness?	☐	☑	☐	☐
Is the tank contractor capable of analyzing the coating of paint on the interior and exterior surfaces of the tank to determine if it contains lead or other hazardous materials?	☐	☑	☐	☐

Infrastructure - Distribution

System Maintenance	**Yes**	**No**	**Unknown**	**NA**
Do you have an accurate map of your distribution system that indicates main sizes and valve locations?	☑	☐	☐	☐
Does the operator routinely flush, test, and maintain the hydrants in the system? ***How often:***	☑	☐	☐	☐
Are the locations of valves in the mains and curb stops on the service lines precisely known?	☑	☐	☐	☐
Does the system keep a log of distribution system breaks to identify weak areas in the system?	☑	☐	☐	☐
Are histories, locations, size, and type of mains and service lines detailed on records in a secure area?	☑	☐	☐	☐
Are all valves exercised and lubricated periodically?	☑	☐	☐	☐
Is the system free of severe "water hammer" problems?	☑	☐	☐	☐
Are meter pits, pressure regulating valves, altitude valves, blow-offs, and other appurtenances maintained on a regular basis?	☑	☐	☐	☐
Unaccounted-for Water	**Yes**	**No**	**Unknown**	**NA**
Is unaccounted-for water in the water system monitored and analyzed each month?	☐	☑	☐	☐
Is the unaccounted-for water less than 15 percent of the total water delivered to the mains? ***List percentage of unaccounted for water:*** 60 %	☐	☑	☐	☐
	Yes	**No**	**Unknown**	**NA**
Are the normal operating pressures in the distribution system between 25 psi and 125 psi? ***Normal operating pressure:*** 35 psi	☑	☐	☐	☐
Do you have a routine leak detection and repair program?	☑	☐	☐	☐
Are all sources of supply and customers metered?	☑	☐	☐	☐
Are the meters calibrated and tested routinely to ensure their accuracy and reliability?	☐	☑	☐	☐
Water Quality in Distribution System	**Yes**	**No**	**Unknown**	**NA**
Does your system have an active cross-connection control program?	☐	☑	☐	☐

Are any inspections for cross-connections performed?	☐	☑	☐	☐
Is there a program for installing and testing backflow prevention devices where potential contamination is present?	☑	☐	☐	☐
Is there a program to eliminate "dead-ends" in the mains, where feasible?	☑	☐	☐	☐
Construction Standards	**Yes**	**No**	**Unknown**	**NA**
Are the majority of your mains 6 inches in diameter or larger? ***List percentage:*** _____	☑	☐	☐	☐
Is there a program to gradually replace sub-standard sized mains?	☑	☐	☐	☐
Are there suitable rights-of-way and easements provided to the water system for expansion, maintenance, and replacement of mains and services?	☑	☐	☐	☐
Is there sufficient earth cover (six feet) to protect the mains from frost damage or heavy loads, if driven over?	☑	☐	☐	☐
Are materials of mains designed and selected to resist corrosion, electrolysis, and deterioration?	☑	☐	☐	☐
Distribution System Problems	**Yes**	**No**	**Unknown**	**NA**
Do you receive any complaints regarding water quality (taste, odor, color, etc.)? ***List number of complaints/year:*** 100 ***Most common complaint:*** odor (Class I-Water Treatme	☑	☐	☐	☐
Can you maintain adequate pressure in the distribution system under all conditions of flow?	☑	☐	☐	☐

The Management Portion of your System

Please mark the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Operation & Maintenance

Operations Staff	**Yes**	**No**	**Unknown**	**NA**
Does the person operating your system have current water treatment plant and water distribution operator certification credentials from DENR? ***If yes, list classification(s):*** odor (Class I-Water Treatment, Class I-Waste Water Collector, Class II-Water Distribution)	☑	☐	☐	☐
Does your operator receive additional training on an ongoing basis to keep current on new developments in the field?	☑	☐	☐	☐
Future Operational Demands	**Yes**	**No**	**Unknown**	**NA**
Does your water system obtain any regular or occasional technical assistance from outside sources, such as DENR, your engineer, other utilities or organizations specifically dedicated to providing technical assistance? ***If yes, who*** _____	☑	☐	☐	☐

Management & Administration

Who's in Charge?	**Yes**	**No**	**Unknown**	**NA**
Is there a clear plan of organization and control among the people responsible for management and operation of the system?	☑	☐	☐	☐
Does your system have written personnel policies and job descriptions signed by the employees?	☑	☐	☐	☐
Are the limits of the operator's authority clearly known?	☑	☐	☐	☐
Does everyone involved in operations know who is responsible for each area?	☑	☐	☐	☐
Is someone responsible for scheduling work?	☑	☐	☐	☐
Security	**Yes**	**No**	**Unknown**	**NA**
Does the system have procedures for handling new and terminated employees (i.e. collecting keys, changing locks and computer passwords)?	☐	☑	☐	☐
Rules and Standards	**Yes**	**No**	**Unknown**	**NA**
Do you have explicit rules and standards for system modifications?	☑	☐	☐	☐
Do you have rules governing new hook-ups?	☑	☐	☐	☐
Do you have a water main extension policy?	☑	☐	☐	☐
Do you have standard construction specifications to be followed?	☑	☐	☐	☐

	Yes	No	Unknown	NA
Do you have measures to assure cross-connection control and backflow prevention?	☑	☐	☐	☐
Do you have policies or rules describing customer rights and responsibilities?	☑	☐	☐	☐
Regulatory Compliance Program	**Yes**	**No**	**Unknown**	**NA**
Do you fully understand monitoring requirements and have a scheduling mechanism to assure compliance?	☑	☐	☐	☐
Do you know how to obtain clarification or explanation of requirements?	☑	☐	☐	☐
Do you have a mechanism to obtain the most recent information on regulatory requirements?	☑	☐	☐	☐
Do you maintain adequate records to document compliance? ***If yes, for how long?*** Since 11/2013	☑	☐	☐	☐
Did your system have any violations of the primary drinking water standards in the last year?	☑	☐	☐	☐
Did your system have any monitoring or reporting violations in the last year?	☑	☐	☐	☐
Do you know what to do in the event of a violation?	☑	☐	☐	☐
Emergencies	**Yes**	**No**	**Unknown**	**NA**
Do you have an Emergency Response Plan?	☑	☐	☐	☐
Is there a contingency for making emergency interconnections to neighboring systems, and do you know they will work if needed?	☐	☑	☐	☐
Does everyone involved in operations know what they are to do in the event of contamination from a toxic hazardous waste spill in your source water or a main break or a tank failure?	☑	☐	☐	☐
Do you have a clear chain-of-command protocol for emergency action?	☑	☐	☐	☐
Is someone responsible for emergency operations, for communications with state regulators, for customer relations, for media relations? ***If yes, who (title):*** Carl A. Shaw, Mayor	☑	☐	☐	☐
Safety	**Yes**	**No**	**Unknown**	**NA**
Do you have a safety program defining measures to be taken if someone is injured?	☑	☐	☐	☐
Has the entire staff been properly trained in the location and use of safety equipment?	☑	☐	☐	☐
Does everyone understand the risks and safety measures involved in handling water treatment chemicals?	☑	☐	☐	☐
Do you have written operating procedures for both routine and emergency system operations?	☑	☐	☐	☐
Are you fully aware of Occupational Safety and Health Administration (OSHA) confined space (such as trenches/manholes) regulations?	☑	☐	☐	☐
Does the system work with customers to promote their awareness of security?	☑	☐	☐	☐
Does the system have a communication plan to alert customers of a natural or intentional threat to public health?	☑	☐	☐	☐

Maintenance	Yes	No	Unknown	NA
Do you have a planned maintenance management system -- a system for scheduling routine preventive maintenance (line flushing, pumps, meters, storage tanks, etc.)?	☑	☐	☐	☐
Do you have a system for assuring adequate inventory of essential spare parts and back-up equipment?	☑	☐	☐	☐
Do you have relationships with contractors and equipment vendors to assure prompt priority service?	☑	☐	☐	☐
Do you have records and data management systems for system operating and maintenance data, for regulatory compliance data, and for system management and administration?	☐	☑	☐	☐
Management Capability	**Yes**	**No**	**Unknown**	**NA**
Are you getting the outside services and technical assistance you need? Do you have adequate legal counsel, insurance, engineering advice, technical/operations assistance, rate case preparation, and financial advice?	☑	☐	☐	☐

The Financial Portion of your System

Please mark the appropriate box: Yes, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Financial Planning Mechanisms	**Yes**	**No**	**Unknown**	**NA**
Does your system develop and follow an annual budget that is approved by the governing body?	☑	☐	☐	☐
Does the governing body review a monthly summary of revenues and expenses of the utility system?	☑	☐	☐	☐
Do you have within the annual budget separate reserve accounts for equipment replacement, capital improvement, depreciation or security upgrades? ***If so, list accounts:*** Water Replacement and Reserve Fund (small fund)	☑	☐	☐	☐
Does the system have reserve funds available in the event of an emergency?	☑	☐	☐	☐
Do you have a capital budget or capital improvement plan that projects future capital investment needs some distance (at least five years) into the future?	☐	☑	☐	☐
Do you have a process for scheduling and committing to capital projects?	☐	☑	☐	☐
Does your planning process take account of all the potential capital needs suggested by your answers to the technical questions in these worksheets?	☑	☐	☐	☐
Does your long-term planning incorporate analysis of alternative strategies that might offer cost saving to customers, such as consolidation with other nearby systems or sharing of operations and management expenses with other nearby systems?	☐	☑	☐	☐
Rates/Billing - Are they Adequate?	**Yes**	**No**	**Unknown**	**NA**
Do you regularly review your rates? ***How often?*** Annually	☑	☐	☐	☐
Do you have a plan in place for periodic increases in rates?	☑	☐	☐	☐
Is the rate structure based on metered watered use? ***List rates per 1000 gallons:*** $5.09 (Bill col. rate 85% past,95%+ now) (i.e. $22 minimum plus $2.50/1000 gallons)	☑	☐	☐	☐
Does the rate per 1000 gallons change as consumption increases? ***If so, please describe***: 5001-20,000 g.=$1/1,000g. 20,001 and over g.=$2/1,000g.	☑	☐	☐	☐
Does the rate structure assure proportionality among users?	☑	☐	☐	☐
Do you have procedures for billing and collection?	☑	☐	☐	☐
Is your billing collection rate greater than 95%?	☐	☑	☐	☐
Do you have collection procedures specifically for delinquent accounts?	☑	☐	☐	☐

Financial Planning Mechanisms - Are they Adequate?	Yes	No	Unknown	NA
Does your system have audited financial statements prepared by a certified public accountant (CPA)?	☑	☐	☐	☐
Does your water system income exceed operating expenses (including debt service)?	☑	☐	☐	☐
Does your water utility support other enterprise funds or the general fund? Not for the last 2 years.	☑	☐	☐	☐
Does your system require revenues from other enterprise funds or the general fund for normal operations?	☐	☑	☐	☐
Do you employ standardized accounting and tracking systems?	☑	☐	☐	☐
Do you track budget performance?	☑	☐	☐	☐
Do you keep records to substantiate depreciation of fixed assets and accounting for reserve funds?	☑	☐	☐	☐
Are financial management recordkeeping systems organized?	☑	☐	☐	☐
Are controls exercised over expenditures?	☑	☐	☐	☐
Are controls exercised to keep from exceeding your budget?	☑	☐	☐	☐
Are there purchasing procedures?	☑	☐	☐	☐
Did your system's governing body review this assessment before returning it to the South Dakota Department of Environment and Natural Resources?	☑	☐	☐	☐

Revised 5/1/15

Financial Spreadsheet

Applicant: City of Edgemont
Completed by: Karen Cain, Finance Officer & Bill Lass, BHCOLG
Date: 3/17/15

4 Year Projections	Last Year Actual	Current Year Budget Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected
Enter Year:	2014	2015	2016	2017	2018
1. Beginning Cash on Hand	$56,928	$98,112	$93,742	$88,672	($69,300)
2. Cash Receipts:					
a. Unmetered Water Revenue	$8,172	$8,200	$8,200	$8,200	$8,200
b. Metered Water Revenue	$138,998	$139,000	$139,000	$139,000	$139,000
c. Other Water Revenue	$53,414	$55,000	$55,000	$55,000	$55,000
d. Total Water Revenues (2a through 2c)	$200,584	$202,200	$202,200	$202,200	$202,200
e. Connection Fees	$1,770	$1,800	$1,800	$1,800	$1,800
f. Interest and Dividend Income	$753	$750	$750	$750	$750
g. Other Income	$14,667	$10,000	$10,000	$10,000	$10,000
h. Total Cash Revenues (2d through 2g)	$217,774	$214,750	$214,750	$214,750	$214,750
i. Transfers in/Additional Rev Needed					
j. Loans, Grants or other Cash					
Please specify					
3. Total Cash Receipts (2h through 2j)	$217,774	$214,750	$214,750	$214,750	$214,750
4. Total Cash Available (1+3)	$274,702	$312,862	$308,492	$303,422	$145,450
5. Operating Expenses					
a. Salaries and wages	$27,145	$28,000	$28,500	$29,000	$29,500
b. Employee Pensions and Benefits	$5,150	$5,400	$5,500	$5,600	$5,800
c. Purchased Water					
d. Purchased Power	$8,420	$8,600	$8,600	$8,800	$8,800
e. Fuel for Power Production					
f. Chemicals	$2,181	$2,300	$2,300	$2,400	$2,400
g. Materials and Supplies	$23,953	$30,000	$30,000	$30,000	$30,000
h. Engineering Services					
i. Contractual Services – Other	$1,268	$1,200	$1,200	$1,200	$1,200
j. Equip. Rent/Real Property	$24,602	$24,000	$24,000	$24,000	$24,000
k. Transportation Expenses	$707	$800	$800	$900	$900
l. Laboratory	$3,264	$3,400	$3,400	$3,500	$3,500
m. Insurance	$5,112	$5,300	$5,400	$5,400	$5,500
n. Regulatory Commission Expenses	$1,847	$2,000	$2,000	$2,000	$2,100
o. Advertising					
p. Miscellaneous	$9,924	$10,000	$10,000	$10,000	$10,000
q. Total Cash O&M Expenses (5a through 5p)	$113,573	$121,000	$121,700	$122,800	$123,700
r. Replacement Expenditures	$51,512	$50,000	$50,000	$50,000	$50,000
s. Total OM&R Expenditures (5q+5r)	$165,085	$171,000	$171,700	$172,800	$173,700
t. Loan Principal/Capital Lease Payments				$129,667	$129,667
u. Loan Interest Payments					
v. Transfers Out	$8,500				
w. Capital Purchases (specify):					
Increase in O&M - new project				$70,255	$70,255
x. Other					
6. Total Cash Paid Out (5s through 5x)	$173,585	$171,000	$171,700	$372,722	$373,622
7. Ending Cash Position (4 - 6)	$101,117	$141,862	$136,792	($69,300)	($228,172)

Revised 5/1/15

Financial Spreadsheet

Applicant: City of Edgemont
Completed by: Karen Cain, Finance Officer & Bill Lass, BHCOLG
Date: 3/17/15

4 Year Projections	Last Year Actual	Current Year Budget Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected
8. Number of Customer Accounts	401	401	401	401	401
9. Avg Annual User Charge Account (2d/8)	$500	$504	$504	$504	$504
10. Coverage Ratio (2h-5s)/(5t+5u)	0.0	0.0	0.0	0.3	0.3
11. Operating Ratio (2d/5s)	1.2	1.2	1.2	1.2	1.2
12. Additions to Reserve Funds for the Year:					
a. Debt Service Reserve					
b. Bond Retirement Reserve					
c. Capital Improvement Reserve					
d. Replacement Reserve	$3,005	$48,120	$48,120		
e. Other					
13. Total Reserves (12a through 12e)	$3,005	$48,120	$48,120		
14. Year End Operating Cash (7 - 13)	$98,112	$93,742	$88,672	($69,300)	($228,172)

Footnotes to Financial Spreadsheet (Revised 5/1/15):

- Line 2c "Other Water Revenue" includes the portion of water revenues collected as Replacement and Reserve Fees (represents $10 per month per user account).

- Line 2g "Other Income" reflects late charges.

- Line 5t "Loan Principal" reflects proposed annual payments of $129,667 for a $3,890,000 loan at 0% interest for 30 years with payments beginning in 2017.

- Line 5w "Increase in O&M new project" reflects engineer's estimate of expected increase in O&M after currently proposed project is complete.

- Line 12d "Replacement Reserve" reflects the portion of existing water rates earmarked for the water reserve fund.

RESOLUTION NO. 2015-3-17

RESOLUTION AUTHORIZING AN APPLICATION FOR FINANCIAL ASSISTANCE, AUTHORIZING THE EXECUTION AND SUBMITTAL OF THE APPLICATION, AND DESIGNATING AN AUTHORIZED REPRESENTATIVE TO CERTIFY AND SIGN PAYMENT REQUESTS.

WHEREAS, the City of Edgemont (the "City") has determined it is necessary to proceed with improvements to its municipal water System, including but not limited to well rehabilitation, treatment, tank & water main (the "Project");

WHEREAS, the City has determined that financial assistance will be necessary to undertake the Project and an application for financial assistance to the South Dakota Board of Water and Natural Resources (the "Board") will be prepared; and

WHEREAS, it is necessary to designate an authorized representative to execute and submit the Application on behalf of the City and to certify and sign payment requests in the event financial assistance is awarded for the Project.

NOW THEREFORE BE IT RESOLVED by the City as follows:

1. The City hereby approves the submission of an Application for financial assistance in an amount not to exceed $ 3,890,000.00 to the South Dakota Board of Water and Natural Resources for the Project.

2. The Mayor is hereby authorized to execute the Application and submit it to the South Dakota Board of Water and Natural Resources, and to execute and deliver such other documents and perform all acts necessary to effectuate the Application for financial assistance.

3. The Mayor is hereby designated as the authorized representative of the City to do all things on its behalf to certify and sign payment requests in the event financial assistance is awarded for the Project.

Adopted at Edgemont, South Dakota, this 17th day of March 2015.

APPROVED:

Carl A Shaw

Carl Shaw, Mayor
City of Edgemont

(Seal)

Attest: Karen S Cain

Karen Cain, Finance Officer

Exhibit I

MUNICIPALITY OF EDGEMONT
STATEMENT OF FUND CASH BALANCES
ALL FUNDS
31-Dec-13

	General Fund	Other Gov'tal Fund	Fund	Enterprise Funds: Water Fund	Water RR Fund	Sewer Fund	Sewer RR Fund	Garbage Fund	Total
Cash Assets:									
Cash in Checking Accounts	36,516.96								36,516.96
Change and Petty Cash	250.00								250.00
Passbook Savings	333,677.87			56,928.49	22,870.86	56,454.76	15,373.49	(1,145.24)	484,160.23
Savings Certificates	300,000.00								300,000.00
									0.00
1st Interstate Bank									0.00
									0.00
									0.00
101 FUND CASH BALANCES (Note 1)	670,444.83	0.00	0.00	56,928.49	22,870.86	56,454.76	15,373.49	(1,145.24)	820,927.19

Municipal funds are deposited or invested with the following depositories:

1st Interstate Bank	520,927.19
1st Interstate Bank - CD	300,000.00
	820,927.19

Note 1: These amounts must equal the amounts stated on the bottom line of Exhibit II, page 3.

MUNICIPALITY OF EDGEMONT
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2013

	General Fund	Other Governmental Fund	Fund	Enterprise Funds: Fund	Fund	Fund	Fund	Fund	Total
Receipts (Source):									
311 Property Taxes	293,708.62								293,708.62
313 Sales Tax	195,400.84								195,400.84
316 911 Telephone Surcharge									0.00
311-319 Other Taxes (319)	2,028.05								2,028.05
320 Licenses and Permits	12,036.70								12,036.70
331 Federal Grants	27,394.81								27,394.81
335.1 Bank Franchise Tax	857.76								857.76
335.2 Motor Vehicle Commercial									0.00
Prorate									0.00
335.3 Liquor Tax Reversion	5,582.43								5,582.43
335.4 Motor Vehicle Licenses (5%)	9,720.36								9,720.36
335.6 Fire Insurance Premium									0.00
Reversion									0.00
335.7 Liquor License Reversion									0.00
335.8 Local Government Highway									0.00
and Bridge Fund	27,356.57								27,356.57
338.1 County Road Tax (25%)	609.78								609.78
338.2 County Highway and Bridge									0.00
Reserve Tax (25%)									0.00
338.3 County Wheel Tax									0.00
331-339 Other Intergovernmental									0.00
Revenue (339)	1,946.93								1,946.93
341-349 Charges for Goods and									0.00
Services (341)	22,229.20								22,229.20
351-359 Fines and Forfeits (351)	176.40								176.40
361 Investment Earnings	2,379.11								2,379.11
362 Rentals	11,272.12								11,272.12
363-369 Other Revenues (369)	295.00								295.00

MUNICIPALITY OF EDGEMONT
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2013
(continued)

	General Fund	Other Governmental Fund	Fund	Enterprise Funds: Water Fund	Sewer Fund	Water RR Fund	Sewer RR Fund	Solid Waste Fund	Total
ENTERPRISE FUNDS									
380 Enterprise Operating Revenue				180,786.03	95,561.49	48,557.92	20,422.64	92,923.21	438,251.29
Surcharge as Security for Debt									0.00
380.05 Lottery Revenues									0.00
330 Operating Grants									0.00

Total Receipts	612,994.68		0.00	180,786.03	95,561.49	48,557.92	20,422.64	92,923.21	1,051,245.97
Disbursements (Function):									
411-419 General Government (414)	111,775.91								111,775.91
421 Police	100,883.31								100,883.31
422 Fire	27,016.12								27,016.12
423-429 Other Public Safety (429)	7,651.31								7,651.31
431 Highways and Streets (includes snow removal & street lights)	204,400.62								204,400.62
432 Sanitation (includes garbage & rubble sites)	54,966.87								54,966.87
437 Cemeteries	6,583.40								6,583.40
433-439 Other Public Works (435)	6,995.24								6,995.24
441-449 Health and Welfare (441)	20,020.15								20,020.15
451-459 Culture-Recreation (451)	119,886.73								119,886.73
461-469 Conservation and Development (465)	16,175.00								0.00 16,175.00
470 Debt Service									0.00
480 Intergovernmental Expenditures									0.00
490-492 Miscellaneous (492)	10,441.49								10,441.49

MUNICIPALITY OF EDGEMONT
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2013
(continued)

				Enterprise Funds					
	General Fund	Fund	Fund	Water Fund	Sewer Fund	Water RR Fund	Sewer RR Fund	Garbage Fund	Total
ENTERPRISE FUNDS									
410 Personal Services									0.00
420 Other Expenses				79579.62	47942.61	21948.51	5492.00	89127.58	244,090.32
426 Supplies and Materials				50474.26	18919.41	2921.11	1149.85	4528.18	77,992.81
Total Disbursements	686796.15	0.00	0.00	130053.88	66862.02	24869.62	6641.85	93655.76	1008879.28
39101 Transfers In	302614.93						3680.82		306,295.75
51100 Transfers Out	( )	( )	( )	(225060.69)	(19579.73)	(6269.25)	( )	(55386.08)	(306,295.75)
391.2 Money Received From Borrowing									0.00
391.07 Capital Contributions (Grants)									0.00
									0.00
									0.00
Subtotal of Receipts, Disbursements and Transfers	228813.46	0.00	0.00	(174328.54)	9119.74	17419.05	17461.61	(56118.63)	42366.69
Fund Cash Balance, January 1, 2013	441631.37			231257.03	47335.02	5451.81	(2088.12)	54973.39	778,560.50
Adjustments:									
									0.00

Exhibit I

MUNICIPALITY OF EDGEMONT
STATEMENT OF FUND CASH BALANCES
ALL FUNDS
31-Dec-14

				Enterprise Funds					
	General Fund	Fund	Fund	Water Fund	Water R&R Fund	Sewer Fund	Sewer R&R Fund	Garbage Fund	Total
Cash Assets:									
Cash in Checking Accounts	49,086.00								49,086.00
Change and Petty Cash	250.00								250.00
Passbook Savings	317,293.00			98,112.00	25,876.00	65,921.00	35,639.00	10,470.00	553,311.00
Savings Certificates	300,000.00								300,000.00
									0.00
									0.00
									0.00
									0.00
101 FUND CASH BALANCES (Note 1)	666,629.00	0.00	0.00	98,112.00	25,876.00	65,921.00	35,639.00	10,470.00	902,647.00

Municipal funds are deposited or invested with the following depositories:

1st Interstate Bank - checking & savings	602,647.00
1st Interstate Bank - CD	300,000.00
	902,647.00

Note 1: These amounts must equal the amounts stated on the bottom line of Exhibit II, page 3.

MUNICIPALITY OF EDGEMONT
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2014

	General Fund	Other Governmental Fund	Fund	Enterprise Funds: Water Fund	Sewer Fund	Fund	Fund	Fund	Total
Receipts (Source):									
311 Property Taxes	318,385.00								318,385.00
313 Sales Tax	204,032.00								204,032.00
316 911 Telephone Surcharge									0.00
311-319 Other Taxes (319)	5,092.00								5,092.00
320 Licenses and Permits	7,768.00								7,768.00
331 Federal Grants		33,948.00							33,948.00
335.1 Bank Franchise Tax	1,043.00								1,043.00
335.2 Motor Vehicle Commercial									0.00
Prorate	1,772.00								1,772.00
335.3 Liquor Tax Reversion	5,995.00								5,995.00
335.4 Motor Vehicle Licenses (5%)	7,880.00								7,880.00
335.6 Fire Insurance Premium									0.00
Reversion									0.00
335.8 Local Government Highway									0.00
and Bridge Fund	31,114.00								31,114.00
338.1 County Road Tax (25%)	610.00								610.00
338.2 County Highway and Bridge									0.00
Reserve Tax (25%)									0.00
338.3 County Wheel Tax									0.00
331-339 Other Intergovernmental									0.00
Revenue (339)		30,034.00							30,034.00
341-349 Charges for Goods and									0.00
Services (341)	12,841.00								12,841.00
351-359 Fines and Forfeits (351)	2,248.00								2,248.00
361 Investment Earnings	1,516.00								1,516.00
362 Rentals	10,991.00								10,991.00
363-369 Other Revenues (369)	153.00								153.00

MUNICIPALITY OF EDGEMONT
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2014
(continued)

	General Fund	Other Governmental Fund	Fund	Enterprise Funds: Water Fund	Water R&R Fund	Sewer Fund	Sewer R&R Fund	Garbage Fund	Total
ENTERPRISE FUNDS									
380 Enterprise Operating Revenue				170,757.00	47,017.00	94,663.00	18,097.00	91,377.00	421,911.00
Surcharge as Security for Debt									0.00
380.05 Lottery Revenues									0.00
330 Operating Grants									0.00
Total Receipts	611,440.00	63,982.00	0.00	170,757.00	47,017.00	94,663.00	18,097.00	91,377.00	1,097,333.00
Disbursements (Function):									
411-419 General Government (414)	111,847.00								111,847.00
421 Police	115,404.00								115,404.00
422 Fire	36,945.00								36,945.00
423-429 Other Public Safety (429)	16,245.00								16,245.00
431 Highways and Streets (includes snow removal & street lights)	167,584.00								167,584.00
432 Sanitation (includes garbage & rubble sites)	78,243.00								78,243.00
437 Cemeteries	11,633.00								11,633.00
433-439 Other Public Works (435)	6,689.00								6,689.00
441-449 Health and Welfare (441)	8,853.00								8,853.00
451-459 Culture-Recreation (451)	143,635.00								143,635.00
461-469 Conservation and Development (465)	5,000.00								5,000.00
470 Debt Service									0.00
480 Intergovernmental Expenditures									0.00
490-492 Miscellaneous (492)	679.00								679.00

MUNICIPALITY OF EDGEMONT
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2014
(continued)

				Enterprise Funds					
	General Fund	Fund	Fund	Water Fund	Water R&R Fund	Sewer Fund	Sewer R&R Fund	Garbage Fund	Total
ENTERPRISE FUNDS									
410 Personal Services									0.00
420 Other Expenses				89940.00	51512.00	62195.00	331.00	75042.00	279,020.00
426 Supplies and Materials				23633.00		7002.00		3201.00	33,836.00
Total Disbursements	702757.00			113573.00	51512.00	69197.00	331.00	78243.00	1015613.00
391.01 Transfers In	87501.00				7500.00		2500.00		97,501.00
51100 Transfers Out		-63982	( )	(16000.00)	( )	(16000.00)	( )	(1519.00)	(97,501.00)
391.03 Sale of Municipal Property									0.00
391.04 Compensation for Loss or Damage to Capital Assets									0.00
391.2 Money Received From Borrowing									0.00
391.07 Capital Contributions (Grants)									0.00
									0.00
									0.00
Subtotal of Receipts, Disbursements and Transfers	(3816.00)	0.00	0.00	41184.00	3005.00	9466.00	20266.00	11615.00	81720.00
Fund Cash Balance, January 1, 2014	670445.00			56928.00	22871.00	56455.00	15373.00	(1145.00)	820,927.00
Adjustments:									
									0.00
									0.00
									0.00
Restated Fund Cash Balance, January 1, 2014	670445.00	0.00	0.00	56928.00	22871.00	56455.00	15373.00	(1145.00)	820927.00
FUND CASH BALANCE, DECEMBER 31, 2014	666629.00	0.00	0.00	98112.00	25876.00	65921.00	35639.00	10470.00	902,647.00

CITY OF EDGEMONT

FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT
FOR THE YEAR ENDED DECEMBER 31, 2012

Ketel Thorstenson, LLP
Certified Public Accountants/Business & Personal Consultants

810 Quincy Street • Rapid City, SD 57701 • www.ktllp.com

CITY OF EDGEMONT

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Ketel Thorstenson, LLP
Certified Public Accountants/Business & Personal Consultants

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P.O. Box 3140, Rapid City, South Dakota 57709
Telephone (605) 342-5630 e-mail: ktllp@ktllp.com

INDEPENDENT AUDITOR'S REPORT

Governing Board
City of Edgemont
Edgemont, South Dakota

Report on the Financial Statements

We have audited the accompanying modified cash basis financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the **CITY OF EDGEMONT** (the City), Fall River County, South Dakota, as of and for the year ended December 31, 2012, and the related notes to the financial statements, which collectively comprise the City's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with the modified cash basis of accounting as described in Note 1; this includes determining that the modified cash basis of accounting is an acceptable basis for the preparation of the financial statements in the circumstances. Management is also responsible for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility
Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions
In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position-modified cash basis of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City, as of December 31, 2012, and the respective changes in financial position-modified cash basis, thereof and for the year then ended in accordance with the basis of accounting described in Note 1.

Basis of Accounting
We draw attention to Note 1 of the financial statements, which describes the basis of accounting. The financial statements are prepared on the modified cash basis of accounting, which is a basis of accounting other than accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to that matter.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated June 17, 2014 on our consideration of the City's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the City's internal control over financial reporting and compliance.

Ketel Thorstenson, LLP

KETEL THORSTENSON, LLP
Certified Public Accountants

June 17, 2014

CITY OF EDGEMONT

STATEMENT OF NET POSITION - MODIFIED CASH BASIS
DECEMBER 31, 2012

	Governmental Activities	Business-Type Activities	Total
ASSETS:			
Cash and Investments	$ 419,618	$ 345,499	**$ 765,117**
Restricted Assets:			
Cash and Cash Equivalents	6,716	-	**6,716**
TOTAL ASSETS	**$ 426,334**	**$ 345,499**	**$ 771,833**
NET POSITION:			
Restricted for:			
Non-expendable - Cemetery Perpetual Care	$ 100	$ -	**$ 100**
Library Trust Fund	6,183	-	**6,183**
Liquor, Lodging, and Dining	15,894	-	**15,894**
Revolving Loan	56,650	-	**56,650**
Unrestricted	347,507	345,499	**693,006**
TOTAL NET POSITION	**$ 426,334**	**$ 345,499**	**$ 771,833**

The accompanying notes are an integral part of this statement.

CITY OF EDGEMONT

STATEMENT OF ACTIVITIES - MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2012

		---------- Program ----------			----- Net (Expense) Revenue and ----- Changes in Net Position		
Functions/Programs	**Expenses**	**Charges for Services**	**Revenue Operating Grants and Contributions**	**Capital Grants and Contributions**	**Governmental Activities**	**Business-Type Activities**	**Total**
Primary Government:							
Governmental Activities:							
General Government	$ 118,705	$ 50,970	$ -	$ -	$ (67,735)	$ -	**$ (67,735)**
Public Safety	153,556	248	-	-	(153,308)	-	**(153,308)**
Public Works	229,617	5,866	39,497	96,407	(87,847)	-	**(87,847)**
Health and Welfare	87,178	142	-	-	(87,036)	-	**(87,036)**
Culture and Recreation	113,781	-	-	-	(113,781)	-	**(113,781)**
Conservation and Development	23,500	-	-	-	(23,500)	-	**(23,500)**
Debt Service	2,054	-	-	-	(2,054)	-	**(2,054)**
Total Governmental Activities	**728,391**	**57,226**	**39,497**	**96,407**	**(535,261)**	-	**(535,261)**
Business-Type Activity:							
Water	212,402	216,278	-	-	-	3,876	**3,876**
Sewer	196,860	110,415	-	-	-	(86,445)	**(86,445)**
Solid Waste	89,581	97,106	-	-	-	7,525	**7,525**
Total Business-Type Activities	**498,843**	**423,799**	-	-	-	(75,044)	**(75,044)**
Total Primary Government	**$ 1,227,234**	**$ 481,025**	**$ 39,497**	**$ 96,407**	(535,261)	(75,044)	**(610,305)**
General Revenues:							
Taxes:							
Property Taxes					305,640	-	**305,640**
Sales Taxes					211,672	-	**211,672**
State Shared Revenues					6,795	-	**6,795**
Grants & Contributions not Restricted					4,260	-	**4,260**
Unrestricted Investment Earnings					4,631	761	**5,392**
Transfers					761	(761)	-
Total General Revenues and Transfers					**533,759**	-	**533,759**
Change in Net Position					**(1,502)**	**(75,044)**	**(76,546)**
Net Position-December 31, 2011					**427,836**	**420,543**	**848,379**
Net Position-December 31, 2012					**$ 426,334**	**$ 345,499**	**$ 771,833**

The accompanying notes are an integral part of this statement.

CITY OF EDGEMONT

GOVERNMENTAL FUNDS
BALANCE SHEET - MODIFIED CASH BASIS
DECEMBER 31, 2012

	General Fund	Liquor, Lodging, and Dining Fund	Revolving Loan Fund	Total Governmental Funds
ASSETS:				
101 Cash and Cash Equivalents	$ 47,074	$ 15,894	$ 56,650	**$ 119,618**
151 Investments	300,000	-	-	**300,000**
107.1 Restricted Cash and Cash Equivalents	6,716	-	-	**6,716**
TOTAL ASSETS	**$ 353,790**	**$ 15,894**	**$ 56,650**	**$ 426,334**
FUND BALANCES:				
263 Nonspendable - Cemetery Perpetual Care	$ 100	$ -	$ -	**$ 100**
264 Restricted - Library Trust Fund	6,183	-	-	**6,183**
264 Restricted - Liquor, Lodging, and Dining	-	15,894	-	**15,894**
264 Restricted - Revolving Loan	-	-	56,650	**56,650**
267 Unassigned	347,507	-	-	**347,507**
TOTAL FUND BALANCES	**$ 353,790**	**$ 15,894**	**$ 56,650**	**$ 426,334**

The accompanying notes are an integral part of this statement.

CITY OF EDGEMONT

GOVERNMENTAL FUNDS STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2012

	General Fund	Liquor, Lodging, and Dining Fund	Revolving Loan Fund	Other Funds	Total Governmental Funds
Revenue:					
310 Taxes:					
311 General Property Taxes	$ 300,390	$ -	$ -	$ -	$ 300,390
313 General Sales and Use Taxes	200,860	10,812	-	-	211,672
315 Amusement Taxes	60	-	-	-	60
319 Penalties and Interest on Delinquent Taxes	5,190	-	-	-	5,190
320 Licenses and Permits	7,165	-	-	-	7,165
330 Intergovernmental Revenue:					
331 Federal Grants	96,407	-	-	-	96,407
335 State Shared Revenue:					
335.01 Bank Franchise Tax	1,024	-	-	-	1,024
335.03 Liquor Tax Reversion	5,771	-	-	-	5,771
335.04 Motor Vehicle Licenses (5%)	8,076	-	-	-	8,076
335.08 Local Government Highway and Bridge Fund	27,311	-	-	-	27,311
338 County Shared Revenue:					
338.01 County Road Tax	610	-	-	-	610
338.99 Other	3,500	-	-	-	3,500
340 Charges for Goods and Services:					
341 General Government	22,386	-	8,886	-	31,272
345 Health	142	-	-	-	142
348 Cemetery	5,866	-	-	-	5,866
350 Fines and Forfeits:					
352 Animal Control Fines	248	-	-	-	248
360 Miscellaneous Revenue:					
361 Investment Earnings	2,938	42	1,651	-	4,631
362 Rentals	12,533	-	-	-	12,533
367 Contributions and Donations from Private Sources	4,260	-	-	-	4,260
Total Revenue	704,737	10,854	10,537	-	726,128

CITY OF EDGEMONT

GOVERNMENTAL FUNDS STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2012

	General Fund	Liquor, Lodging, and Dining Fund	Revolving Loan Fund	Other Funds	Total Governmental Funds
Expenditures:					
410 General Government:					
411 Legislative	11,857	-	-	-	11,857
412 Executive	9,722	-	-	-	9,722
413 Elections	448	-	-	-	448
414 Financial Administration	76,022	-	-	-	76,022
415 Attorney	20,656	-	-	-	20,656
420 Public Safety:					
421 Police	118,783	-	-	-	118,783
422 Fire	34,773	-	-	-	34,773
430 Public Works:					
431 Highways and Streets	209,191	-	-	-	209,191
435 Airport	13,330	-	-	-	13,330
437 Cemeteries	6,096	-	-	-	6,096
439 Transportation	1,000	-	-	-	1,000
430 Health and Welfare:					
441 Animal Control	5,050	-	-	-	5,050
442 Meal Program	1,000	-	-	-	1,000
447 Hospitals, Nursing Homes	81,128	-	-	-	81,128
450 Culture and Recreation:					
451 Recreation	22,279	-	-	-	22,279
452 Parks	10,711	-	-	-	10,711
455 Libraries	78,291	-	-	-	78,291
458 Museums	2,500	-	-	-	2,500
460 Conservation and Development:					
463 Urban Redevelopment and Housing	500	-	-	-	500
465 Economic Development and Assistance	-	18,000	5,000	-	23,000
470 Debt Service:					
471 Debt Service (Principal)	2,001	-	-	-	2,001
442 Interest	53	-	-	-	53
Total Expenditures	705,391	18,000	5,000	-	728,391
Other Financing Sources (Uses):					
391.01 Transfers In	4,732	-	-	-	4,732
511 Transfers Out	-	(42)	-	(3,929)	(3,971)
Total Other Financing Sources (Uses)	4,732	(42)	-	(3,929)	761
Net Change in Fund Balances	4,078	(7,188)	5,537	(3,929)	(1,502)
Fund Balances - December 31, 2011	349,712	23,082	51,113	3,929	427,836
Fund Balances - December 31, 2012	**$ 353,790**	**$ 15,894**	**$ 56,650**	**$ -**	**$ 426,334**

The accompanying notes are an integral part of this statement.

CITY OF EDGEMONT

PROPRIETARY FUND
BALANCE SHEET - MODIFIED CASH BASIS
DECEMBER 31, 2012

	Water Fund	Sewer Fund	Solid Waste Fund	Totals
ASSETS:				
Current Assets:				
101 Cash and Cash Equivalents	$ 228,974	$ 47,941	$ 68,584	$ 345,499
TOTAL ASSETS	**$ 228,974**	**$ 47,941**	**$ 68,584**	**$ 345,499**
NET POSITION:				
253.90 Unrestricted Net Position	228,974	47,941	68,584	345,499
TOTAL NET POSITION	**$ 228,974**	**$ 47,941**	**$ 68,584**	**$ 345,499**

The accompanying notes are an integral part of this statement.

CITY OF EDGEMONT

PROPRIETARY FUND STATEMENT OF REVENUES, EXPENSES AND CHANGES IN FUND NET POSITION - MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2012

	Water Fund	Sewer Fund	Solid Waste Fund	Totals
Operating Revenue:				
380 Charges for Goods and Services	$ 216,278	$ 110,415	$ 97,106	**$ 423,799**
Total Operating Revenue	**216,278**	**110,415**	**97,106**	**423,799**
Operating Expenses:				
410 Personal Services	72,194	28,777	18,240	**119,211**
420 Other Current Expense	90,639	90,255	71,341	**252,235**
Total Operating Expenses	**162,833**	**119,032**	**89,581**	**371,446**
Operating Income (Loss)	**53,445**	**(8,617)**	**7,525**	**52,353**
Nonoperating Revenue (Expense):				
361 Investment Earnings	427	219	115	**761**
471 Debt Service (Principal)	(48,029)	(75,965)	-	**(123,994)**
442 Interest Expense	(1,540)	(1,863)	-	**(3,403)**
Total Nonoperating Revenue (Expense)	**(49,142)**	**(77,609)**	**115**	**(126,636)**
Income (Loss) Before Transfers	**4,303**	**(86,226)**	**7,640**	**(74,283)**
Transfers				
511 Transfers Out	(427)	(219)	(115)	**(761)**
Change in Net Position	**3,876**	**(86,445)**	**7,525**	**(75,044)**
Net Position - December 31, 2011	225,098	134,386	61,059	**420,543**
Net Position - December 31, 2012	**$ 228,974**	**$ 47,941**	**$ 68,584**	**$ 345,499**

The accompanying notes are an integral part of this statement.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS
DECEMBER 31, 2012

1. Summary of Significant Accounting Policies

As discussed further in Note 1.c, these financial statements are presented on a modified cash basis of accounting. The modified cash basis of accounting differs from accounting principles generally accepted in the United States of America (GAAP). Generally accepted accounting principles include all relevant Governmental Accounting Standards Board (GASB) pronouncements.

a. Financial Reporting Entity:

The reporting entity of the City of Edgemont (the City) consists of the primary government, which includes all of the funds, organizations, institutions, agencies, departments, and offices that make up the legal entity; those organizations for which the primary government is financially accountable; and other organizations for which the nature and significance of their relationship with the primary government are such that their exclusion would cause the financial reporting entity's financial statements to be misleading or incomplete.

b. Basis of Presentation:

Government-wide Financial Statements:
The Statement of Net Position – Modified Cash Basis and Statement of Activities – Modified Cash Basis display information about the reporting entity as a whole. These statements include all funds of the reporting entity. The statements distinguish between governmental and business-type activities. Governmental activities generally are financed through taxes, intergovernmental revenues, and other non-exchange revenues. Business-type activities are financed in whole or in part by fees charged to external parties for goods or services.

The statement of activities presents a comparison between direct expenses and program revenues for each segment of the business-type activities of the City and for each function of the City's governmental activities. Direct expenses are those that are specifically associated with a program or function and, therefore, are clearly identifiable to a particular function. Program revenues include (a) charges paid by recipients of goods and services offered by the programs and (b) grants and contributions that are restricted to meeting the operational or capital requirements of a particular program. Revenues that are not classified as program revenues, including all taxes, are presented as general revenues.

Fund Financial Statements:
Fund financial statements of the reporting entity are organized into funds, each of which is considered to be a separate accounting entity. Each fund is accounted for by providing a separate set of self-balancing accounts that constitute its assets, liabilities, fund equity, revenues, and expenditures/expenses. Funds are organized into two major categories: governmental and proprietary. An emphasis is placed on major funds within the governmental and proprietary categories. A fund is considered major if it is the primary operating fund of the City or it meets the following criteria:

1. Total assets, liabilities, revenues, or expenditures/expenses of the individual governmental or enterprise fund are at least 10 percent of the corresponding total for all funds of that category or type, and
2. Total assets, liabilities, revenues, or expenditures/expenses of the individual governmental or enterprise fund are at least 5 percent of the corresponding total for all governmental and enterprise funds combined, or
3. Management has elected to classify one or more governmental or enterprise funds as major for consistency in reporting from year to year, or because of public interest in the fund's operations.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONTINUED)
DECEMBER 31, 2012

1. Summary of Significant Accounting Policies (Continued)

b. Basis of Presentation (Continued):

Fund Financial Statements (Continued):

The funds of the City financial reporting entity are described below:

Governmental Funds:

General Fund – the General Fund is the general operating fund of the City. It is used to account for all financial resources except those required to be accounted for in another fund. The General Fund is always considered to be a major fund.

Special Revenue Funds – special revenue funds are used to account for the proceeds of specific revenue sources (other than trusts for individuals, private organizations, or other governments or for major capital projects) that are legally restricted to expenditures for specified purposes.

Liquor, Lodging, and Dining Fund – to account for the collection of a one percent tax on the gross receipts of lodgings, alcoholic beverages, prepared food and admissions, which tax shall be used for the purpose of land acquisition, architectural fees, construction costs, payments for civic center, auditorium or athletic facility buildings, including the maintenance, staffing, and operations of such facilities and the promotion and advertising of the City (SDCL 10-52A-2). This fund may be established at the direction of the governing body through local ordinance. This is a major fund.

Revolving Loan Fund - to account for proceeds received from the State of South Dakota for the purpose of making loans to new and existing businesses in the City for the purpose of facilitating economic growth and development. The City had five notes receivable with balances at December 31, 2012 that require monthly payments ranging from $50 to $100 over a term of five years. These notes receivable are not recorded on the accompanying financial statements in accordance with the modified cash basis of accounting. This is a major fund.

The remaining Special Revenue Fund, the RE&CD, is not considered a major fund and was closed to the General Fund during the year ended December 31, 2012.

Proprietary Funds:

Enterprise Funds – enterprise funds are used to account for operations (a) that are financed and operated in a manner similar to private business enterprises, where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges; or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other purposes.

Water Fund – financed primarily by user charges, this fund accounts for the construction and operation of the municipal waterworks system and related facilities (SDCL 9-47-1). This is a major fund.

Sewer Fund - financed primarily by user charges, this fund accounts for the construction and operation of the municipal sanitary sewer system and related facilities (SDCL 9-48-2). This fund is a major fund.

Solid Waste Fund – financed primarily by user charges, this fund accounts for the collection of garbage. This is a major fund.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONTINUED)
DECEMBER 31, 2012

1. Summary of Significant Accounting Policies (Continued)

c. Measurement Focus and Basis of Accounting:

Measurement focus is a term used to describe how transactions are recorded within the various financial statements. Basis of accounting refers to when revenues and expenditures or expenses are recognized in the accounts and reported in the financial statements, regardless of the measurement focus.

Measurement Focus:
In the government-wide Statement of Net Position – Modified Cash Basis and Statement of Activities – Modified Cash Basis, both governmental and business-type activities are presented using the economic resources measurement focus, applied within the limitations of the modified cash basis of accounting as defined below.

In the fund financial statements, the current financial resources measurement focus or the economic resources measurement focus is used, applied within the limitations of the modified cash basis of accounting.

Basis of Accounting:
All financial statements are presented using a modified cash basis of accounting, which is a basis of accounting other than GAAP. The modified cash basis of accounting involves the measurement of cash and cash equivalents and changes in cash and cash equivalents resulting from cash receipt and disbursement transactions. Under the modified cash basis of accounting, the statement of financial position reports only cash and cash equivalents. Under the modified cash basis of accounting, transactions are recorded in the accounts when cash and/or cash equivalents are received or disbursed and assets and liabilities are recognized to the extent that cash has been received or disbursed. Acceptable modifications to the cash basis of accounting implement by the City in these financial statements is recording long-term investments (those with maturities greater than three months from the date of acquisition) acquired with cash assets at cost.

Under GAAP, transactions are recorded in the accounts when revenue is earned and liabilities are incurred. As a result of reporting on the modified cash basis of accounting, certain assets (i.e. accounts receivable and capital assets) and their related revenues (such as revenue for billed or provided services not yet collected) and certain liabilities and their related expenses (such as accounts payable and expenses for goods or services received but not yet paid, accrued expenses and liabilities, and capital asset related debt) are not recorded in these financial statements.

If the City applied GAAP, the fund financial statements for governmental funds would use the modified accrual basis of accounting, while the fund financial statements for proprietary fund types would use the accrual basis of accounting. All government-wide financial statements would be presented on the accrual basis of accounting.

d. Deposits and Investments:

For the purpose of financial reporting, "cash and cash equivalents" includes all demand and savings accounts and investments with a term to maturity at the date of acquisition of three months or less.

e. Capital Assets:

Under the modified cash basis of accounting, the City's capital assets are considered a cost of the program for which they were acquired, for the amount paid in cash, in the government-wide financial statements, the governmental fund financial statements, and the proprietary fund financial statements.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONTINUED)
DECEMBER 31, 2012

1. Summary of Significant Accounting Policies (Continued)

f. Long-Term Liabilities:

Under the modified cash basis of accounting, cash proceeds from long-term debt issuances are recorded as a receipt, while payments to creditors to reduce long-term debts are recorded as a cost of the program which benefits from the financing. Allocations are made where appropriate. Interest costs are not allocated, but are reported as a separate program cost category.

Long-term debts arising from cash transactions of all funds are not reported as liabilities in these modified cash basis financial statements.

g. Program Revenues:

Program revenues derive directly from the program itself or from parties other than the City's taxpayers or citizenry, as a whole. Program revenues are classified into three categories, as follows:

1. Charges for services – These arise from charges to customers, applicants, or others who purchase, use, or directly benefit from the goods, services, or privileges provided, or are otherwise directly affected by the services.
2. Program-specific operating grants and contributions – These arise from mandatory and voluntary non-exchange transactions with other governments, organizations, or individuals that are restricted for use in a particular program.
3. Program-specific capital grants and contributions – These arise from mandatory and voluntary non-exchange transactions with other governments, organizations, or individuals that are restricted for the acquisition of capital assets for use in a particular program.

h. Proprietary Funds Revenue and Expense Classifications:

In the Proprietary Fund Statement of Revenues, Expenses, and Changes in Fund Net Position – Modified Cash Basis, revenues and expenses are classified as operating revenues and expenses unless the transactions relate to capital and related financing activities, noncapital financing activities, or investing activities.

i. Equity Classification Policies and Procedures:

Government-wide Statements:
Equity is classified as net position and is displayed in two components under the cash basis:

1. Restricted net position – Consists of net position with constraints placed on their use either by (a) external groups such as creditors, grantors, contributors, or laws and regulations of other governments; or (b) law through constitutional provisions or enabling legislation.

2. Unrestricted net position – All other net position that does not meet the definition of restricted.

Fund Financial Statements:
Proprietary fund equity is classified the same as in the government-wide financial statements. The City uses restricted net position first when both restricted and unrestricted net position balances are available.

The City classifies governmental fund balance as follows:

1. Non-spendable – includes fund balance amounts that cannot be spent either because it is not in spendable form or because of legal or contractual constraints.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONTINUED)
DECEMBER 31, 2012

1. Summary of Significant Accounting Policies (Concluded)

i. Equity Classification Policies and Procedures (Continued):

Fund Financial Statements (Continued):

2. Restricted – includes fund balance amounts that are constrained for specific purposes which are externally imposed by providers, such as creditors or amounts constrained due to constitutional provisions or enabling legislation.
3. Committed – includes fund balance amounts that are constrained for specific purposes that are internally imposed by the government through formal action of the highest level of decision making authority and does not lapse at year-end.
4. Assigned – includes fund balance amounts that are intended to be used for specific purposes that are neither considered restricted or committed. Fund balance may be assigned by the City Council, Mayor, or Finance Officer.
5. Unassigned – includes positive fund balance within the General Fund which has not been classified within the above-mentioned categories and negative fund balances in other governmental funds.

The City does not have a formal minimum fund balance policy.

The City uses restricted amounts first when both restricted and unrestricted fund balances are available. Additionally, the City would first use committed, then assigned, and lastly unassigned amounts of unrestricted fund balance when expenditures are made.

2. Deposits and Investments

The City follows the practice of aggregating the cash assets of various funds to maximize cash management efficiency and returns. Various restrictions on deposits and investments are imposed by statutes. These restrictions are summarized below:

Deposits - The City's cash deposits are made in qualified public depositories as defined by SDCL 4-6A-1, 9-22-6, 9-22-6.1, and 9-22-6.2, and may be in the form of demand or time deposits. Qualified depositories are required by SDCL 4-6A-3 to maintain at all times, segregated from their other assets, eligible collateral having a value equal to at least 100 percent of the public deposit accounts which exceed deposit insurance such as the FDIC and NCUA. In lieu of pledging eligible securities, a qualified public depository may furnish irrevocable standby letters of credit issued by Federal Home Loan Banks accompanied by written evidence of that bank's public debt rating, which may not be less than "AA," or a qualified public depository may furnish a corporate surety bond of a corporation authorized to do business in South Dakota.

Investments - In general, SDCL 4-5-6 permits City funds to be invested in (a) securities of the United States and securities guaranteed by the United States government either directly or indirectly including, without limitation, United States treasury bills, notes, bonds, and other obligations issued or directly or indirectly guaranteed by the United States government, or otherwise directly or indirectly backed by the full faith and credit of the United States government; provided that, for other than permanent, trust, retirement, building, and depreciation reserve funds, such securities shall either mature within eighteen months from the date of purchase or be redeemable at the option of the holder within eighteen months from the date of purchase; or (b) repurchase agreements fully collateralized by securities described in and meeting the requirements of § 4-5-9, if the repurchase agreements are entered into only with those primary reporting dealers that report to the Federal Reserve Bank of New York and with the one hundred largest United States commercial banks, as measured by domestic deposits; or (c) in shares of an open-end, no-load fund administered by an investment company registered under the Federal Investment Company Act of 1940, whose shares are registered under the Federal Securities Act of 1933 and whose only investments are in securities described in (a) and repurchase agreements described in (b).

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONTINUED)
DECEMBER 31, 2012

2. Deposits and Investments (Continued)

The City had only checking accounts, savings accounts, and a certificate of deposit at December 31, 2012.

Custodial Credit Risk:

The risk that, in the event of a depository failure, the City's deposits may not be returned to it. The City does not have a deposit policy for custodial credit risk.

Interest Rate Risk:

The City does not have a formal policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

Credit Risk:

State law limits eligible investments for the City, as discussed above. The City has no investment policy that would further limit its investment choices.

State law allows income from deposits and investments to be credited to either the General Fund or the fund making the investment. The City's policy is to credit all income from investments to the General Fund, including investment income generated by the Cemetery Perpetual Care Fund, which must be credited to the General Fund, and used only for maintenance of the municipal cemetery, as required by SDCL 9-32-18, except for the private-purpose trust fund(s) which retains its investment income. USGAAP, on the other hand, requires income from deposits and investments to be reported in the fund whose assets generated that income except where legal or contractual requirements require investment income to be credited to a fund other than the one associated with the assets. Where the governing board has discretion to credit investment income to a fund other than the fund that provided the resources for investment, a transfer to the designated fund is reported. Accordingly, in the fund financial statements, interfund transfers of investment earnings are reported, while in the government-wide financial statements, they have been eliminated, except for the net amounts transferred between governmental activities and business-type activities.

3. Property Taxes

Property taxes are levied on or before October 1, of the year preceding the start of the fiscal year. They attach as an enforceable lien on property, and become due and payable as of January 1, the first day of the fiscal year. Taxes are payable in two installments on or before April 30 and October 31 of the fiscal year. The City is permitted by several state statutes to levy varying amounts of taxes per $1,000 of taxable valuation on taxable real property in the City.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONTINUED)
DECEMBER 31, 2012

4. Long-Term Debt

Changes in long-term debt for the year ending December 31, 2012 are as follow:

	Balance 12/31/2011	Additions	Deletions	Balance 12/31/2012	Due Within One Year
Primary Government:					
First Interstate Bank	$ 43,614	$ -	$ 43,614	$ -	$ -
National Rural Water Association	71,511	-	71,511	-	-
Northland Capital - Trash Pump	-	24,430	5,558	18,872	4,590
GE - Skid Steer Loader	-	23,370	5,312	18,058	4,439
Total Primary Government	**$ 115,125**	**$ 47,800**	**$ 125,995**	**$ 36,930**	**$ 9,029**

Long-term debt at December 31, 2012 is comprised of the following:

Lease of skid steer due in monthly installments of $447.47, including interest at 5.8 percent through October 2017. Paid from General, Water and Sewer Funds.	$ 18,058
Lease of trash pump due in monthly installments of $467.59, including interest at 5.5 percent through September 2015. Paid from Water and Sewer Funds.	18,872
	$ 36,930

The annual requirements to amortize all debt outstanding as of December 31, 2012, are as follows:

	Principal	Interest
2013	$ 9,029	$ 1,951
2014	9,647	1,334
2015	10,208	772
2016	8,046	191
Total	**$ 36,930**	**$ 4,248**

5. Retirement Plan

All employees, except for part-time employees, participate in the South Dakota Retirement System (SDRS), a cost-sharing, multiple employer public employee retirement system established to provide retirement benefits for employees of the State of South Dakota and its political subdivisions. The SDRS provides retirement, disability and survivor benefits. The right to receive retirement benefits vests after three years of credited service. Authority for establishing, administering and amending plan provisions are found in South Dakota Codified Law 3-12. The SDRS issues a publicly available financial report that includes financial statements and required supplementary information. That report may be obtained by writing to the SDRS, P.O. Box 1098, Pierre, SD 57501-1098 or by calling (605) 773-3731.

General employees are required by state statute to contribute 6 percent of their salary to the plan, while public safety and judicial employees contribute at 8 percent and 9 percent, respectively. State statute also requires the employer to contribute an amount equal to the employee's contribution. State statute also requires the employer to make an additional contribution in the amount of 6.2 percent for any compensation exceeding the maximum taxable amount for social security for general employees only. The City's share of contributions to the SDRS for the fiscal years ended December 31, 2012, 2011, and 2010 were **$12,080,** $12,187, and $14,325, respectively, equal to the required contributions each year.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONTINUED)
DECEMBER 31, 2012

6. Risk Management

The City is exposed to various risks of loss related to torts; theft of, damage to, and destruction of property; errors and omissions; injuries to employees; and natural disasters. During the period ended December 31, 2012, the City managed its risks as follows:

Unemployment Benefits:

The City provides coverage for unemployment benefits by paying into the Unemployment Compensation Fund established by state law and managed by the State of South Dakota.

Health Insurance:

The City purchases health insurance for its employees from a commercial insurance carrier. Settled claims resulting from these risks have not exceeded the liability coverage during the past three years.

Liability Insurance:

The City joined the South Dakota Public Assurance Alliance (SDPAA), a public entity risk pool currently operating as a common risk management and insurance program for South Dakota local government entities. The objective of the SDPAA is to administer and provide risk management services and risk sharing facilities to the members and to defend and protect the members against liability, to advise members on loss control guidelines and procedures, and provide them with risk management services, loss control and risk reduction information and to obtain lower costs for that coverage. The City's responsibility is to promptly report to and cooperate with the SDPAA to resolve any incident which could result in a claim being made by or against the City. The City pays an annual premium, to provide liability coverage detailed below, under a claims-made policy, and the premiums are based on their exposure or type of coverage to the pool to provide coverage for general liability, officials' liability, automobile liability and damage, property damage and boiler and machinery coverage.

The agreement with the SDPAA provides that the above coverage will be provided to a $2,000,000 limit. Member premiums are used by the pool for payment of claims and to pay for reinsurance for claims in excess of $250,000 for property coverage and $500,000 for liability coverage to the upper limit. A portion of the member premiums are also allocated to a cumulative reserve fund.

The City would be eligible to receive a refund for a percentage of the amount allocated to the cumulative reserve fund on the following basis:

End of the City's First Full Year	50%
End of the City's Second Full Year	60%
End of the City's Third Full Year	70%
End of the City's Fourth Full Year	80%
End of the City's Fifth Full Year	90%
End of the City's Sixth Full Year and Thereafter	100%

As of December 31, 2012, the City has a vested balance in the cumulative reserve fund of **$29,539**, which is not recorded in the cash basis financial statements of the City.

The City does not carry additional insurance to cover claims in excess of the upper limit. Settled claims resulting from these risks have not exceeded the liability coverage during the past three years.

CITY OF EDGEMONT

NOTES TO FINANCIAL STATEMENTS – MODIFIED CASH BASIS (CONCLUDED)
DECEMBER 31, 2012

6. Risk Management (Continued)

Worker's Compensation:

The City joined the South Dakota Municipal League Worker's Compensation Fund (the Fund), a public entity risk pool currently operating as a common risk management and insurance program for South Dakota local government entities. The objective of the Fund is to formulate, develop, and administer, on behalf of the member organizations, a program of worker's compensation coverage, to obtain lower costs for that coverage, and to develop a comprehensive loss control program. The City's responsibility is to initiate and maintain a safety program to give its employees safe and sanitary working conditions and to promptly report to and cooperate with the Fund to resolve any worker's compensation claims. The City pays an annual premium to provide worker's compensation coverage for its employees under a self-funded program, and the premiums are accrued based on the ultimate cost of the experience to date of the Fund members. Coverage limits are set by state statute. The pool pays the first $650,000 of any claim per individual. The pool has reinsurance which covers up to an additional $2,000,000 per individual per incident.

The City does not carry additional insurance to cover claims in excess of the upper limit. Settled claims resulting from these risks have not exceeded the liability coverage during the past three years.

7. Interfund Transfers

Interfund transfers for the year ended December 31, 2012, were as follows:

	Transfer In	Transfer Out
General Fund	$ 4,732	$ -
Liquor, Lodging, & Dining Fund	-	42
Other Funds	-	3,929
Water Fund	-	427
Sewer Fund	-	219
Solid Waste Fund	-	115
Total	**$ 4,732**	**$ 4,732**

Transfers were made during the year to transfer interest income into the General Fund and to close the RE&CD fund to the General Fund.

8. Operating Leases

The City has a lease for a copier that requires a monthly payment of $280 through December 1, 2016.

9. Subsequent Events

The City entered into a capital lease subsequent to year end for the purchase of a bobcat. The principal of the capital lease is $45,792 and the lease requires monthly payments of $875 through April 2018.

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INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

City Council
City of Edgemont
Edgemont, South Dakota

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the modified cash basis financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City of Edgemont (the City) as of and for the year ended December 31, 2012, and the related notes to the financial statements, which collectively comprise the City's basic financial statements, and have issued our report thereon dated June 17, 2014.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the City's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control. Accordingly, we do not express an opinion on the effectiveness of the City's internal control.

Our consideration of internal control was for the limited purpose described in the preceding paragraph and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that were not identified. However, as described in the accompanying Schedule of Findings, we identified certain deficiencies in internal control that we consider to be material weaknesses and a significant deficiency.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the City's financial statements will not be prevented, or detected and corrected, on a timely basis. We consider the deficiencies described in the accompanying Schedule of Findings as 2012-1 through 2012-4 to be material weaknesses.

A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance. We consider the deficiency described in the accompanying Schedule of Findings as 2012-05 to be a significant deficiency.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the City's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards* and which are described in the accompanying Schedule of Findings as 2012-04 and 2012-03.

City's Response to Findings

The City's response to the findings identified in our audit is described in the accompanying Schedule of Findings. The City's response was not subjected to the auditing procedures applied in the audit of the financial statements and, accordingly, we express no opinion on the response.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the City's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the City's internal control and compliance. Accordingly, this communication is not suitable for any other purpose. As required by South Dakota Codified Law 4-11-11, this report is a matter of public record and its distribution is not limited.

Ketel Thorstenson, LLP

KETEL THORSTENSON, LLP
Certified Public Accountants

June 17, 2014

CITY OF EDGEMONT

SCHEDULE OF FINDINGS
DECEMBER 31, 2012

A. SUMMARY OF PRIOR YEAR AUDIT FINDINGS AND RECOMMENDATIONS

The City still has a limited number of employees, so finding 2011-2 will be repeated as 2012-03.

The City reports on a modified cash basis of accounting and all revolving loan activity is recorded in the accompanying financial statements, thus finding 2011-1 will not be repeated.

B. FINDINGS – FINANCIAL STATEMENT AUDIT

Material Weaknesses

Finding No. 2012-01: Financial Statement Preparation

Cause and Condition: The City does not have an internal control system designed to provide for the preparation of the financial statements being audited, including the related footnote disclosures. As auditors, we were requested to draft the financial statements and accompanying notes to the financial statements. This circumstance is not unusual in a City of your size.

Criteria and Effect: This control deficiency could result in a material misstatement to the financial statements that would not be prevented or detected by your City's internal control system.

Recommendation: It is the responsibility of management and those charged with governance to make the decision whether to accept the degree of risk associated with this condition because of cost or other considerations.

Response/Corrective Action Plan: The City accepts the risk associated with this condition.

Finding No. 2012-02: Audit Adjustments

Cause and Condition: During the audit process we proposed several audit adjustments, including reclassifying expenditures to proper functions, reclassifying revenue to proper utility funds, adjusting fund cash balances, rolling forward equity and eliminating duplicated revenue and expenditure activity.

Criteria and Effect: This control deficiency resulted in a material misstatement to the financial statements that was not prevented or detected by your City's internal control system.

Recommendation: Due diligence should be used in recording City activity to prevent duplicating activity and to ensure transactions are recorded in the proper funds and accounts. As a part of the bank reconciliation process, the City needs to ensure that cash by fund matches the total bank accounts of the City.

Response/Corrective Action Plan: The City is working to change software to allow for more accurate recording of transactions.

CITY OF EDGEMONT

SCHEDULE OF FINDINGS (CONTINUED)
DECEMBER 31, 2012

B. FINDINGS – FINANCIAL STATEMENT AUDIT (CONTINUED)

Material Weaknesses (Continued)

Finding No. 2012-03: Segregation of Duties and Internal Controls

Cause and Condition: Proper segregation of duties assumes adequate internal control over the safeguarding of assets and the reliability of financial records and reporting. The City has a general lack of segregation of duties, specifically:

1. The Assistant Finance Officer has the ability to accept utility and other payments, prepares utility billings, posts utility payments, and makes adjustments to customer accounts.
2. The finance office prepares checks, receives signed checks, handles vendor questions, has general ledger access prepares the bank reconciliation, and no one reviews the bank reconciliation.
3. We noted that the bank reconciliation in the software did not match to the general ledger due to a missing outstanding check.
4. The finance officer posts adjustments, which are not reviewed by anyone. The Council receives only a claims report during Council meetings.
5. Budget documents were found for 2012; however, no council minutes indicated a formal budget was adopted.
6. The council members who sign City vouchers and check signers were not provided invoices or other supporting documentation of the expenditure.
7. The City has no formal process to track internal and external restrictions. The City maintains a revolving loan fund to account for funds restricted by the State to provide economic development loans; however, no documentation of this funding restriction could be provided. Finally, the city charges a repair and replacement fee to utility customers to cover costs of repair of utility infrastructure, but there is no tracking of the fees collected and amounts spent on repairs.

Criteria and Effect: The City is susceptible to misappropriation or error.

Recommendations:

1. The Finance Officer, mayor or city council member should review a utility adjustment report and monthly aging report.
2. The mayor or city council member should get the bank statement unopened and review such for propriety along with the monthly bank reconciliation. The office assistant should prepare checks for mailing.
3. The bank reconciliation should be prepared timely and differences identified adjusted. Future issues should be corrected at a date after the previous bank reconciliation or noted on past reconciliations.
4. The mayor or council member should review general ledger adjustments. The city council member should be receiving Banyon-generated budget to actual revenue and expenditure reports at least monthly.
5. The City should annually adopt a budget in accordance with state statute.
6. Invoices or other supporting documentation should accompany all vouchers and checks, so that signers can review it. The reviewers should also evaluate the accuracy and consistency of the expenditure account coding.
7. The City should obtain and maintain documentation to support its externally and internally restricted balances. The activity related to these restrictions should also be tracked.

Response/Corrective Action Plan:

1. Utility adjustment reports are now being reviewed by the Finance Committee monthly.
2. The Mayor will review unopened bank statements and then the Finance Committee will review them at the same time as the claims.
3. Finance Officer will prepare bank reconciliations in a more timely manner.
4. Banyon is just beginning to be implemented and the reports will be generated monthly.
5. The City has already adopted this practice.
6. Claim forms accompany all invoices that are reviewed by the Finance Committee.
7. Finance Officer is working with Banyon Systems to get these accounts set up so the balances can be tracked more easily.

CITY OF EDGEMONT

SCHEDULE OF FINDINGS (CONTINUED)
DECEMBER 31, 2012

B. FINDINGS – FINANCIAL STATEMENT AUDIT (CONTINUED)

Material Weaknesses (Concluded)

Finding No. 2012-04: Testing Errors and Lack of Supporting Documentation

Cause and Condition: During our audit process, we select revenue and expenditure transactions to test by agreeing such to supporting documentation. The results of that testing identified the following issues:

1. Utility Rates: The rates charged to customers for utilities (water, sewer and garbage) did not match an approved City ordinance. In some instances, it was unknown what rate certain customers should be charged based on existing ordinance.
2. Payroll Testing:
    a. We noted 2 instances in which the finance officer worked under 80 hours (.5 to 1 hour), but she was paid her full salary.
    b. We noted one instance in which the finance officer's time card was not signed by the mayor.
    c. We noted that one employee was overpaid $16.50 due to a math error on her time card.
    d. We noted no approved pay rate for one employee.
    e. We noted 2 employee's hourly pay rate did not match the approved amount in the council minutes. No supporting documentation could be located to indicate a subsequent change to the approved rate.
3. Disbursement (Nonpayroll) Testing:
    a. We noted 2 checks of 40 tested that did not have two signatures on the check in accordance with State Law.
    b. We noted 6 disbursements of 40 selected only had a voucher to support the expenditure. One of these included a reimbursement for the medical/pharmaceutical allowance that was not supported by related invoices.
    c. We noted 1 disbursement of 40 selected only had the statement to support the expenditures.
    d. We noted 3 transactions of 40 selected were not approved in the claim listing in the City Council minutes.
    e. We noted that all check activity for the library bank account for the entire year was accounted for by posting one "check" and one deposit into QuickBooks.

Criteria and Effect: Complete utility ordinances are necessary to fairly and properly charge customers for services. Adequate supporting documentation ensures that all payments are made for valid City expenditures.

Recommendations:
1. Utility Rates: The City should update its ordinances to cover all customers and ensure that each customer is charged such.
2. Payroll Testing: Time cards should be carefully reviewed for accuracy. Compensated leave time should be properly tracked by the finance officer and reviewed for propriety by the mayor or City Council. Employees should be paid approved rates, which should be part of the review process when check signers sign payroll checks. In accordance with state law, a complete listing of all employee pay rates shall be published annually and when a new employee is added or whose salary has been increased.
3. Disbursement (Nonpayroll) Testing: Proper supporting documentation should be maintained for all expenditures including detailed invoices. All claims should be approved prior to payment or at the following City Council meeting if prior approval is not possible. Library activity should be accounted for monthly.

Response/Corrective Action Plan:
1. Currently the Ordinance is being corrected to ensure that each customer is charged properly.
2. Time cards are being reviewed by supervisors and then the Finance Officer. The Library Board has been informed of our concerns and we are working with them to implement the same due diligence. Guidelines will be presented to the Library Board in writing.
3. Claims are reviewed and initialed by all members of the Finance Committee. If one of the members is absent the Mayor also signs off on the claims. Again, the Library Board has also been informed of our concerns about "checks and balances."

CITY OF EDGEMONT

SCHEDULE OF FINDINGS (CONCLUDED)
DECEMBER 31, 2012

B. FINDINGS – FINANCIAL STATEMENT AUDIT (CONTINUED)

Significant Deficiencies

Finding No. 2012-05: Controls over Information Technology

Cause and Condition: The City performs backups of financial data only on a monthly basis, the backups are maintained on-site, and the backups have never been tested.

Criteria and Effect: There is a risk that financial data could be lost and need to be re-entered because backups are stored on-site and are not tested.

Recommendation: We recommend all backups be completed at least weekly, be maintained off-site, and be tested on a regular basis to ensure adequate backups are properly functioning.

Response/Corrective Action Plan:
The Finance Officer performs backups weekly and are maintained off site. The backups are being tested quarterly. The backups for the Utility Billing are backed up nightly and maintained both on and off site.

ORDINANCE 2014-09-02

2015 APPROPRIATION ORDINANCE

BY THE COMMON COUNCIL OF THE CITY OF EDGEMONT THAT THE FOLLOWING SUMS ARE APPROPRIATED TO MEET THE OBLIGATIONS OF THE MUNICIPALITY FOR FISCAL YEAR 2015

EXPENDITURES	GENERAL FUND 101	LIQUOR, LODGING, & DINING SALES TAX 211	WATER 602	SEWER 604	SOLID WASTE 612	MEMO TOTAL
410 GENERAL GOVERNMENT						
411 Council	$ 12,568.00					$ 12,568.00
412 Executive	$ 11,025.00					$ 11,025.00
413 Elections	$ 750.00					$ 750.00
414 Financial Administration	$ 82,959.00					$ 82,959.00
414.1 & 2 Attorney & Auditor	$ 20,585.00					$ 20,585.00
411.5 Contingency	$ 55,036.00					$ 55,036.00
						$ -
TOTAL	**$ 182,923.00**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 182,923.00**
420 PUBLIC SAFETY						$ -
						$ -
421 Police	$ 116,000.00					$ 116,000.00
422 Fire Department	$ 45,381.82					$ 45,381.82
423 Building Inspector/City Engineer	$ 16,500.00					$ 16,500.00
						$ -
TOTAL	**$ 177,881.82**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 177,881.82**
						$ -
430 PUBLIC WORKS						$ -
						$ -
431 Streets	$ 215,615.51					$ 215,615.51
432 Sanitation-Rubble Site	$ -					$ -
432.3 Sanitation-Refuse Collection	$ -				$ 95,493.22	$ 95,493.22
432.5 Sewer				$ 74,924.76		$ 74,924.76

432.6 Sewer-Repair & Restoration				$ 10,000.00			$ 10,000.00
433 Water			$ 128,099.03				$ 128,099.03
433.1 Water-Repair & Restoration			$ 12,855.93				$ 12,855.93
435 Airport	$ 8,050.55						$ 8,050.55
436 Sanitation-C-FR Landfill							$ -
437 Cemetery	$ 7,500.00						$ 7,500.00
TOTAL	**$ 231,166.06**	**$ -**	**$ 140,954.96**	**$ 84,924.76**	**$ 95,493.22**		**$ 552,539.00**

	GENERAL FUND 101	LIQUOR, LODGING, & DINING SALES TAX 211	WATER 602	SEWER 604	SOLID WASTE 612	MEMO TOTAL
440 HEALTH AND WELFARE						
441.2 Animal Control	$ 11,600.00					$ 11,600.00
441.3 West Nile	$ 2,985.15					$ 2,985.15
447 Hospital-Nursing Home-Rest Hon	$ 3,000.00					$ 3,000.00
TOTAL	**$ 17,585.15**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 17,585.15**

	GENERAL FUND 101	LIQUOR, LODGING, & DINING SALES TAX 211	WATER 602	SEWER 604	SOLID WASTE 612	MEMO TOTAL
450 CULTURE AND RECREATION						
451.2 Swimming Pool	$ 19,240.35					$ 19,240.35
451.4 Edgemont Senior Citizens	$ 4,300.00					$ 4,300.00
452.2 Park Areas	$ 12,885.00					$ 12,885.00
452.3 Parkways & Boulevards	$ 1,000.00					$ 1,000.00
455 Library	$ 83,349.63					$ 83,349.63
456.3 Promoting The City	$ 3,701.04	$ 9,298.96				$ 13,000.00
458 Museum	$ 5,387.05					$ 5,387.05

	TOTAL	$	129,863.07	$	9,298.96	$	-	$	-	$	-	$ 139,162.03
460 CONSERVATION & DEVELOPMENT												
	463 Neighborhood Housing Services	$	650.00									$ 650.00
470 DEBT SERVICE												
	470 Debt Service					$	-	$	-			$ -
	TOTAL	$	-			$	-	$	-	$	-	$ -
**	SUB-TOTAL APPROPRIATIONS	$	740,069.10	$	9,298.96	$	140,954.96	$	84,924.76	$	95,493.22	$ 1,070,741.00
510 DEBT SER\	OTHER FINANCING USES											
	5110 Operating Transfers Out	$	-			$	20,000.00	$	20,000.00	$	20,000.00	$ 60,000.00
	GRAND TOTALS	$	740,069.10	$	9,298.96	$	160,954.96	$	104,924.76	$	115,493.22	$ 1,130,741.00
**	TOTAL APPROPRIATIONS	$ 1,130,741.00										

Part II

The following designates the fund or funds that money derived from the following sources is applied to:

	GENERAL FUND 101	LIQUOR, LODGING, & DINING SALES TAX 211	WATER 602	SEWER 604	SOLID WASTE 612	MEMO TOTAL
UNAPPROPRIATED FUND BALANCE	$ 130,245.92		$ -	$ -	$ -	$ 130,245.92
310 Taxes	$ 435,059.73	$ 10,150.00				$ 445,209.73

	320	Licenses & Permits	$	2,617.47								$	2,617.47
	330	Intergovernmental	$	45,203.48	$	5,868.00						$	51,071.48
	340	Charges for Goods & Services	$	7,502.04			$	216,540.00	$	112,120.00	$ 93,834.00	$	429,996.04
	350	Fines & Forfeiture	$	2,500.00								$	2,500.00
	360	Miscellaneous	$	9,100.36								$	9,100.36
	390	Other Sources	$	-								$	-
**	**SUB-TOTAL MEANS OF FINANCE**		**$**	**632,229.00**	**$**	**16,018.00**	**$**	**216,540.00**	**$**	**112,120.00**	**$ 93,834.00**	**$**	**1,070,741.00**
	3911 Operating Transfers In		$	60,000.00								$	60,000.00
												$	-
**	**TOTAL MEANS OF FINANCE**		**$**	**692,229.00**	**$**	**16,018.00**	**$**	**216,540.00**	**$**	**112,120.00**	**$ 93,834.00**	**$**	**1,130,741.00**
							$	**55,585.04**	**$**	**7,195.24**	**$ (21,659.22)**	**$**	**41,121.06**

Part II (continued)

PROPRIETARY & FIDUCIARY FUNDS	**WATER** 602	**WATER R & R** 602	**SEWER** 604	**SEWER R & R** 604	**SOLID WASTE** 612

Unappropriated Fund Balance	$ 275,060.00	$ 5,611.00	$ 76,474.00	$ 81,235.00	$ 29,367.00
Estimated Revenue	$ 168,420.00	$ 48,120.00	$ 92,872.00	$ 19,248.00	$ 93,834.00
TOTAL AVAILABLE	$ 443,480.00	$ 53,731.00	$ 169,346.00	$ 100,483.00	$ 123,201.00
Less Appropriations	$ (128,099.00)	$ (12,856.00)	$ (74,925.00)	$ (10,000.00)	$ (95,493.00)
ESTIMATED SURPLUS	$ 315,381.00	$ 40,875.00	$ 94,421.00	$ 90,483.00	$ 27,708.00
Less Estimated Surplus Retained	$ 295,381.00	$ 40,875.00	$ 74,421.00	$ 90,483.00	$ 7,708.00
ESTIMATED SURPLUS TO BE TRANSFERRED TO GOVERNMENTAL FUNDS	$ 20,000.00	$ -	$ 20,000.00	$ -	$ 20,000.00

Part III Not Applicable
Part IV

The Finance Officer is directed to certify the following dollar amount of tax levies to County Auditor:

GENERAL FUND $321,121.48

CITY OF EDGEMONT
Edgemont, South Dakota

		McDermand	aye
		Schepler	aye
First Reading:	September 2, 2014	Stalcup	aye
Second Reading:	September 16, 2014	Strozewski	aye
Published:	September 25, 2014	West	aye
Effective:	October 16, 2014	Woodward	aye

Carl A Shaw, Mayor

ATTEST:

Karen S Cain, Finance Officer

RESOLUTION 2011-12-2-1

A RESOLUTION TO SET WATER CONNECTION AND USAGE FEES

WHEREAS Ordinance 2011-09-06 allows water usage rates to be set by resolution of the Edgemont Common Council, and

WHEREAS Ordinance 2011-09-06 allows for any and all other rates relating to water connection or usage to be set by resolution of the Edgemont Common Council.

THEREFORE the following monthly rates, along with applicable taxes, shall apply for water connection or usage as ordained by Ordinance 2011-09-06:

Base rate for up to 5,000 gallons	$25.00
5,001 to 20,000 gallons	$ 1.00/1,000 gallons
20,001 and over	$ 2.00/1,000 gallons
Repair and Replacement (as per Resolution 1991-10)	$10.00
Late Fee:	$ 15.00
Out of City Limits Fee	$20.00
Returned Check Fee	$40.00
Connect/Disconnect Fee:	$ 25.00
New Service	
Tapping Fee:	$400.00
Meter Installation Fee:	$300.00

AND THEREFORE these rates will be effective for the July 2012 billing cycle.

Dated this 2nd day of December, 2011.

EDGEMONT COMMON COUNCIL
Edgemont, South Dakota

James Turner

James Turner, Mayor

ATTEST:

Tami Habeck

Tami Habeck, Finance Officer

(SEAL)

Published: December 7, 2011
Effective: December 27, 2011

Bennett:	nay	Bryan:	aye
Cortney:	aye	Eberle:	nay
Shaw:	aye	Strozewski:	aye

City of Edgemont Schedule of Fees

Peddler,s License	$ 25.00
Type C Contractor's License	$ 25.00
Type B Contractor's License	$ 50.00
Type A Contractor's License	$ 100.00
Circus, Show, or Carnival License Fee	$ 50.00
All attractions which offer prizes for feats of skill	$ 10.00
Pet Licenses	
Neutered pet	$ 5.00
Non - neutered pet	$ 15.00
Kennel License	$ 50.00
Golf Cart Licenses	$ 15.00
Special Event Alcoholic Beverage License	$ 25.00

Black/White Copies	$ 0.20
double sided	$ 0.30
Color Copies	$ 1.00
double sided	$ 1.75
Fax Services	$ 1.00
Late Fees	$ 15.00
Returned Checks	$ 40.00

Grave sites	$ 150.00
Children sites	
(under 12 years of age)	$ 75.00
Infant sites	
(under 13 months)	$ 50.00
Interment Services	
Casket	$ 250.00
Cremains	$ 100.00
Outside of Business Hours	$ 300.00
Disenterment Services	$ 550.00

Permit to move building			$ 10.00
Demolition permit			$ 10.00
Building Permit			
$ -	-	$ 500.00	$23.50
$ 501.00	-	$ 2,000.00	$23.50 + $3.05 for each $100 over $500
$ 2,001.00	-	$ 25,000.00	$69.25 + $14 for each $1,000 over $,2000
$ 25,001.00	-	$ 50,000.00	$391.25 + $10.10 for each $1,000 over $25,000
$ 50,001.00	-	$ 100,000.00	$643.75 + $7 for each $1,000 over $50,000
$ 100,001.00	-	$ 500,000.00	$993.75 + $5.60 for each $1,000 over $100,000
$ 500,001.00	-	$ 1,000,000.00	$3233.75 + $4.75 for each $1,000 over $500,000
$ 1,000,001.00	-	and up	$5,608.75 + 3.65 for each $1,000 over 1,000,000

Water - Monthly	
0 - 5000 gallons	$ 25.45
5001- 20,000 gallons	$ 1.00
20,001 gallons and over	$ 2.00
Repair and Replacement	$ 10.00
Connection/Disconnection	$ 25.00
Tapping Fee	$ 400.00
Meter Installation	$ 300.00
Out of City Limits	$ 20.00
Sewer (based on metered water) - Monthly	
0 -10,000 gallons	$ 19.30
10,001 - 20,000 gallons	$ 1.00
20,001 and over	$ 2.00
Repair and Replacement	$ 4.00
Out of City Limits	$ 20.00
Tapping Fee	$ 400.00
Garbage - Monthly	
Garbage pickup	19.50 + tx
Clean-Up	1.30 + tx

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Financial Calculators
Mortgage Calculator
Loan Calculator
Auto Loan Calculator
Interest Calculator
Real Estate Calculator
Take-Home-Paycheck Calculator
Payment Calculator
Retirement Calculator
Amortization Calculator
Investment Calculator
Currency Calculator
House Affordability Calculator
Compound Interest Calculator
Inflation Calculator
Lease Calculator
Finance Calculator
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Refinance Calculator
Budget Calculator
Weight Loss Calculators
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15 Year Fixed Check Rates
10 Year Fixed Check Rates
7 Year ARM Check Rates
5 Year ARM Check Rates
3 Year ARM Check Rates
Jumbo Check Rates
FHA Check Rates
VA Check Rates
HARP Check Rates
USDA Check Rates
AmeriSave Mortgage Corporation
Direct Mortgage Lender

Home / Financial Calculators / Amortization Calculator

Amortization Calculator

Print

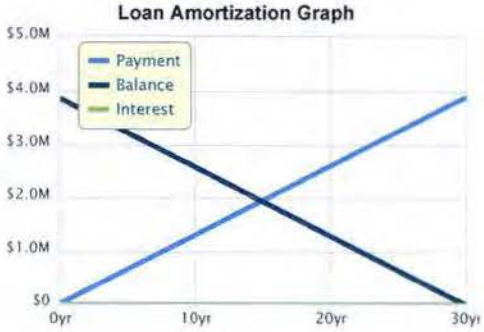
Loan Amount	$ 3890000	
Loan Term	30	years
Interest Rate (APR)	0	%

Calculate

Monthly Pay: $10,805.56

Total of 360 Loan Payments	$3,890,000.00
Total Interest	$0.00

Loan Amortization Graph



Payment Breakdown

Annual Amortization Schedule

Annual Schedule | Monthly Schedule

	Beginning Balance	Interest	Principal	Ending Balance
1	$3,890,000.00	$0.00	$129,666.72	$3,760,333.33
2	$3,760,333.33	$0.00	$129,666.72	$3,630,666.67
3	$3,630,666.67	$0.00	$129,666.72	$3,501,000.00
4	$3,501,000.00	$0.00	$129,666.72	$3,371,333.33
5	$3,371,333.33	$0.00	$129,666.72	$3,241,666.67
6	$3,241,666.67	$0.00	$129,666.72	$3,112,000.00
7	$3,112,000.00	$0.00	$129,666.72	$2,982,333.33
8	$2,982,333.33	$0.00	$129,666.72	$2,852,666.67
9	$2,852,666.67	$0.00	$129,666.72	$2,723,000.00
10	$2,723,000.00	$0.00	$129,666.72	$2,593,333.33
11	$2,593,333.33	$0.00	$129,666.72	$2,463,666.67
12	$2,463,666.67	$0.00	$129,666.72	$2,334,000.00
13	$2,334,000.00	$0.00	$129,666.72	$2,204,333.33
14	$2,204,333.33	$0.00	$129,666.72	$2,074,666.67
15	$2,074,666.67	$0.00	$129,666.72	$1,945,000.00
16	$1,945,000.00	$0.00	$129,666.72	$1,815,333.33
17	$1,815,333.33	$0.00	$129,666.72	$1,685,666.67
18	$1,685,666.67	$0.00	$129,666.72	$1,556,000.00
19	$1,556,000.00	$0.00	$129,666.72	$1,426,333.33
20	$1,426,333.33	$0.00	$129,666.72	$1,296,666.67
21	$1,296,666.67	$0.00	$129,666.72	$1,167,000.00
22	$1,167,000.00	$0.00	$129,666.72	$1,037,333.33
23	$1,037,333.33	$0.00	$129,666.72	$907,666.67
24	$907,666.67	$0.00	$129,666.72	$778,000.00
25	$778,000.00	$0.00	$129,666.72	$648,333.33
26	$648,333.33	$0.00	$129,666.72	$518,666.67
27	$518,666.67	$0.00	$129,666.72	$389,000.00
28	$389,000.00	$0.00	$129,666.72	$259,333.33
29	$259,333.33	$0.00	$129,666.72	$129,666.67
30	$129,666.67	$0.00	$129,666.72	$0.00

Related:
mortgage calculator | interest calculator | investment calculator

Mar 27 - ARE YOU AWARE OF THIS?
Obama Urges Homeowners To Switch To A 15 Year Fixed
If you owe less than $625,000 on your home, use Obama's once in a lifetime mortgage relief program. The program is totally free and doesn't add any cost to your refi. The bad news is that it expires in 2015. You'll be shocked when you see how much you can save.
Select Your Mortgage Balance:
80,000 - 85,000
Calculate New Payment

What is Amortization?

William Lass

From: Karen Cain [city@gwtc.net]
Sent: Monday, March 9, 2015 9:15 AM
To: William Lass
Subject: RE: Registration Activated for EDGEMONT, CITY OF / 830590837 / 6H9D3

Follow Up Flag: Follow up
Flag Status: Flagged

I looked at the Fire Dept that I deal with and it would be just the 830590837 part of the number. Who knows?! Let me know if I can be of further help.
Karen

Karen Cain
City of Edgemont
Finance Officer
605-662-5207

-----Original Message-----
From: William Lass [mailto:wlass@tie.net]
Sent: Thursday, March 05, 2015 3:50 PM
To: Karen Cain
Subject: RE: Registration Activated for EDGEMONT, CITY OF / 830590837 / 6H9D3

Thanks - I think this should work. So that "830590837 / 6H9D3" is apparently the actual SAMS # then - is that your understanding?

-----Original Message-----
From: Karen Cain [mailto:city@gwtc.net]
Sent: Thursday, March 5, 2015 3:26 PM
To: William Lass
Subject: FW: Registration Activated for EDGEMONT, CITY OF / 830590837 / 6H9D3

Will this work for you? Let me know.
Karen

Karen Cain
City of Edgemont
Finance Officer
605-662-5207

-----Original Message-----
From: samadmin@sam.gov [mailto:samadmin@sam.gov]
Sent: Friday, November 07, 2014 5:53 AM
To: city@gwtc.net
Cc: city@gwtc.net
Subject: Registration Activated for EDGEMONT, CITY OF / 830590837 / 6H9D3

This email was sent by an automated administrator. Please do not reply to this message.

Dear Karen Cain,

Congratulations! The registration for EDGEMONT, CITY OF / 830590837 / 6H9D3 is now active in the U.S. federal government's System for Award Management (SAM). If you did not provide a CAGE code during the registration process, one has been assigned and is provided above.
You are now eligible for contracts, assistance awards, and to do business with the federal government as determined by your Entity's profile. Important: The Periodic Update Requirement Date for the registration is 06-NOV-15. You must renew the registration by this date to remain active.
In addition, you may continue to invite additional users by following the below steps:

* Login to SAM using a valid Username and Password
* Select "Manage Entity Users" from the left-hand navigation menu
* Select "Invite User" from the left-hand navigation menu
* Select the desired Entity
* Provide invitee's email address
* Assign Role(s) to be associated with the user account
* Click Submit

All invitees will receive an email message from SAM with instructions on how to complete the process.

For assistance, please contact the Federal Service Desk at www.fsd.gov or by telephone at 866-606-8220 (toll free) or at 334-206-7828 (internationally).

Thank you,
The System for Award Management (SAM) Administrator http://www.sam.gov

Water System Facilities Plan for City of Edgemont, SD

Prepared For

City of Edgemont

March 10, 2015

AE2S Project #: P12020-1313-400

Water System Facilities Plan

for

City of Edgemont, SD

Prepared for

City of Edgemont
412 2nd Avenue
Edgemont SD, 57735

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
2780
GREGORY M.
WIERENGA
SOUTH DAKOTA
3-10-15

Prepared by

AE2S
1560 Concourse Drive
Rapid City, South Dakota
57703

March 10, 2015

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A Level III Cultural Resource Inventory of the City of Edgemont Water Supply Project, Quality Services, Inc., December 2014.

B Conceptual Project Outline for South Black Hills Water System Regionalization with City of Edgemont, AE2S, Inc., January 12, 2015.

C WRT Preliminary Proposal for the City of Edgemont, SD, January 21, 2015.

D Tonka Water Ion Exchange Preliminary Proposal

E Dry Cooler, Inc. Heat Exchange Preliminary Proposal

F Schematic Drawings

G Budgetary Cost Estimates

H Estimated Operating Costs for Treatment System

Executive Summary

The City of Edgemont, SD proposes to construct improvements to the municipal water system to improve the reliability of supply sources, assure compliance with State Water Quality Standards, eliminate sources of bacterial contamination, provide adequate service pressure to all users and replace deteriorated system components. The proposed project includes the following major components.

Edgemont Water System Improvements

- Install well casing liner pipe in City Wells No. 2 and 4. Casing liners consist of approximately 2800' of 5" steel pipe and 300' of 8" steel pipe for each well.
- Construct flowing well by-pass piping and pitless adaptors for Wells No. 2 and 4. Install submersible well pumps in Wells 2 and 4, each with 250 gpm pumping rate capacity.
- Construct water treatment facility for Wells No. 2 and 4 water production. The treatment system will include a closed-loop forced draft heat exchanger for cooling the well discharge (128°F at wellhead) and an adsorptive media filtration system to reduce radiological contaminates for compliance with Drinking Water Quality Standards. The treatment facility will also include chemical feed systems for chlorine disinfection and polyphosphate for anti-scaling remediation of the hard water supply. The design capacity of the treatment facility is 250 gpm (360,000 gpd).
- Construct a 250,000 gallon elevated storage tank near the treatment facility at an elevation which will provide a minimum service pressure of 40 psi to all users. The 250,000 gallon reservoir will provide for firefighting reserves, emergency storage and additional cooling of the supply. The existing substandard ground storage tanks and steel standpipe will be demolished.
- Construct approximately 2600' of 10" PVC water main and 900' of 8" PVC water main in H Street between the new tank site and Cottonwood Subdivision. The new main will connect the new storage tank to the existing distribution system at multiple locations to strengthen the system hydraulic capacity and remove undersized and non-conforming piping materials from the system.

Major project component locations are shown on the map at the end of this Executive Summary. It is planned to complete the project using competitive bidding methods. The estimated construction cost of major project components, engineering and legal costs is summarized following:

Estimate of Project Costs

Pilot Study and Report for Treatment System	60,000
Well Rehabilitation and Pumping Systems	594,000
Water Treatment Facility	1,120,000
250,000 Gallon Elevated Storage Tank	1,042,000
H Street Distribution Piping and Connection to System	508,000
Demolish Steel Tank	50,000
Demolish Concrete Tanks and Restore Site (By City)	0
Total Construction	$3,374,000
Legal Services (Bond Counsel)	$10,000
Engineering Services	506,000
Total Project	$3,890,000

The well pumping systems and treatment facility will increase operation and maintenance costs for the community. The increased operation and maintenance costs are projected to be approximately $70,200 per year, or about $14.60 per month for each of the 400 service customers. The increased costs are principally for electrical power for pumping, periodic replacement and disposal of adsorptive filter media, treatment chemicals, and increased reserve amounts for pump and equipment replacement. A review of current City water operating budgets indicates that there is an annual budget shortfall of about $19,000, or the equivalent of $4.00 per month per customer. It is planned to increase user rates to make up this existing shortfall.

Project funding is expected to be provided by the South Dakota Department and Environmental Resources via the State Revolving Fund (SRF) program. The funding package may include grant and/or principal forgiveness funding. SRF loan funds will be recovered through user fees, and the annual loan repayment amount is expected to be in the range of $57,000 to $143,000 per year depending upon the proportion of loan and grant funds provided through the SRF program. The anticipated loan terms are 0% interest for 30 years. Loan repayment coverage of 110% is expected to be required and is included in the estimated loan repayment amounts. The anticipated overall effect on customer water rates is shown following.

Impact on User Rates

Rate Component	Existing Rate	Estimated Future Rate
Basic Service (Up to 5000 gal/mo.)	$25.45/mo.	$25.45/mo.
Repair and Replacement Surcharge	$10.00/mo.	$10.00/mo.
Increase in O&M Costs for New Treatment	-	$14.60/mo.
Current O&M Shortfall [1]	-	$4.00/mo.
Loan Repayment (0% to 60% PF)[2]	-	$11.90 to $29.75/mo.
Adjustment for water Sales >5000 gal/mo.[3]	-	($9.60)/mo.
Total Base Rate	$35.35/mo.	$56.35 to $74.20/mo.

[1] *Estimated current operational loss per user. The financial assessment is currently in progress.*

[2] *Loan repayment based upon anticipated range of principal forgiveness between 0% and 60%. Repayment rate at 110% coverage of loan amount.*

[3] *Assumes rate for water use above 5000 gal/mo. is increased from current $1.00/1000 gallons to $3.00/1000 gallons. Historically the City has sold about 23 mg/year at the surcharge rate. An increase in the surcharge rate of $2/1000 gal. would increase annual revenue by $46,000/year, or the equivalent of $9.60/mo. for each of the 400 user accounts. It is assumed that this increased revenue would be used to offset the increase needed for Basic Service.*

N

0 500 1000

CITY OF EDGEMONT
PROPOSED WATER SYSTEM IMPROVEMENTS

March 12, 2015 2:46:09 p.m.
Drawing: 13134 EXISTING WATER SYSTEM.DWG (FOX) (P:\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)

1. Project Development

1.1 Background Information

The City of Edgemont, SD is located adjacent to the Cheyenne River in west-central Fall River County at the southern limits of the Black Hills. Highway access is from US Highway 18 and SD State Highway 471. The current population of Edgemont is estimated to be approximately 800. The BNSF Railroad operates a switching yard and service facility in Edgemont in support of coal trains from eastern Wyoming to Midwest power generation facilities. In addition to the railroad operations the City serves as a local trade center for agricultural operations. In years past a uranium processing plant and the federal Black Hills Ordnance Depot were located near Edgemont and were major employers. The BNSF Railroad is the only significant industrial component in the local economy. Edgemont provides highway services to travelers on US Highway 18, however the community is not known as having a significant tourist economy.

The municipal water supply system consists of four deep wells completed into the Madison limestone aquifer. The four wells were constructed between 1936 and 1962, thus are all over 50 years old. The City is extremely concerned about aging and deteriorating water system infrastructure, reliability, poor water quality and potential unsanitary conditions within the storage and distribution system.

In July 2014, the City council entered into a professional services agreement with Advanced Engineering and Environmental Services, Inc. (AE2S) to review the system conditions and previously completed engineering studies. Prior engineering studies dating back to 2005 included recommendations for customer meters, well casing rehabilitation, water treatment improvements, storage tank rehabilitation and/or replacement and distribution system upgrades. As of 2014, customer meters have been installed but essentially none of the other recommended improvements to the system have been implemented. There is current consensus among the City council that remedial action is needed, but the Council acknowledges that reserve funds are not available for large projects.

N

0 500 1000

FIGURE 1
CITY OF EDGEMONT
VICINITY MAP

AES

September 30, 2014 8:21:18 a.m.
Drawing: 13134 EXISTING WATER SYSTEM.DWG (FOX) (P:\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)

1.2 Description and Location

Figure 2 shows the overall layout of the Edgemont water supply, storage and distribution system components. Principal components are as described in the following sections.

1.2.1 Water Supply

Municipal drinking water is supplied by four deep wells completed into the Madison limestone aquifer. Well depths are in excess of 3000 feet below the surface. Wells are referred to as Well No. 2, Well No. 4, TVA Well and BN Well. Figure 3 illustrates the well profiles, casing information, elevations and related data.

Three other City-owned wells (No. 1, No. 3 and No. 5) are not used for supply due to poor physical conditions and/or water quality issues.

The production wells are flowing wells and do not utilize pumping. Well No. 2 flows by piping into concrete ground storage reservoirs where it is stored and subsequently pumped into a steel standpipe reservoir. The TVA and BN wells are directly piped to the distribution system, and the piezometric wellhead pressure is sufficient to flow into the distribution piping system, although at a low rate. The wells were equipped with electronic flow meters within the last 2 years, but equipment problems have prevented generating any meaningful information about the production rate and volume contributed by each source. Well No. 4 has developed a large hole in the casing which causes well flow to exit the casing below ground level and flow to the surface on the outside of the casing. This well has been lost to production as a result of this leakage, which is thought to be from corrosion in the well casing pipe.

1.2.2 Storage

Water storage facilities consist of two deteriorated rectangular concrete tanks at ground level with a combined effective volume of about 520,000 gallons, and a cylindrical steel standpipe reservoir 30' diameter x 50' high with a volume of about 250,000 gallons.

The concrete tanks are partially buried below grade and have leaks and sanitary deficiencies. These tanks were constructed in 1910 and 1936. The reservoirs have high water elevation of about 3573 which is about 125' above the business district elevation. Prior to the mid-1950's the concrete reservoirs were used to pressurize the distribution system (to about 50 psi in the business district area). The steel standpipe tank was constructed in 1955 with a high water elevation of about 3620, or about 45' higher than the concrete tanks . The steel standpipe is currently used to pressurize the system to about 70 psi in the business district.

At the present time a below grade booster pump system at the tank site is used to lift water from the concrete ground storage tanks into the steel standpipe tank. Well production from Wells No. 2 to No. 4 flows by natural artesian pressure via pipeline to the concrete tanks. The booster system draws water from the concrete tanks and lifts water to the steel tank. The entire distribution system operates on a single pressure zone with a maximum hydraulic grade line of 3620. The range of elevations served and static pressures are as follows:

		Elevation Difference	Static Pressure
Steel Tank HGL:	3620		
Lowest City Elevation:	3440	180'	78 psi
Median City Elevation:	3470	150'	65 psi
High City Elevation:	3570	50'	21 psi

Well No. 2 – 1936
Chlorine Gas Feed

Well No. 4 - 1962

		Elevation Difference	Static Pressure
Steel Tank HGL:	3620		
Lowest City Elevation:	3440	180'	78 psi
Median City Elevation:	3470	150'	65 psi
High City Elevation:	3570	50'	21 psi

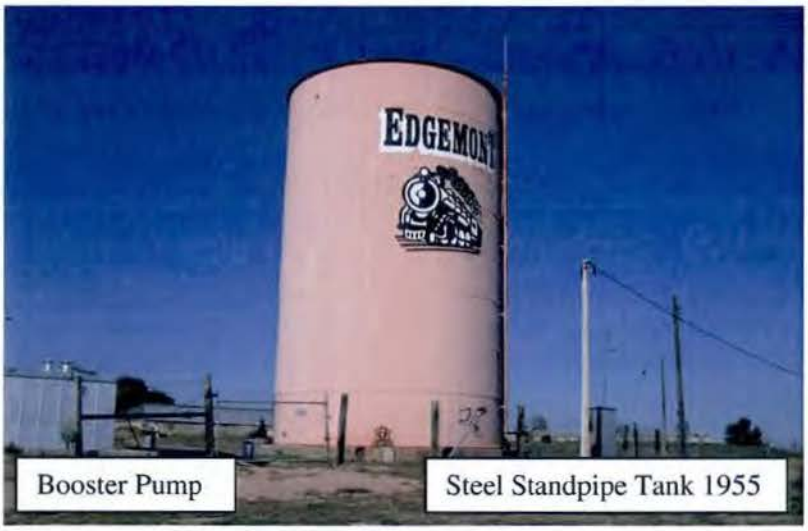
Well No. 2 – 1936
Chlorine Gas Feed

Well No. 4 - 1962

BN Well 1946

TVAWell 1962

As indicated in the photos the well casings extend to the surface and are piped through an above-grade valved header. The header discharges down below grade to the horizontal discharge pipeline. The wellhead temperature of the water is about 128°F, thus the discharge header assembly is not subject to freezing as long as flow is maintained. At the present time all wells are allowed to flow continuously, either to the system or via above grade by-pass piping. In the case of Well No. 4, flow to the ground is via casing leakage in lieu of the pipe header.



1.2.3 Water Treatment

The Madison formation water is not treated except for the addition of chlorine as a disinfectant at Well No. 2. Water quality is currently in conformance with State Drinking Water Quality Standards, but has a number of undesirable aesthetic properties due to high temperature and high levels of mineralization. The City has been under compliance orders previously for radionuclides.

Chlorine disinfection of well discharge is provided for Well No. 2 only. Chlorine gas is mixed with the Well No. 2 discharge prior to flowing to the two ground-level concrete storage tanks which are used for cooling and storage. Although a pipeline connection for Well No. 4 is in place, Well No. 4 does not flow to the ground level tanks due to casing leakage. The Well No. 2 and Well No. 4 discharge (when Well No. 4 is operation) is mixed in the ground level concrete storage tanks. The BN and TVA wells are not treated with chlorine disinfectant. The BN and TVA discharge enters the distribution system directly with no treatment. Mixing of treated and untreated water within the distribution system is the only means of providing an

effective chlorine residual within the distribution system. The of mixing chlorine within the distribution piping is not complete throughout the system.

Chlorine Feed at Well No. 2

1.2.4 Water Distribution System

The water distribution system is shown in Figure 2. Pipe sizes range from 3" to 10". Pipe materials include cast iron, asbestos-cement (AC) and PVC.

The entire distribution system is pressurized from the steel standpipe in a single pressure zone. Some properties at higher elevations within the City use pressure booster pumps where distribution system pressures are low, below about 40 psi.

Prior to 2010 there were no water meters on customer services. Metering of all services was completed in 2012, and accurate accounting of actual water use is now available.

1.3 Condition and Adequacy of Existing Facilities

1.3.1 Criteria

Existing water system facilities were evaluated using criteria adopted by SDDENR and other regulatory and advisory sources. The following sources documents were used.

- *Recommended Standards for Water Works*, 2012 (also known as "Ten States Standards") as adopted by SDDENR.
- *Criteria for Public Water Supplies in South Dakota*, 1979, SDDENR.
- State Drinking Water Standards, ARSD 74:04:12.
- International Fire Code, 2012

- *Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas*, NFPA 1141, 2008.
- *Standard on Water supplies for Suburban and Rural Fire Fighting*, NFPA 1142, 2007.

1.3.2 Water Quality

Edgemont routinely tests for all regulated parameters of the State Water Quality Standards including: inorganic chemicals, organic chemicals, and radiological contaminants. The system also tests routinely for bacterial contamination. The State Water Quality Standards establish maximum allowable concentrations for substances which have potential negative health and safety consequences. For these substances, the Standards have established Primary Maximum Contaminant Levels (PMCL's). These standards conform to Federal Standards established by the Federal Safe Drinking Water Act. The following parameters are either non-complying or are "borderline", with test results both above and below the established PMCL.

Primary Maximum Containment Levels of Concern

		Typical Test Values			
Parameters	PMCL	Well 2	Well 4	Well TVA	Well BN
Radiologic Contaminants					
Gross Alpha	15 pCi/L	13 – 20	13 - 20	14 - 20	14 - 20
Radium 226/228	5 pCi/L	4 - 5	4 - 5	4 - 5	4 - 5

The specific health consequence associated with radiological contaminants is an increased risk of cancer with prolonged exposure. Both of the radiological parameters are at "borderline" levels in all four wells with tests both above and below the PMCL. In 2009 and 2010, the City was cited by DENR for exceedance of gross alpha emitters. Subsequent testing in 2011 determined that gross alpha was slightly below the limit, thus there is no current compliance order from DENR. However, it is considered likely that future action by the DENR will require that the City implement treatment measures to gain full and continuous compliance.

The Federal Safe Drinking Water Act has also established a list of Secondary Maximum Contaminant Levels (SMCL's). SMCL constituents have properties which do not pose a known health risk, but which can have undesirable aesthetic properties, such as undesirable taste, odor or staining properties. The following tabulation lists SMCL's and corresponding test values for the Edgemont wells.

Secondary Maximum Contaminant Levels

		Typical Test Values			
Parameter	SMCL	Well No. 2	Well No. 4	Well TVA	Well BN
Chloride	250 mg/l	**250**	**280**	180	150
Fluoride	2.0 mg/l	1.0	1.0	0.8	0.8
Iron	0.3 mg/l	.05	.05	.05	.05
Manganese	0.05 mg/l	.03	.03	.03	.03
pH	6.5 -8.5 mg/l	7.3	7.3	7.3	7.3

Sulfate	250 mg/l	**300**	**320**	**260**	200
Total Dissolved Solids	500 mg/l	**1000**	**1100**	**700**	**700**

The well supplies typically exceed the recommended SMCL values for chloride, sulfate and total dissolved solids. The undesirable effects of these substances are as follows.

SMCL Impacts

Sulfate – Imparts an unpleasant taste and odor at high concentrations and can have an osmotic laxative effect on some people, particularly infants.

Chloride – Imparts an unpleasant salty taste at high concentrations.

Total Dissolved Solids – High levels of dissolved solids can impart an unpleasant taste to drinking water.

There is no known health risk associated with these substances at levels present in the Edgemont supply.

In addition to the published SMCL's, there are other water properties which can be objectionable to customers. In the case of Edgemont wells, water hardness and temperature are of concern.

Water hardness is a measure of calcium and magnesium compounds dissolved in water. Hardness will cause scaling of fixtures and pipes and makes clothes washing and dishwashing difficult. Hardness requires premature replacement of many fixtures such as: faucets, toilets, water heaters, piping, valves and other appurtenances. Edgemont well water hardness is extremely high as illustrated following.

Common Water Hardness Scale

Hardness Concentration	Classification
0-60 mg/l	Soft to Slightly Hard
60-120 mg/l	Moderately Hard
120-180/l	Hard
>180 mg/l	Very Hard
500 mg/l	Edgemont Well Water

Water temperature is another characteristic that is unregulated by water quality standards, but which does affect aesthetics. Water temperature in Edgemont wells is 128°F at the wellhead. Some cooling takes place in the storage tanks and underground piping before reaching customers, but water temperature at customer taps are typically 100°F to 120°F during summer high use periods. For most people drinking water in the 55°F to 60°F range is preferred for drinking purposes.

In Edgemont residential water heaters are often used to cool the water to handle higher temperatures. The water temperature is not suitable for normal drinking without temperature reduction.

Although the radiological contaminants are the only problem parameters in Edgemont which are regulated by law, Edgemont water has several undesirable characteristics which may warrant additional treatment, including high hardness and high temperature.

1.3.3 Water Quantity

The actual volume of water consumed and produced in Edgemont historically has not been able to be determined accurately. Well production is not metered reliably and there is suspected significant leakage from the concrete reservoirs and possibly from the distribution and service piping. Customer services were not fully metered until 2012, Water meter data for the years 2013 and 2014 are presented following.

Edgemont Metered Water Usage and Revenue

Year 2013

Month	Metered Use	gpd	Revenue
January February	4,883,293 gal.	82,768	$22,644
March	2,011,287 gal.	64,880	$11,105
April	2,388,143 gal.	73,923	$11,981
May	2,740,797 gal.	88,413	$11,412
June	4,172,791 gal.	139,093	$13,857
July	7,264,727 gal.	234,346	$16,137
August	3,810,221 gal.	122,910	$13,794
September October	6,898,951 gal.	113,098	$25,714
November	1,540,867 gal.	51,362	$10,939
December	1,738,694 gal.	56,087	$10,802
	37,449,771 gal.		$148,385

Average Day Use: 102,602 gpd
Per Service Connection (400): 257
Per Capita (774): 133 gpcd

Edgemont Metered Water Usage and Revenue

Year 2014

Month	Metered Use	gpd	Revenue
January	2,062,256 gal.	66,524	$11,156
February	2,303,343 gal.	82,262	$11,479
March	2,774,960 gal.	89,515	$11,033
April	1,872,636 gal.	62,421	$11,043
May	2,418,018 gal.	78,001	$11,564
June	2,667,877 gal.	88,929	$12,098
July	3,809,230 gal.	122,879	$13,179
August	5,045,287 gal.	162,751	$14,635
September	2,781,920 gal.	92,731	$11,841
October	2,204,125 gal.	71,101	$11,328
November	2,197,257 gal.	73,242	$11,321
December	2,012,339 gal.	64,914	$11,325
	32,149,248 gal.		$142,002

Average Day Use: 88,080 gpd
Per Service Connection (400): 220 gpd
Per Capita (774): 114 gpcd

The meter use data in the tables is presented graphically in Figure 4.

The 2-year average water usage rate is as follows.

Water Use 2-Year Average (2013 – 2014)

Annual Use:	34,799,500 gallons
Average Day Use:	95,341 gpd
Average Day Per Service:	239 gpd service
Average Day Per Capita:	124 gpcd

The peak month use for 2013-2014 was July 2013 with an average usage of 234.346 gallons per day. The peak day use for the entire year is estimated to be about 30% higher than the average day use for the peak month as shown following.

Peak Day: 1.3x 234,346 gpd = 305,000 gpd

The well production system must be capable of producing at least 305,000 gpd during a 24 hour period in order to satisfy demand without utilizing fire storage or emergency storage reserves. The actual pumping rate needed to produce 305,000 gpd on a 24 hour pumping basis is as follows:

Well Production Need

305,000 gpd ÷ 24 hours ÷ 60 minutes = 212 gpm

The existing wells are not metered, thus actual current production capacity is not known exactly. However, historical information on the free flow (to the ground surface) of wells during drilling, cleaning and related maintenance work provides some basis for estimating the yield.

Well Yield Estimates

Well No.	Reported Piezometric Elevation	Reported Free Flow		Estimated Specific Yield (gpm/ft of Drawdown)
		At Drilling	Other Dates	
No. 2	3661	Unknown	240 gpm (1958) 150 gpm (1990)	1.7 gpm/ft
No. 4	3661	275 gpm (1946)	150 gpm (1991)	1.7 gpm/ft
TVA	3668	450 gpm (1962)	(No Recent Data)	2.0 gpm/ft
BN	3668	1000 gpm (1946)	250 gpm (1991)	1.1 gpm/ft

The reported static piezometric elevation of all four wells is similar. The specific yield shown in the table is the reported well free flow divided by the elevation difference between the piezometric head and the ground surface elevation at the well. Under the current conditions Well No. 2 and No. 4 discharge to the concrete reservoirs at elevation 3575. The TVA and BN wells discharge against the head of the steel tank at elevation 3620. The estimated artesian flow from each well under these head conditions are as follows on the next page:

Estimated Well Production

Well	Piezometric Surface	Drawdown Elevation	Elevation Difference	Specific Yield	Estimated Current Well Flow
No. 2	3361	3575	86'	1.7 gm/ft	146
*No. 4	3661	3575	86'	1.7 gm/ft	146
TVA	3668	3620	48'	2.0 gm/ft	96
BN	3668	3620	48'	1.1 gm/ft	52
				Total Flow	440 gpm

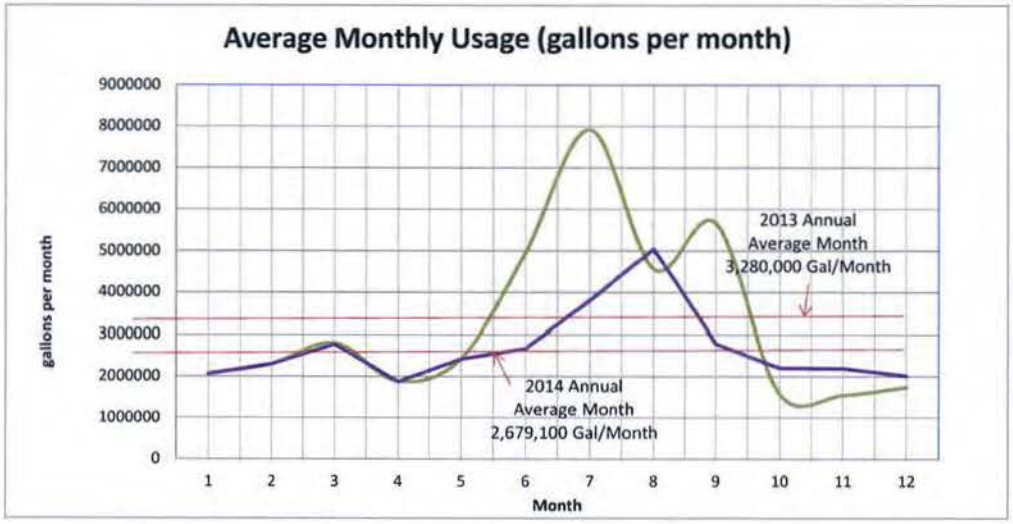
* Not currently operational

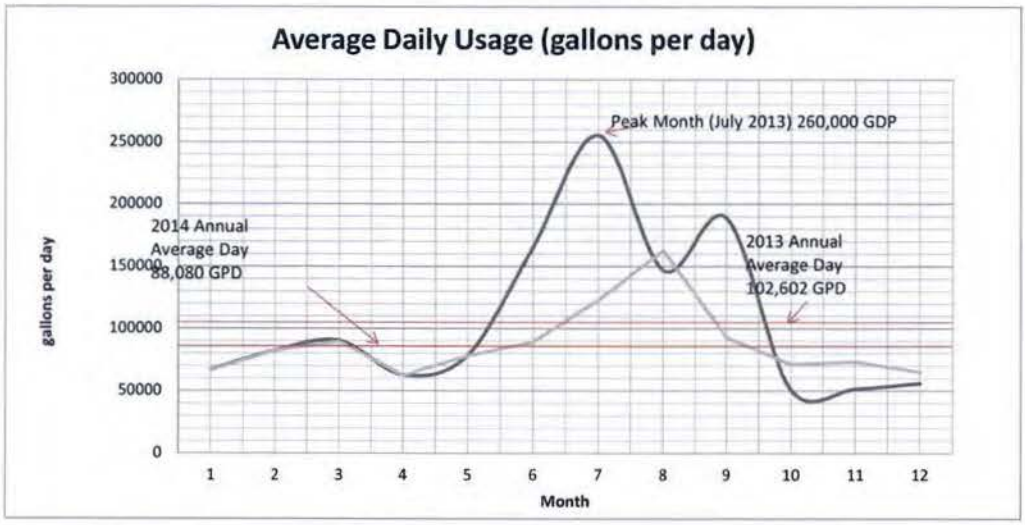
The total estimated flow of 440 gpm is the theoretical maximum flow possible into the system under current conditions with no well pumping. Actual flows may be less because of ongoing encrustation of mineral deposits on the well casing interior. Maintenance records indicate relatively severe casing encrustation over time with a subsequent reduction in well yield. The most recent reliable yield data is over 20 years old and it is anticipated that the projected total production rate of 440 gpm is significantly higher than actual. However, it is apparent that the combined well capacity exceeds the estimated 212 gpm production need.

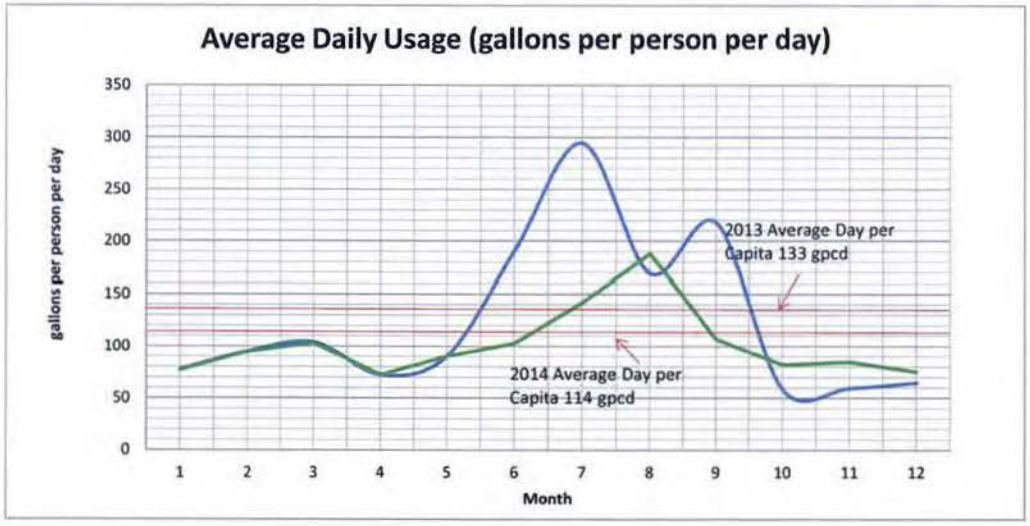
The existing well casings have been reported to be in poor condition by well service companies that have performed internal cleaning operations. The principal problem is mineral deposition in the casing interior which narrows and roughens the open passage for water to rise through the casing from the water bearing limestone to the surface. The restricted casing open area reduces the flow via friction losses. Each cleaning operation (performed with scraping tools) has the potential to damage or puncture the casing, thus possibly letting Madison water escape to other subsurface formations. It is unlikely that water from the Inyan Kara aquifer or other water bearing strata will allow contaminating flow into the Edgemont wells because the piezometric surface of other aquifers is more than 200' below that of the Madison aquifer in this vicinity.

External corrosion of the casings is also known to occur. There is presently a hole (from corrosion) in the upper casing of Well No. 4 and leakage is flowing to the ground surface from outside of the casing. This leakage has been measured at over 100 gpm and prevents the use of this well for supply. Thus at this time Well No. 2 is the only well providing flow to the ground level concrete tanks. The TVA and BN wells continue to flow into the distribution system without metering or disinfection, but the rate of flow is not known. Based on the production analysis presented previously, the combined flow could be as much as 150 gpm, but is almost certainly much less.

The historic well service data provided by the City describes repair of a casing failure in the BN well in 1961. All casings are over 50 years old and are either at or beyond the end of the normally expected service life. All wells are judged to be vulnerable to casing failure and loss of production.







Edgemont Metered Water Usage (2013 and 2014)
Figure 4

1.3.4 Water Storage

Water storage needs for a municipal water system are normally based upon the following formula:

Storage Need = ES + (larger of FR and ER)

Where:

ES = Equalization Storage.

Water which must be supplied to the system from storage when peak usage exceeds the supply capacity. Flow equalization needs are unique to each system, but AWWA and other advisory sources recommend providing an equalization storage volume of at least 20% of the peak day use.

FR = Fire Reserves

The International Fire Code, Appendix B recommends providing a minimum fire flow capability of 1500 gpm for a duration of 2 hours for most residential and low height commercial structures. The stored volume needed to conform with this recommendation is 180,000 gallons (1500 gpm x 120 min.)

ER = Emergency Reserves

Ten States Standards recommend that emergency storage be provided for at least one day of average demand. The emergency reserves are intended to maintain service during a loss of production from principal sources due to power outage, equipment failures and other unexpected events. For small communities the fire storage is typically much larger than emergency reserves. One day of average day use in Edgemont is approximately 95,000 gallons.

For the City of Edgemont, the minimum recommended storage volume is calculated as follows.

Edgemont Storage Need

Storage Need: ES + Larger of FR or ER

(.20 x 330,000 gpd) + (180,000 gal.) or (95,000 gal.)
↑larger
= 66,000 + 180,000
= 246,000 gallons

The current storage facilities have these capacities.

Existing Storage Volume

Concrete Tanks:	520,000 gal.
Steel Tank:	250,000 gal.
Total Storage:	770,000 gal.

The existing storage tanks are very large and meet the minimum recommended storage criteria. However, the concept of "effective storage" must be considered when evaluating the adequacy of total water storage reserves. Water stored at

elevations which are too low to provide water to homes and fire hydrants at adequate pressure is considered to be "ineffective" storage. The pressure required for fully functioning services and hydrants is typically taken to be 40 psi. Pressures as low as 20 psi are sometimes considered to be adequate for emergency reserves.

Figure 5 illustrates the current system hydraulic grade line (HGL) relative to the elevations of structures inside the City. There are an estimated 8 structures above elevation 3530 with service pressure below the recommended 40 psi minimum, thus all stored water is ineffective for these homes. All water in the concrete tanks is ineffective for homes above elevation 3480 (about 60 structures). Even though Edgemont has storage volume well in excess of the recommended minimum, most of the storage is ineffective because it is at an elevation which does not provide adequate service pressure under all conditions for a significant portion of the City.

The concrete tanks are well beyond the expected service life of 60 to 75 years for structures of this type and both tanks have serious problems with physical conditions. Significant leakage is suspected but not quantified. Concrete is spalling, reinforcing steel is exposed and roofs have numerous openings and structural defects which are potential sources of contamination. The holes allow access to almost any animal or bird. The City has experienced failing bacteria test results in the past.

The steel tank was constructed in the 1950's and appears to be structurally sound and is free from visible external leakage although leaks have been repaired in the past. The tank does not conform with current design criteria with respect to operator safety, operation and maintenance capability and approved interior coatings for drinking water. Principal deficiencies are described following.

Steel Tank Deficiencies

- Ladders and guardrails do not conform with OSHA standards.
- Side manway and top access hatches do not conform with current standards.
- Overflow and vent systems do not conform with current standards.
- Interior coating (coal tar epoxy) is non-compliant with AWWA approved coating materials.
- At about 60 years old, it is anticipated that there is significant interior corrosion which would require repair.

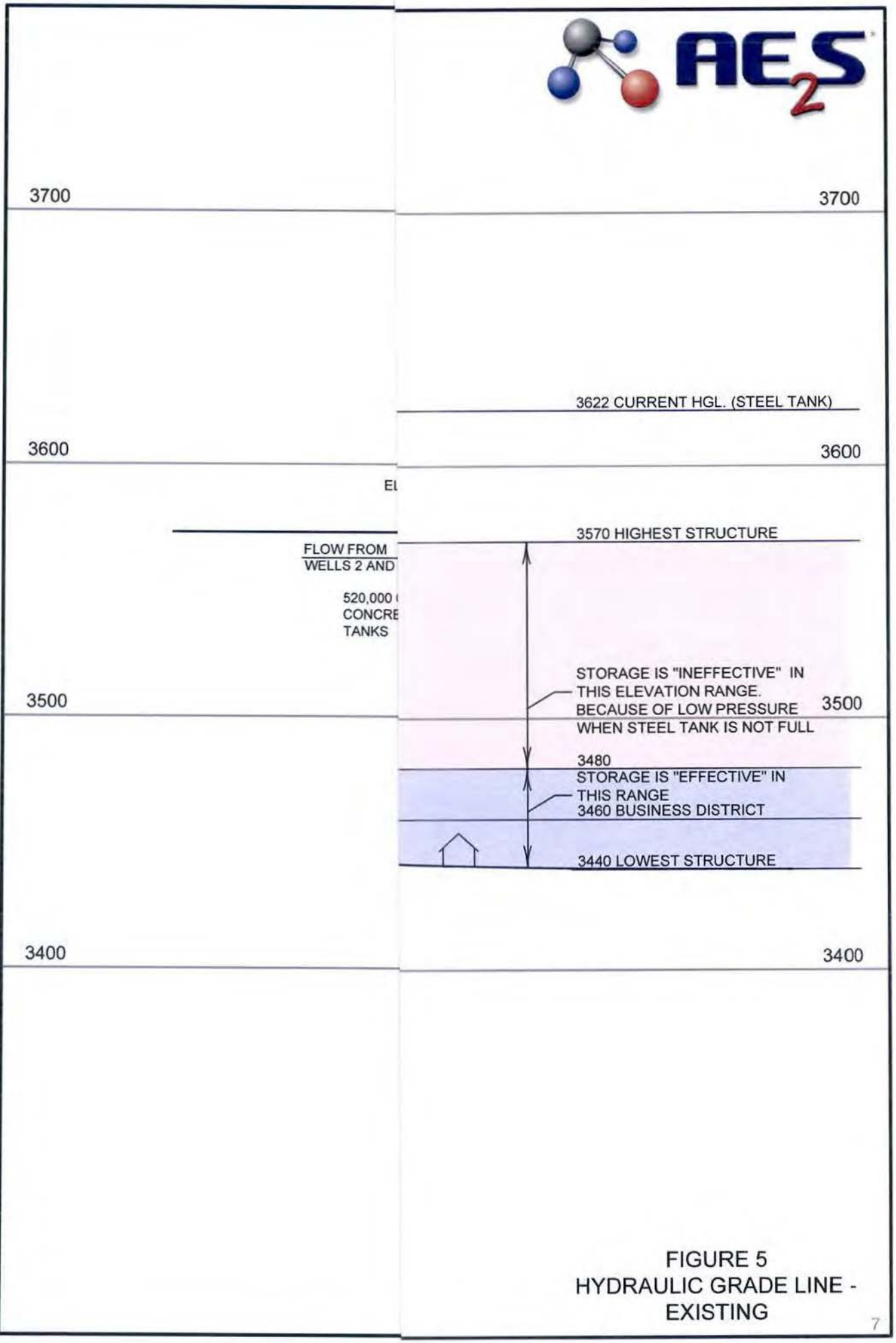


FIGURE 5
HYDRAULIC GRADE LINE - EXISTING

August 19, 2014 2:27:15 p.m.
Drawing: 13134 PIPING.DWG (FOX) (\\MAIN-DATA\CETEC\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)

Concrete Tanks

Concrete Tank

Tank Leakage

1.3.5 Water Distribution System

The 2005 Facility Plan for Edgemont evaluated the distribution system and identified several problems and deficiencies. The deficiencies and recommended corrective work included the following:

Distribution System Recommendations

- Replace small diameter mains (3" and 4") with 6" or 8" main.
- Eliminate dead end lines by looping where feasible.
- Replace substandard cast iron and asbestos cement pipe materials with PVC.
- Repair and/or replace non-functioning valves and hydrants.

There is uncertainty about pipe materials and sizes in some locations due to out-of-date system mapping. Numerous valves are inoperable or only partially functional due to mineral deposit fouling of operational mechanisms and valve seating surfaces.

There is currently no way to correlate water production and consumption. Thus, leakage losses in the distribution system cannot be quantified. All services were metered in 2011-2012, thus actual beneficial water usage is now known. However, the flow of well water into the storage and distribution system is not metered reliably. In addition, there is observable leakage from the ground level concrete storage tank which cannot be quantified.

In general, there are probable deficiencies with the distribution system which have not been fully identified or quantified. Corrective work is needed in numerous areas, but additional study is needed to fully determine corrective work needed.

1.4 Health, Sanitation and Security

The existing supply sources and storage system are deficient in ways that could have long term effects on the safety and health of the community. Principal system problems which need attention are as follows.

- Poor condition of well casings and declining production. Well No. 4 has been lost to production due to casing leakage, and there is potential for loss of production from the other three wells also.
- Water quality is borderline with respect to radiological contaminants. Treatment could be required in the future. Climate appears to affect the level of radionuclides. Historically dry weather seems to increase radionuclide levels.
- Water quality is poor with respect to overall mineralization and aesthetics. High levels of dissolved solids, hardness, sulfate, and chlorides have negative properties for consumers in terms of taste and mineral deposits on plumbing. The high water temperature also is objectionable for some uses. The residents experience high costs of plumbing replacement, softener salt, and piping problems.
- The water storage system is very vulnerable to contamination via the defects in the concrete ground storage tanks. Leakage is also a known but not quantifiable problem.

- Water storage volume is relatively large, but almost all storage is ineffective for portions of the community because the storage elevation does not provide adequate service pressure for domestic uses and fire protection.
- The means of adding chlorine for disinfection residual in the distribution system does not assure that all water is disinfected and that all portions of the system have adequate chlorine residual.

Edgemont has had four failing tests for total coliform bacteria in the last 2 years, and the contamination source could certainly be openings in the concrete storage tanks. The poorly controlled disinfection methodology is also a likely contributing factor in the bacterial contamination events.

1.5 Aging Infrastructure

All major components of the water supply and storage system are over 50 years old, with some components more than 100 years old. The service life of these facilities as at or near the end of the expected useful life.

System Component	Date Constructed	Age	Expected Service Life
Well 2	1936	79 years	Wells 50-60 years
Well 4	1962	53 years	
BN Well	1946	69 years	
TVA Well	1962	53 years	
Concrete Tank – North	1936	79 years	Storage 60 – 75 years
Concrete Tank- South	1910	105 years	
Steel Tank	1955	60 years	

1.6 Growth

The population of Edgemont in the most recent census years of 2000 and 2010 is reported as follows:

Year	Edgemont Population
2000	867
2010	774

The population has been as high as 1200 in years past when uranium processing was active and when the Black Hills Ordnance Depot was in operation.

The South Dakota State Data Center projects a steady or declining population for Fall River County as a whole over the next 20 years. Other than the proposed Powertech uranium mining operation, there are no known circumstances which would cause a significant population increase. It is anticipated that the Edgemont population will remain relatively steady at approximately 800 people plus or minus 10% for the next 20 years.

2. Environmental Considerations

2.1 Environmental Setting and Land Use

The project component are located within the City of Edgemont, near the existing water storage facilities and wells in the southwest portion of town, adjacent to H Street and immediately east of the City Airport. Properties affected are either used for existing municipal water supply facilities are "no use" property with grass cover. Residential properties abut the site on the north and east, with City Airport property on the south and west.

Following are legal descriptions of the properties anticipated to be affected by the project.

Property Descriptions

- Reservoir Tract and Dutoit Tracts in S1/2, SW1/4, NW1/4 Section 1, T9S, R2E
- W1/2. SW1/4 Less Dutoit Dam Tract, Less Rancho Hacienda Estates Addition in Section 1, T9S, R2E
- Lot A, Tract 3, Section 2, T9S, R2E

The above properties are owned by the City of Edgemont.

2.2 Environmental Resources Inventory

2.2.1 Air Quality

Dust and airborne soil can be a problem with large-scale construction projects. The amount of surface disturbance at any one time is not expected to result in significant degradation of air quality. No long-term effects are anticipated.

The South Dakota Department of Environment and Natural Resources (SDDENR) has adopted National Ambient Air Quality Standards, and monitors air pollution levels at locations statewide. The SDDENR will be contacted concerning air quality issues for the proposed work. State permitting for the anticipated construction activities is not anticipated to be required.

Construction disturbance provides the opportunity for dust and air quality concerns. The dust control can be mitigated utilizing ground watering measures to control dust during dry and windy conditions. Granular surfacing may also be used to control tracking and covers loose soil. Final restoration should be scheduled as soon as practical following pipe backfill. The Contractor will be required to coordinate with SDDENR Office of Air Quality. The SDDENR Air Quality Determination for the project has not been obtained to date.

2.2.2 Water Quality

Water quality issues for the project generally are limited to storm water runoff control during construction. Construction will be controlled and monitored to minimize water quality degradation caused from sediment disturbance.

SDDENR General Stormwater Permit for Construction Activities must be acquired, as necessary, by the Contractor and followed to eliminate pollution discharges. The water leaving the construction site must be allowed to filter sediment and settle out. Special construction measures will be taken to ensure that the total suspended solids standard of 30 mg/L set by SDDENR is not violated.

The Safe Drinking Water Act (SDWA, Federal Water Pollution Control Act (FWPCA) and National Pollutant Discharge Elimination System (NPDES) regulations will be followed and the work will be coordinated with SDDENR.

Direct mitigation of potential adverse environmental impacts will be made during the construction project. Some of these measures may include:

- Erosion Controls
  - riprap, silt fence, erosion blanket, wattles, etc.
- Site restoration
  - seeding, fertilizing, mulching
  - topsoiling
- Innovative practices determined upon design

Surface soils within the project limits will be stripped and stockpiled for subsequent finish grading and seeding of disturbed areas. Seeding will be an appropriate mixture of native grasses, and erosion controls such as silt fencing and mulching, will be employed.

2.2.3 Endangered and Threatened Species

The project habitat is primarily native shrubs, grasses, and a few deciduous trees. The following threatened and endangered species are listed for upland West River and Black Hills areas.

Bird:	Bald Eagle Whooping Crane
Mammals:	Black Bear Mountain Lion Grey Wolf Black footed Ferret

Whooping Crane and Bald Eagles have not been seen at the site, but may be present at some times.

A visual inspection of the site and surroundings detected no Prairie Dog evidence, thus Black footed Ferret habitat does not appear to be present.

Wildlife known to inhabit the Southern Black Hills includes all common mammal and bird species which inhabit the Black Hills and West River prairie. The project limits are adjacent to pasture and urbanized areas and no significant impact on wildlife is anticipated.

Vegetation within the project area consists of native prairie grasses, urban landscape, trees, shrubs, and related species native to western South Dakota.

Correspondence with South Dakota Game, Fish and Parks and US Fish and Wildlife has been made. It is anticipated that the project as described will have no significant impact on fish and wildlife resources.

2.2.4 Wild and Scenic Rivers

The project site is located about ½ mile south of the Cheyenne River. The Cheyenne River is not designated as a wild or scenic river in this location per nps.gov/rivers.

2.2.5 Floodplains and Wetlands

The NRCS provided a National Wetlands Inventory Map. A review of mapping did not identify wetland areas to be impacted by the project.

The mapped floodway and floodplain of the Cheyenne River will not be impacted by construction.

2.2.6 Important Farmland, Forest Land and Range Land

The proposed construction area are City owned lands which are not farmed or grazed. No significant tree cover exists. The NRCS correspondence indicates that no prime or important farmland would be affected.

2.2.7 Storage Tanks and Hazardous Wastes

The site is undisturbed pasture grass and existing gravel surfacing. Surface observations made at the site and discussed with City officials indicate that there are no buried storage tanks or hazardous waste concerns.

If hazardous waste is found upon construction, the SDDENR/ EPA will be notified.

2.2.8 Natural Landmarks, Wilderness Areas and National Trails

The project area does not include any known natural landmarks, wilderness areas or national trail systems.

2.2.9 Land Development

This property lies adjacent to residential properties on the north and east. Because of existing City ownership of project properties, no development to other land uses is expected.

2.2.10 Permits Required

South Dakota Department of Environment and Natural Resources Storm Water Surface Discharge Permit for Storm Water and Construction Activities will be required. No other permits are expected to be necessary.

2.2.11 Community Facilities and Services

The project will not have an adverse impact on community facilities and services. The availability of improved quality water will improve overall public health and safety.

Public safety, fire and emergency services will not be adversely affected. Recreation, cultural facilities, and the transportation network will not be adversely affected.

Mitigation measures will be completed to ensure that all potential environmental impacts are avoided or minimized.

2.3 Cultural Resources

Quality Services, Inc. of Rapid City completed a Level III Cultural Resources Inventory in December 2014. This document is included in this report in Appendix C. The report recommends a project determination of "no historic properties affected" for this project.

2.4 Reviewing Agency Comments

Project review and comment was requested from the following agencies.

- US Army Corps of Engineers
- USDA Natural Resource Conservation Service
- US Fish and Wildlife Service
- South Dakota Department of Game, Fish and Parks
- South Dakota Office of Emergency Management

Copies of letters soliciting comments and the responses received have not been completed as of the date of this facility plan.

2.5 Mitigation of Impacts

The project work will generally involve trench and building excavation within public road right-of-way and/or City property. The excavation and backfill work will, in total, disturb approximately 3 to 5 acres of land, mostly native grass. The total disturbed area at any one time will be much less as surface restoration will be required to be completed promptly as construction progresses.

Construction phase erosion controls will be included in the project and maintained through the construction period. Erosion control methods may include rock construction entrances, silt fencing, wattles, maintenance of pavements and gravel roadway surfaces, erosion control blankets, prompt reseeding of disturbed areas and others as may be appropriate.

Pavement is in place for portions of proposed water distribution piping construction located in street right-of-way. Permanent patching of disturbed pavement is to be included in the project scope.

3. Alternative Development

3.1 Water Supply

3.1.1 Available Sources of Water

Water Supply options for Edgemont are very limited. Water sources in the vicinity include the following.

Edgemont Area Water Supply Sources

Surface Water	Cheyenne River
Shallow Groundwater	Alluvial deposits near Cheyenne River and other small water courses.
Deep Groundwater	Madison limestone aquifer
	Minnelusa, Inyan Kara, Sundance and other sandstone aquifers.

The Madison limestone aquifer is the current water supply source for Edgemont and has proven to be a reliable supply, although with some objectionable water quality issues. A cursory review of the feasibility of other local water sources is presented following.

Feasibility of Other Water Sources

- Cheyenne River

  The Cheyenne River flows on the north side of Edgemont toward Angostura Reservoir. Mean annual flow is in the range of 10 to 150 cfs, but the river can and does go completely dry during drought periods. Heavy sediment loads are common. This supply is considered to be unsuitable as a municipal water source due to unreliable flow and poor quality which would require extensive treatment.

- Shallow Groundwater

  Shallow alluvial wells in the vicinity of the Cheyenne River and other ephemeral water courses are used for individual residential supplies in the area. Water quality can be relatively good, but is highly variable. Yield from shallow wells is seldom more than about 5 gpm, thus yield is inadequate for a municipal supply.

- Minnelusa and Other Sandstone Aquifers

  Water bearing sandstone aquifers are present at shallower depths than the Madison limestone (about 3000' below surface). The Minnelusa sandstone and Inyan Kara sandstone formations are the most commonly used aquifers in the Black Hills after the Madison, and have relatively good quality and moderate yield in the immediate perimeter of the Black Hills. USGS data indicates that both of these aquifers are highly

mineralized in the Edgemont area however, with extremely high sulfate in the Minnelusa and likely radiological contaminates in the Inyan Kara. Both of these aquifers tend to be much lower yielding than the Madison. The use of shallower sandstone aquifers for the Edgemont water supply is considered to be not favorable in comparison with the Madison formation on the basis of lower yield and poor water quality.

The current Madison aquifer supply source is considered to be the most viable option for Edgemont. Alternatives for supply improvements presented in the sections following are limited to the Madison aquifer source, either existing wells or new wells. Water supply alternatives considered are as follows:

Water Supply Alternatives Considered

1. No action.
2. Rehabilitate existing Madison wells to secure the supply and production capacity for the long term.
3. Drill one or more new Madison formation wells and abandon existing wells when deterioration prevents continued use.
4. Develop a regionalization agreement with Southern Black Hills Water System to construct one or more Madison wells northeast of the City with a pipeline serving Edgemont as a bulk water customer of Southern Black Hills Water System.

3.1.2 No Action Alternative

This alternative considers using the existing Madison well supplies without upgrades or modifications. Consequences of no action include the following.

No Action Consequences

- Further incrustation of well casings with mineral scale deposits resulting in reduced production capacity.
- Corrosion and/or collapse of steel well casing leading to total loss of production such as has already occurred with Well No. 4.

The consequences of not securing the well supply sources for the long term will be reduced supply capacity and potential water shortage, and the potential need to construct new wells in the future.

3.1.3 Rehabilitate Existing Madison Wells

As described in Section 1.3.3 of this facility plan the existing four Madison wells have the capacity to meet peak water demands both now and in the future. The concern is that the wells are all more than 50 years old and the integrity of steel casings is uncertain.

The rehabilitation alternative would re-case the existing wells with a smaller diameter steel liner casing installed within the existing steel casing, and grouting the annular space between the new inner casing and old outer casing. The new casing will be approximately 2" to 2 ½" smaller than the old casing to allow passage of new casing

and pipe couplings through the old casing and provide sufficient annular space for grouting.

The estimated cost to re-case one of the existing Madison wells is presented following. Well No. 4 (currently not in service) was selected for budgetary cost estimating. The cost for re-casing the other wells will be similar, but not identical, due to varying casing diameters and depths for each well.

Budgetary Cost Estimate
Rehabilite Well No. 4 by Re-Casing

Item	Quantity	Unit Cost	Total
Contractor Mobilization	1 LS	$20,000	$20,000
Flowing Well By-Pass System	1 LS	$10,000	$10,000
Remove Wellhead Surfacing Piping	1 LS	$5,500	$5,500
Clean Well via Scraping	3100 LF	$8	$24,800
Video Log Casing Interior	3100 LF	$2	$6,200
5-1/2" O.D. Steel Liner Casing (Lower Portion)	2800 LF	$35	$98,000
8" I.D. Steel Liner Casing (Upper Portion)	300 LF	$45	$13,500
Set-Up for Grouting	1 LS	$3,000	$3,000
Grout Liner Casing	200 CF	$25	$5,000
New Wellhead Surface Piping and Valves	1 LS	$10,000	$10,000
		Total	**$196,000**

3.1.4 Drill New Madison Well

The cost of drilling and casing a new Madison well is presented in this section for comparison with the cost of rehabilitation of an existing well. This estimate assumes a location and drilling depths similar to existing wells No. 2 and No. 4, and with a similar wellhead piping and valving system.

Budgetary Cost Estimate
Drilling and Casing New Madison Well

Item	Quantity	Unit Cost	Total
Contractor Mobilization	1 LS	$40,000	$40,000
Site Preparation and Erosion Control	1 LS	$5,000	$5,000
Surface Casing, 20' Diameter	1 LS	$10,000	$10,000
Bore Hole, 12-1/4" Diameter	3100 LF	$110	$341,000
Bore Hole, 7" Diameter	300 LF	$80	$24,000
Geophydical Logging	1 LS	$5,000	$5,000
8-5/8" Steel Casing	3100 LF	$45	$139,500
Set-Up for Grouting	1 LS	$3,000	$3,000
Grouting	1500 CF	$25	$37,500
Cement Bond Log	2 EA	$4,000	$8,000
Second Stage Grouting	1 LS	$3,000	$3,000
Well Development	20 HR	$400	$8,000
Video Logging	1 LS	$3,000	$3,000
Wellhead Surface Piping and Valving	1 LS	$10,000	$10,000
		Total	**$637,000**

The cost of drilling a new Madison well is considerably more than for rehabilitation of an existing well.

3.1.5 Southern Black Hills Water System Connection

The concept of a Southern Black Hills Water System (SBHWS) expansion and pipeline extension to Edgemont was investigated as an alternative to the new well and well rehabilitation alternatives described in the preceding sections. This project concept was discussed with Southern Black Hills Water System representatives and a conceptual plan was developed as a way to regionalize with other public supplies in the Edgemont area.

The SBHWS regionalization concept is presented in more detail in Appendix B to this facility plan. At a cost of over $7.5 million, it was concluded that there was no economic advantage to the City of Edgemont to further pursue regionalization with SBHWS. Factors which make the regionalization concept unfeasible include the following.

Factors Adverse to SBHWS Regionalization

- SBHWS existing supply capacity inadequate to serve Edgemont.
- Additional Madison well construction required.
- Long pipeline distances result in high pipeline costs.
- Rugged terrain requires multiple reservoirs and pressure regulating stations.
- Very few potential rural customers along pipeline routes to help defer costs.

3.1.6 Water Supply Summary and Conclusion

It is concluded that the Madison limestone aquifer is the best and most economical supply source available for Edgemont. It is also concluded that it is more economical to rehabilitate existing municipal wells than to drill new Madison wells to replace existing wells.

3.2 Water Treatment

3.2.1 Treatment Needs and Objectives

As described in Section 1.3.2 of this facility plan the Madison well supply has PMCL and SMCL contaminant levels at or near regulatory or recommended maximums. The source water also has high temperature and high hardness which presents undesirable aesthetic properties to consumers and contributes to costly plumbing fixture replacements and in-home softening expenses.

Of primary concern is intermittent violation of State Water Quality Standards for radiological contaminants: gross alpha and combined radium 226/228. Of secondary concern are the undesirable aesthetic properties of high temperature and high hardness.

The following sections describe treatment methodologies available and present two alternatives for comparison and consideration. The objectives are as follows.

Edgemont Water Treatment Objectives

- Reduce radiological contaminants to below PMCL standards for reliable and continuous compliance with regulatory requirements.
- Reduce temperature of water delivered to the distribution system to 80°F or less.
- Reduce hardness to a more moderate level to protect piping systems and fixtures (200 mg/l or less)

- or -

- Mitigate hardness using scale inhibiting chemical treatment

3.2.2 No Action Alternative

This alternative would continue using the Madison well sources with chlorine disinfection only. Consequences of no action include the following.

No Action Consequences

- Possible violation of State Water Quality Standards for radiological contaminants, along with SDDENR enforcement which could mandate treatment action at a future time.
- No reduction in temperature of water.
- No reduction in hardness and associated consumer problems with scaling.

3.2.3 Treatment Alternatives Available to Reduce Radiological Contaminants

EPA has established "Best Available Technologies" (BAT) available for radiological contaminant reduction.

EPA BATs for Radionuclide Treatment

- Reverse Osmosis
- Activated Alumina
- Ion Exchange
- Coagulation Filtration
- Lime Softening
- HMD Filtration
- One Use Throw Away Media/Resin
- Electrodyalisis

Consideration can be given to each of these technologies, but the selection will depend upon other water quality parameters, waste disposal methodology and other factors, including cost.

Other treatment methodologies have also proven to be effective, but are not considered "best available" due to cost, limited effectiveness and other reasons.

Following is a cursory review of the four BATs considered to be relevant to the Edgemont water supply.

Review of BATS

Reverse Osmosis

Reverse osmosis is a pressure-driven membrane separation process which removes contaminant molecules larger than the pore openings of the membrane. The process can remove objectionable salts and metals as well as radiological contaminants. Pros and cons with respect to Edgemont are as follows:

Pros

- Can remove radiological contaminants as well as high chlorides and sulfates present in the Edgemont well water.
- No additional chemical addition needed.
- Proven technology with a number of potential suppliers.

Cons

- Typically will require hardness removal for high hardness waters such as Edgemont wells.
- Large "reject" flow to waste with the removed contaminants. Waste flow can be 25% or more of total water treated.
- High electrical power cost for pumping at high pressure through membrane.
- High level of operator skill needed.

Ion Exchange

Ion exchange uses passage of water through a resin media in a pressure vessel, which contains "exchangeable" ions. This is essentially the process used in household water softeners to exchange hardness ions (calcium and magnesium) with sodium, thereby reducing hardness. The process also removes cationic (positively charged) radium 226/228. Pros and cons with respect to Edgemont are as follows:

Pros

- Removes radiological contaminants as well as reducing hardness, which would benefit Edgemont in two ways.
- Relatively simple and proven technology, numerous potential equipment suppliers.
- Waste flow for backwash and regeneration is usually less than 5% of treated flow.
- Operator skill level required is moderate.

Cons

- Will increase sodium concentration in finish water. Edgemont well water sodium could be doubled from current 170 mg/l of sodium using sodium chloride (salt) as the exchange chemical. Potassium chloride is also an effective exchange chemical which would not affect sodium in the finished water, but is more costly.
- Due to high hardness levels in Edgemont wells, salt consumption will be high and salt purchase, storage and handling will be a major cost component of the project and will increase water system operating costs significantly.
- Temperature reduction to below 100°F is required for water entering the treatment system due to temperature rating limits of equipment.

Lime Softening

Lime softening is a process where hydrated lime is added to raise pH to precipitate calcium. The precipitate is removed by settling and filtration resulting in soft water. Radionuclides are also effectively removed by this process up to about 90%. Pros and cons with respect to Edgemont are as follows:

Pros

- The combined benefit of softening and radiological treatment is attractive for Edgemont.
- Well established technology, multiple equipment suppliers.

Cons

- Large capital costs for treatment facility due to large footprint for settling tanks and filters.
- High chemical costs for lime.
- Possible increase in corrosivity may require adding corrosion inhibiting chemicals.
- Lime sludge disposal can be expensive.
- Operator skill level required is high.

One-Use Throw Away Media/Resin

Adsorptive media, sometimes referred to as "One-Use Throw-Away Media/Resin" can remove radiological contaminants by adsorbing the contaminants onto a granular media where it is permanently attached. The media becomes highly radioactive over time and must be removed and replaced periodically. The removal process requires skilled personnel, protective clothing and must be transported to licensed disposal sites for radioactive materials. This technology is available only through proprietary vendors and manufacturers which involves a long term operating contract with a specific vendor. Water Remediation Technology (WRT) has a proprietary media called Z-88 which has been successfully used for radionuclide reduction in other small communities in the region.

Pros and cons of this technology are as follows.

Pros

- Guaranteed satisfactory treatment performance.
- No chemical addition for radiological treatment.
- No liquid waste stream or disposal needs thus no water loss for media backwashing or regeneration.
- Spent media disposal via contract with treatment system supplier, thus no health risk or special training for City employees

Cons

- Temperature reduction to below 100°F may be required for water entering treatment system, or alternatively special high temperature rated materials needed.
- Proprietary process equipment and media, thus limited competition.
- Contract with annual cost to the City required for media disposal and replacement.
- Does not reduce hardness.

The two treatment processes recommended for further evaluation and cost comparison are as follows.

Viable Treatment Alternatives for Radiological Contaminants

- Ion Exchange
- Adsorptive Media Filtration (WRT)

Further evaluation and cost comparison is presented in the following section. Both of these treatment methodologies will require that a successful pilot study be completed in Edgemont before final design to verify effectiveness of treatment.

3.2.4 Comparison of Viable Treatment Alternatives

This section presents preliminary performance evaluation and cost comparison of the two viable treatment options for removing radiological contaminants.

Ion Exchange Process

Process Description

- Three vessel vertical pressure vessel system
- Cationic exchange resin
- Design flow range: 150 gpm to 250 gpm
- Exchange chemical: sodium chloride (salt)
- Automatic brining system with 36 ton salt storage silo
- Completely automatic regeneration and control system

- Raw water blending capability to reduce operating costs and maintain desired residual hardness (150 to 200 mg/l)
- Regeneration waste disposal to evaporative lagoon or to municipal sewer.
- Approximately 5% water loss for media regeneration and backwash

Benefits

- Reduce hardness to desired level
- Reduce radiological contaminants below PMCL Standards

Capital Cost

Equipment Package $319,000

Operating Cost (Chemicals Only)

Salt Consumption Rate:	23 lb/1,000 gallons
Annual Treatment Volume:	30,000,000 gallons
Annual Salt Consumption:	690,000 lb.
Cost of Salt via Bulk Delivery:	$0.10/lb
Annual Cost of Salt:	$69,000/year

WRT Adsorptive Media Process

Process Description

- 2 train, 2 vessel pressure vessel system.
- WRT Z-88 adsorptive media.
- Design Flow: 250 gpm
- Completely automatic control system.
- No liquid waste stream.

Benefits

- Reduce radiological contaminants to below PMCL standards.

Capital Cost

Equipment Package: $327,000

Operating Cost (Media Replacement Contract)

Annual Cost (WRT Contract): $47,200/year

The following cost comparison of the two viable process is presented to consider both capital and operating costs. A present worth comparison converts annual operating costs to a present value based on a defined period of use and interest rate which accounts for inflation of operating costs over time. The analysis is based on a 20 year period and 3% interest rate.

Treatment Methodology Cost Comparison

	Ion Exchange	WRT Adsorptive Media
Capital Cost	$319,000	$327,000
Operating Cost	$69,000/year	$47,200/year
Present Worth of Operating Costs (uspwf = 14.877, 20 yrs, 3%)	$1,027,000	$702,000
Total of Capital Cost and PW	$1,346,000	$1,029,000

The cost analysis shows that operating the WRT system will cost about $300,000 less than the ion exchange system over a 20 year period. The value of reduced operating labor for the WRT system is significant also, but has not been quantified.

Other factors to consider when selecting a treatment alternative include the following.

Other Factors to Consider

Ion Exchange

- Generates a significant wastewater flow for which disposal is required. If waste flow is discharged to the municipal sewer, added sewer flow will be about 4,000gal/day.
- Operating labor needs will be higher than for WRT due to salt handling.

WRT Adsorptive Media

- Does not provide the softening benefits of ion exchange.
- Minimal additional operating labor.

Manufacturers data and cost information for adsorptive media and ion exchange systems are included in Appendices C and D respectively.

3.2.5 Temperature Reduction

Both of the viable treatment methodologies for reduction of radiological contaminants have a maximum temperature limit for water entering the treatment system of 100°F. Cooling of incoming well water is necessary for protecting the equipment and will also achieve significant beneficial temperature reduction for water entering the distribution system and at consumers service connections.

A forced draft closed-loop heat exchanger can be used to provide the needed temperature reduction. This type of system uses a liquid coolant fluid to exchange heat with incoming well water . The excess heat absorbed by the coolant fluid is dispersed to the atmosphere via cooling fins and fans at the treatment building exterior. The drinking water does not come in contact with the coolant fluid. The liquid coolant is freeze protected with propylene glycol, thus the system can operate in cold weather without service interruption. The cooling system will cycle on and off automatically with well pump run cycles.

Appendix E contains additional equipment information and budgetary cost information for the heat exchanger system.

Cooling of incoming well water using above ground tankage or cooling towers which expose water to the atmosphere are judged to be more costly, less efficient and could expose the water to possible contamination.

3.2.6 Hardness Mitigation Using Anti-Scaling Chemicals

The negative impacts of high hardness concentrations can be mitigated using polyphosphate/orthophosphate chemicals. The phosphates inhibit scale formation from calcium and magnesium compounds, thus are effective in mitigation of scale deposition in pipes and plumbing fixtures. This treatment methodology in combination with an adsorptive media system would be effective in both reduction of radiological contaminants and mitigation of hardness effects.

Polyphosphate/orthophosphate is available in liquid form from water treatment chemical suppliers, and is approved by regulatory agencies for drinking water supplies. The chemical is added to the water supply using conventional, relatively inexpensive, metering pump equipment. The cost of chemical for Edgemont supply is estimated to be approximately $ .10 per 1,000 gallons treated, thus is relatively inexpensive as compared with ion exchange softening.

3.2.7 Disinfection

As described in Section 1.2.3 if this facility plan, disinfection is currently provided for only Well No. 2 using chlorine gas which is housed in an outdoor shelter.

It is recommended that all well sources be equipped with disinfection systems, or alternatively that well discharge be consolidated into a single location for treatment and disinfection. Assuming that cooling and treatment facilities are located in a single building, then disinfecting chemical can be fed to the treated water at a single location.

Liquid sodium hypochlorite is recommended in lieu of chlorine gas as the disinfecting chemical on the basis of simplified feed and storage equipment and reduced hazard to operating personnel and the general public. Sodium hypochlorite is effective, easy to handle and does not cost much more than chlorine gas for small systems.

3.2.8 Water Treatment Summary and Conclusions

The recommended water treatment methodology for Edgemont consists of the following major components.

Recommended Treatment Process Components

- Forced draft closed-loop heat exchanger for temperature reduction to <100°F.
- WRT adsorptive media system for reduction of radiological contaminants. (Subject to satisfactory pilot study results)
- Chemical feed of liquid polyphosphate for hardness mitigation.
- Liquid sodium hypochlorite feed for disinfection and maintaining disinfection residual in the distribution system.

3.3 Storage

3.3.1 Needed Improvements

It is recommended that the existing ground level concrete storage tanks be abandoned and demolished based upon poor condition, contamination potential, and leakage. The existing steel tank is functional, but is 60 years old, does not conform with current OSHA safety standards or AWWA coating standards, and does not provide effective storage for the community due to low pressure provided to residential areas at higher elevations of the City.

A new storage tank with 250,000 gallons of effective storage between elevations 3335 and 3365 is recommended based upon analysis presented in Section 1.3.4 of this report.

3.3.2 Alternatives Considered

Storage alternatives considered in this facility plan are as follows.

1. No action.
2. 250,000 Gallon Elevated Steel Tank, single pedestal spheroid type located near the existing tank site.
3. 250,000 gallon Ground Level Cylindrical Tank of the epoxy or glass coated bolt-together steel type located on high ground on City Airport property approximately ¾ mile west of the existing tank site.

3.3.3 Analysis of Alternatives

No Action

The no action alternative would continue to use existing ground level concrete and steel standpipe tanks in their current condition. Consequences of no action are as follows.

No Action Consequences

- Inadequate emergency storage for portions of the community.
- Inadequate service pressure for portions of the community.
- Vulnerability to contamination in concrete tanks.
- Continued water loss via leakage from concrete tanks.
- Non-conforming safety features on steel tank.
- Non-compliant coatings on interior of steel tank.

250,000 Gallon Elevated Tank

The proposed location of the new elevated tank is near the existing tank site on City-owned land. The ground elevation of 3575 will result in a 90' tank height to a high water elevation of 3665. The estimated cost is presented following. Costs include underground piping necessarily to connect to the treatment facility discharge piping and to connect to the existing distribution system in H Street.

Budgetary Cost Estimate
250,000 Gallon Spheroid Elevated Tank

Item	Quantity		Unit Cost	Total
Mobilization	1	LS	$ 30,000	$ 30,000
250,000 Gallon Elevated Tank	1	LS	$ 880,000	$ 880,000
6" PVC Water Main/Fittings	80	LF	$ 50	$ 4,000
6" Gate Valve and Box	2	EA	$ 1,000	$ 2,000
12" PVC Water Main	220	LF	$ 70	$ 15,400
12" D.I. Fittings	6	EA	$ 1,500	$ 9,000
12" Gate Valve and Box	3	EA	$ 3,500	$ 10,500
Connect to Existing Water Mains	3	EA	$ 1,000	$ 3,000
Fire Hydrant with Auxillary Valve	1	EA	$ 4,500	$ 4,500
Incidental Work	1	LS	$ 10,000	$ 10,000
			Total	$ 968,400

250,000 Gallon Ground Level Tank

The proposed ground level tank site is on City Airport property ¾ mile west of the existing tank. The ground elevation of 3335 will allow for a 38' diameter x 30' high tank of the factory-coated bolt-together type on concrete foundation. The estimate includes a 6" diameter inlet pipeline between the treatment site and the proposed tank and a 12" outlet pipeline. The estimate includes tie-in to the existing distribution system in H Street. Budgetary costs are estimated following.

Budgetary Cost Estimate
250,000 Gallon Ground Level Tank and 12" Transmission Main

Item	Quantity		Unit Cost	Total
Mobilization	1	LS	$ 40,000	$ 40,000
Site Grading, Tank Site and Roadway	1	LS	$ 30,000	$ 30,000
250,000 Gallon Bolted Steel Tank	1	LS	$400,000	$ 400,000
6" PVC Water Main/Fittings	3,900	LF	$ 35	$ 136,500
6" Gate Valve and Box	5	EA	$ 1,000	$ 5,000
12" PVC Water Main	3,900	LF	$ 70	$ 273,000
12" D.I. Fittings	10	EA	$ 1,500	$ 15,000
20" Bored Casing at Runway	200	LF	$ 400	$ 80,000
12" Gate Valve and Box	5	EA	$ 3,500	$ 17,500
Fire Hydrant with Auxiliary Valve	5	EA	$ 4,000	$ 20,000
Electrical Service to Tank Site	1	LS	$ 5,000	$ 5,000
Tank Transducer/Telemetry/Integration	1	LS	$ 30,000	$ 30,000
Gravel Surfacing	500	TONS	$ 30	$ 15,000
Tank Site Restoration and Seeding	2,500	SY	$ 2	$ 5,000
Pipe Alignment Restoration and Seeding	12,000	SY	$ 2	$ 24,000
Incidental Work	1	LS	$ 10,000	$ 10,000
			Total	**$ 1,106,000**

3.3.4 Summary and Recommendation

The bolt-together ground level tank itself is much less expensive than the elevated tank, but the long pipeline distance and associated costs result in a total cost which is significantly higher than for the elevated tank. The elevated tank alternative has the added advantage of being close to the treatment building which minimizes added cost for electrical service, radio telemetry and roadway maintenance for the remote tank site. The recommended alternative is a 250,000 gallon elevated tank located on the south side of H Street in close proximity to the proposed water treatment building. Figure 6 illustrated the recommended elevated tank and new hydraulic grade line.

3.4 Distribution System

The City of Edgemont has made gradual progress in replacing undersized and obsolete distribution system piping and related components over the past 10 years. The existing $10/month water service surcharge has been dedicated to replacement work since 2005. It is anticipated that this work will continue to correct deficiencies noted in Section 2.2.5 of this facility plan.

One of the scheduled projects includes replacement of a 10" AC main from the tank site to a 10" PVC main in E Street, about 900' north of the tank site. This main is not located in a developed roadway, but is across rugged terrain, which is difficult to access. It is recommended that this existing AC main be abandoned, and the overall system be upgraded hydraulically by constructing a new 10" PVC water main in H Street between the new tank site and 2nd Avenue at the south end of the business district. This improvement accomplishes the following benefits:

- Removes the existing 10" AC main from an inaccessible location.
- Replaces undersized 4" main in H Street between the tank site and 5th Avenue and 6" main between 5th Avenue and 2nd Avenue.
- The proposed 10" main in H Street provides direct connection to the 10" main through the business district on 2nd Avenue between A Street and H Street.

It is recommended that water main replacement in H Street between the tank site and 2nd Avenue (approximately 2600') be included in the proposed project, and that the existing 10" AC main through the existing tank property to F Street be abandoned in-place. It is also recommended that the existing 6" AC main in H Street east of 2nd Avenue under the railroad yard (approximately 800') be replaced with new 8" PVC main. This will remove non-conforming 6" AC pipe under the railroad and strengthen service to the Cottonwood residential area on the eastside of the City.

All other water main upgrades needed appear to be of a non-priority category which can be undertaken using the $10/month R&R surcharge as funds accumulate in the coming years.

The extent of water main replacement recommended is included in the schematic design drawings on Appendix F.

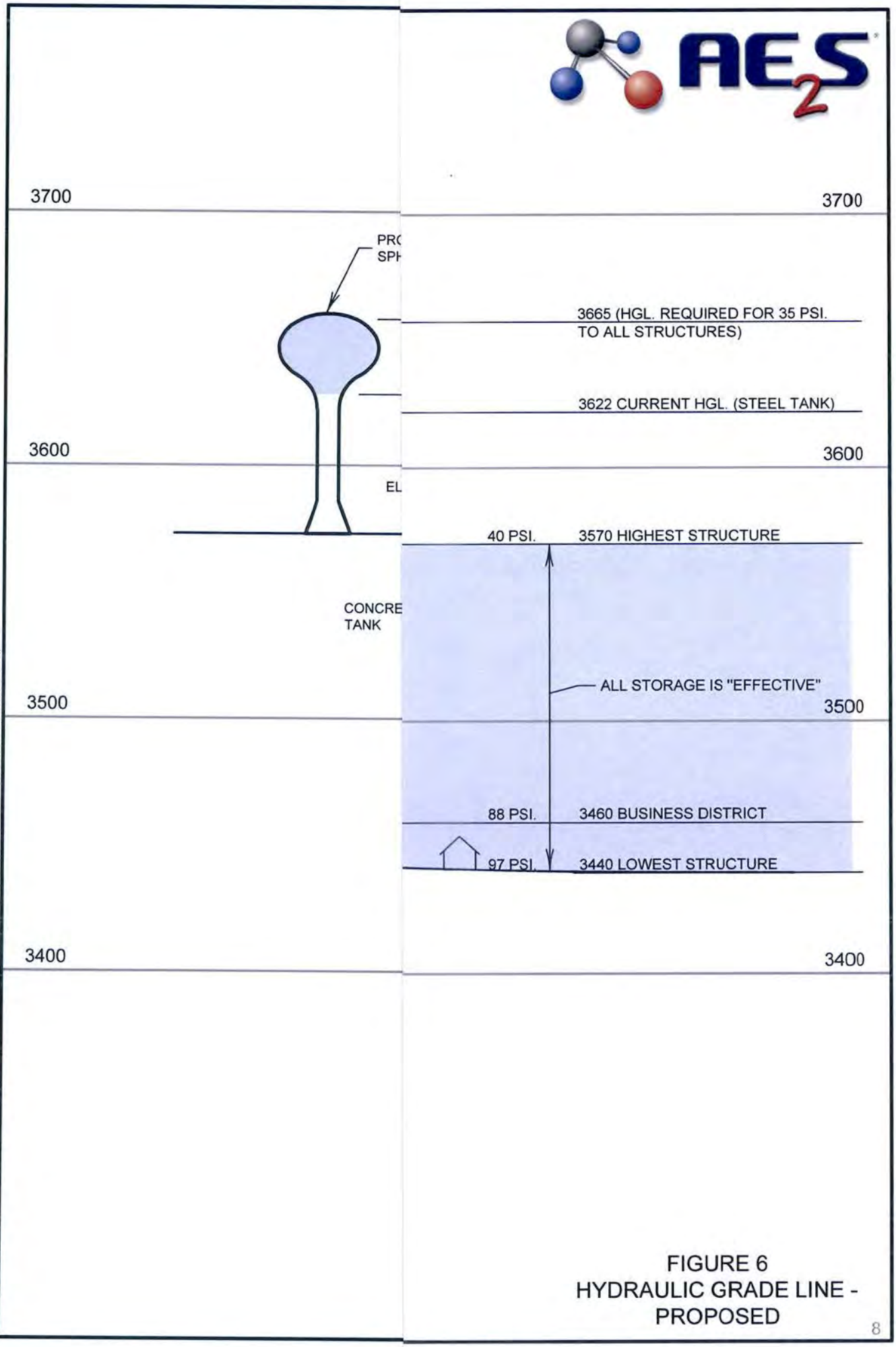


FIGURE 6
HYDRAULIC GRADE LINE - PROPOSED

August 19, 2014 2:27:15 p.m.
Drawing: 13134 PIPING.DWG (FOX) (\\MAIN-DATA\CETEC\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)

4. Project Selection

4.1 Objectives and Overview

The City of Edgemont developed goals and objectives for the proposed project as follows:

City of Edgemont Goals

- Assure a reliable supply by upgrading existing production wells.
- Improve water quality, including reduced temperature, and reliable conformance with State Water Quality Standards, specifically radiological contaminants. Reduce hardness or mitigate negative effects of hardness.
- Replace substandard storage tanks and eliminate sources of contamination.
- Increase service pressure to low pressure areas at higher elevations in the community.
- Make necessary improvements to the distribution system.

The proposed project consists of the following key components and modifications.

Key Project Components

- Wells No. 2 and No. 4 will be re-cased and reconfigured for submersible pumps with 250 gpm capacity.
- The BN and TVA wells will be removed from service as production sources.
- A new water treatment facility for Wells No. 2 and No. 4 will be constructed. The facility will provide cooling, reduction of radiological contaminants, and mitigation of hardness and disinfection.
- A new 250,000 gallon elevated steel storage tank will be constructed. The new storage tank will raise the hydraulic grade line of the system to provide pressures above 40 psi for the entire community .
- The well pumps and treatment facility will include an emergency power supply system to produce treated water during utility power interruptions.
- The existing ground level concrete storage tanks and steel standpipe will be demolished along with the tank booster pump system. The existing tank site will be restored. Well No. 2 will remain in service at this site, but all other facilities will be removed or abandoned.
- The existing 10" AC main connecting the storage tank to the distribution system will be removed from service and replaced with a new 10" PVC main in H Street connecting the new storage tank to the distribution system at multiple locations from 7th Avenue to 2nd Avenue. A new 8" PVC main will extend east across the railroad to the Cottonwood Subdivision.

The following sections describe the preliminary design, performance capacity and capabilities of the system components.

4.2 Well Rehabilitation and Submersible Pumps

Existing Wells 2 and 4 are located in relatively close proximity (<1000 ft spacing) on City property. It is considered to be feasible to pipe the well discharge to a central location for treatment. The existing 6" PVC discharge pipeline for Well No. 4 connects to the existing tank site where Well No. 2 is located. Under this scenario Wells 2 and 4 will provide all water to the system and the BN and TVA wells will be disconnected from the system.

The artesian flow of Wells 2 and 4 are estimated to be about 300 gpm under the current head conditions for discharge to the ground level concrete tanks. Submersible pumping equipment is required for each well to provide the capacity to meet peak day production needs and to overcome head conditions of the treatment system and proposed new storage tank at a higher elevation.

Due to the age of the existing well casings (79 years for Well 2 and 53 years for Well 4) it is proposed to install new steel liner casings to assure structural integrity for the future. As described previously, Well 4 is currently out of service due to a hole in the casing, and it is imperative that these wells be able to perform reliably for the next 50 years or more.

Proposed renovations for Wells No. 2 and No. 4 are illustrated in the schematic design drawings in Appendix F. Each well will be equipped with a flow by-pass system that will allow pumping equipment to be installed in a "dry" condition. A pitless unit at each well will discharge to a transmission pipe below the ground surface. The piping system will thus be protected from freezing during periods of inactivity. The pump motors will be started and speed-controlled with variable speed drives located at the treatment facility. An electrical disconnect at the well sites will allow pump servicing.

4.3 Water Treatment Facility

A new water treatment facility is to be constructed on City-owned vacant land immediately south of the existing storage tank site on H Street. This location will allow existing storage and booster facilities to remain in service during the construction period. The site is located in between Wells No. 2 and No. 4, and new transmission piping construction needs are minimal. The existing Wells No. 2 and No. 4 transmission mains are located in the street right-of-way at the site.

The proposed water treatment process is illustrated schematically in the drawings in Appendix F. The treatment process includes cooling, radiological contaminant reduction and sodium hypochlorite disinfection components. Hardness mitigation will be via polyphosphate feed for anti-scaling properties.

Cooling will be accomplished using a closed loop forced draft heat exchanger system designed to reduce well water temperature by 30°F to 40°F depending upon ambient air temperatures. The cooling system utilizes a liquid coolant fluid to exchange heat with the well water. The heat absorbed by the liquid coolant is dispersed to the atmosphere via cooling fins and fans located outside of the building. A separate coolant pump system located inside the treatment building will provide coolant circulation between the water heat exchanger and the air-to-fluid heat exchanger on the exterior of the building. The cooling system will cycle on and off with well pumping cycles. Control of the cooling system operation will be entirely automatic.

After cooling the well water will be treated for radiological contaminant reduction using a adsorptive media filtration system (WRT). The WRT system will treat 100% of well production and be designed to handle a 250 gpm flow rate. By-pass piping will be provided to assure supply in the event of an equipment problem.

Liquid chemical storage and feed systems will be provided for polyphosphate and sodium hypochlorite. Schematic treatment plant layout and site development plans are presented in Appendix F. The proposed driveway facilitates truck access for maintenance vehicles, chemical deliveries as well as fuel for the emergency generator. Site security is provided by fencing, which also provides security for the new storage tank. The building will be connected to the municipal sewer system for floor drainage. A pre-engineered steel frame structure has be assumed for cost estimating purposes.

4.4 Storage Tank

The project includes a new 250,000 gallon elevated steel tank of the single-pedestal spheroid style. The proposed tank is to be located adjacent to the treatment facility and is contained within the same fenced security area.

The proposed tank is 90' in height to the overflow elevation (3665) which will increase distribution system pressure to 40 psi or more for the entire community. The spheroid shaped tank stores all water within a 30' head range at the top, thus all stored water will be "effective storage" because it is available for emergency uses at working pressures above 20 psi for all customers.

The treatment plant will supply the storage tank through a dedicated inlet pipe. Well pump discharge pressure will be sufficient to overcome pressure losses in the piping and treatment processes as well as to lift the water into the elevated tank. A separate 12" diameter pipe will serve as the tank outlet and connect to the distribution system in H Street adjacent to the tank site. The separate inlet and outlet piping arrangement will maximize the retention time in the tank, and allow for further cooling prior to distribution. The combination of heat exchanger and heat loss in the storage tank is expected to lower distribution system water temperature to 80°F or lower.

4.5 Distribution System Improvements

The proposed distribution system improvements are shown in the schematic drawing in Appendix F. The new storage tank will be connected to the distribution system in H Street. Connection will be made to the existing 8" PVC main extending west of the tank site. A new 10" PVC main will be constructed in H Street from the tank site to 2nd Avenue at the south end of the business district, with tie-ins to existing mains at intersecting streets from 7th Avenue to 2nd Avenue. The H Street main will be extended east from 2nd Avenue with 8" PVC pipe to cross the railroad yard area and replace the existing undersized 6" AC main. The new 8" PVC main will tie-in to existing mains in the Cottonwood subdivision. The railroad crossing will be made via a bored steel casing.

4.6 Demolition and Site Restoration

The existing concrete tanks, steel standpipe and booster pump vault will be demolished and removed from service. The site will be graded and restored. The proposed removal of the steel tank will be included in the project scope. It is anticipated that the concrete tank

5. Project Cost Summary

5.1 Design and Construction Costs

The overall project work consists of six major components that will likely be bid and constructed in separate contract phases as described following.

Project Components

Well No. 4 Rehabilitation and Pump System

Well No. 2 Rehabilitation and Pump System

Pilot Study of Treatment Equipment

Water Treatment Facility

250,000 Gallon Elevated Storage Tank

Steel Tank Demolition

Distribution System Improvements

Budgetary cost estimates have been developed for each component using historical bid data for similar work, equipment cost data from suppliers, consultation with contractors and using standard published estimating guides. The budgetary cost breakdowns for each project component are included in Appendix G.

Costs are based on schematic level designs only, thus a contingency allowance of 10% has been included for each project. Other project costs will include engineering design, construction inspection and administration. Engineering design costs are typically in the range of 7% to 10% of construction cost, depending upon project type and complexity. Construction phase engineering services include construction observation and testing along with contract administration. The construction phase services also typically range from 7% to 10% of total construction cost, again depending upon variables such as type of work and project duration. For purposes of this report the total engineering fees are estimated at 15% of total construction cost on the basis that work will be of average complexity. The project work is anticipated to be completed on City-owned land or public right-of-way. No land or easement acquisition costs are expected, thus no land costs have been included in project estimates. The following table summarizes estimated project costs.

Construction Cost Summary

Project Component	Construction Cost
Well No. 4 Rehabilitation and Pump System	$308,000
Well No. 2 Rehabilitation and Pump System	$286,000
Treatment System, Pilot Study	$60,000
Water Treatement Facility	$1,120,000
250,000 Gallon Elevated Tank	$1,042,000
Demolish Existing Steel Tank	$50,000
Existing Concrete Tank Demolition and Site Restoration (by City Forces)	$0
Distribution System Improvements (H Street main)	$508,000
Total Construction	$3,374,000
Legal Services (Bond Counsel)	$10,000
Design and Construction Engineering (15%)	$506,000
Total Project Cost	$3,890,000

5.2 Operation and Maintenance Costs

The selected project will increase operating costs for certain budgetary line items. The principal cost increases will be for the adsorptive media maintenance contract and for treatment system chemicals. Electrical power costs will also increase for pumping and cooling system operations. Additionally, the City could see added costs for budgetary items like insurance. Repair and replacement costs for treatment system equipment will also warrant an increase in the budget, although actual repair and replacement costs will be minimal for new equipment.

The following tabulation shows the approximate operating costs for the existing system (based on 2014 budget) and included estimated cost increase that can be expected when new systems are operational. The basis for new costs is presented in Appendix H.

Operating Cost Projections

Item	2014	Estimated Increase for New Improvements*	Total
Operating Labor/Benfits	$58,000	-	$58,000
Insurance	$6,000	$1,000	$7,000
Professional Fees	$5,800	-	$5,800
Rent	$12,200	-	$12,200
Equipment Repair and Maintenance	$25,100	$10,400	$35,500
Supplies and Materials	$51,000	$54,900	$105,900
Gasoline	$2,700	-	$2,700
Travel	$1,200	-	$1,200
Electric	$5,800	$3,900	$9,700
Phone	$1,400	-	$1,400
Machinery and Equipment	$45,500	-	$45,500
Other	$500	-	$500
Total	$215,200	$70,200	$285,400

** See Appendix H for estimated increase in operation and maintenance costs.*

The improvements outlined in this report will add approximately $70,200/yr in operating costs, or about a 35% increase over current costs. It is assumed these costs will increase with the rate of inflation and nominal increases in annual water rates will be needed to cover inflation.

5.3 Impact on User Rates

The current water rate structure for Edgemont is as follows:

Current Edgemont Water User Rates	
0 – 5,000 gallons	$25.45/month
5,000 – 20,000 gallons	$1.00/1,000 gallons
over 20,000 gallons	$2.00/1,000 gallons
Distribution System Repair and Replacement Surcharge	$10.00/month

A typical home using 5,000 gallons/month or less has a total bill of $35.45/month for water only.

As described in Section 5.2 the system operating costs are expected to increase by approximately $70,200 for the new pumping systems and treatment facility. This increase represents a monthly customer cost of about $14.60 per user per month.

Review of existing City water budgets indicates a revenue shortfall of about $19,000 per year. This shortfall is equivalent to about $4.00 per month for the existing 400 customers. The rate projections below include a $4.00 per month rate increase to cover this existing shortfall.

Capital funding for project construction will also add significant costs going forward. For discussion purposes it is assumed that the project capital costs will be funded using a grant and loan package from the State Revolving Fund (SRF). The proportion of grant vs. loan funds can vary from 0% grant /100% loan to as much as 60% grant/40% loan. Discussions with SDDENR representatives has indicated that as a disadvantaged community, Edgemont would qualify for loan terms of 0% interest, 30 year payback.

The monthly cost for loan repayment is shown in the following tables for various combinations of grant/loan proportions using a total project capital cost of $3,890,000. The table also shows the estimated cost per customer for increased operation and maintenance and projects a total monthly cost including the current monthly cost of $35.45/month.

The City currently sells approximately 23MG/year of water for usage above the 5000 gallon monthly Base Rate. This generates approximately $23,000/year of revenue in excess of the Base Rate revenue. The table below assumes that the surcharge rate for water use in excess of 5,000 gal./mo. will be increased by $2.00/1000 gal. to a total of $3.00/1000 gallons. The line item "Adjustment for Sales >5000 gal./mo. " assumes that the additional $2/1000 gal. charge will generate an additional $46,000/year of revenue based on the historic 23 MG/year of water sold. The additional revenue of $46,000/yr equates to about $9.60 per month per user. The table assumes that this additional revenue will be used to offset the projected Base Rate increase required.

Water Rate Projection
Project Cost $3,754,000
SRF Loan Terms: 0% interest, 30 year
Customers: 400

Grant/Loan Senario			Monthly Loan	Loan Cost/Customer	O&M	Current	Current Budget	Adjustment for Sales >5,000	New Base
% Grant	% Loan	Loan Amount	Payment[1]	per Month	Increase	Base Rate	Shortfall	gal/mo.[2]	Rate
0	100	$3,890,000	$11,900	$29.75	$14.60	$35.45	$4.00	($9.60)	$74.20/mo
20	80	$3,112,000	$9,510	$23.75	$14.60	$35.45	$4.00	($9.60)	$68.20/mo
40	60	$2,334,000	$7,130	$17.80	$14.60	$35.45	$4.00	($9.60)	$62.25/mo
60	40	$1,556,000	$4,750	$11.90	$14.60	$35.45	$4.00	($9.60)	$56.35/mo

(1) Loan payment based on 110% converage of loan amount.
(2) Assumes Rate Increase for Water Sold over 5000 gal/mo from $1/1000 to $3/1000 gallon and sales of 23,000,000 gal./yr

6. Implementation Schedule

Following is a tentative schedule for project implementation. The schedule assumes that project funding applications to DENR and this Water System Facilities Plan in April 2015. It is recommended that rehabilitation work on Wells 2 and 4 be scheduled as two independent projects so as to restore Well No. 4 to service prior to taking Well No. 2 out of service for rehabilitation work. It is considered prudent to complete both well rehabilitation projects in advance of treatment system and storage tank work.

Implementation Schedule

Task	Complete By
State Water Plan Application	Completed
Finalize Facility Plan	March 2015
SRF Funding Applications	April 1, 2015
Public Hearing for SRF	April 2015
Board of Natural Resources Funding Action	June 2015
Engineering Design and Reviews	January 1, 2015
Bidding and Construction (20 months)	March 2015 - July 2017

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A. Level III Cultural Resource Inventory

B. Conceptual Project Outline for South Black Hills Water System Regionalization

C. WRT Preliminary Proposal

D. Tonka Water Ion Exchange Preliminary Proposal

E. Dry Cooler, Inc. Heat Exchange Preliminary Proposal

F. Schematic Design Drawings

G. Budgetary Cost Estimates

H. Estimated Operating Costs for Treatment System

Appendix A

Level III Cultural Resource
Inventory of the City of Edgemont
Water Supply Project
Quality Services, Inc.
December 2014.

LEVEL III

CULTURAL RESOURCES INVENTORY

OF THE

CITY OF EDGEMONT WATER MAIN PROJECT

Fall River County, South Dakota

T8S, R2E, section 36, and T9S, R2E, sections 1 and 2

by

Mark Carpenter

Quality Services, Inc. Project #SD3914057

December 15, 2014

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Abstract

Level III pedestrian and windshield cultural resources inventory was conducted for the proposed City of Edgemont Water Facilities, which are within the South Fork Cheyenne Study Unit. The city proposes to place water pipelines, in approximately of 10.4 miles of corridor, located along roads through the city and in off road easements. Edgemont also plans to demolish and remove a steel water tank, two concrete cisterns, and two other associated structures. A new water tower, water treatment building, heat exchanger, salt silo, electric generator, fuel tank, a large concrete pad and a gravel base access area are proposed for the area east of an existing containment pond structure.

One new segment of previously recorded cultural resource 39FA2003 was located within the project area as was a newly recorded irrigation ditch, 39FA2330. An existing containment pond, 39FA2579, with an associated concrete storage building, FA00000360, were recorded as well.

The five buildings to be torn down within the reservoir compound were also recorded. These include, a maintenance shed/filter house: FA00000361, two concrete cisterns: FA00000362 and FA00000363, a valve/pump house: FA00000364 and a riveted steel standpipe water tank: FA00000365.

The 39FA2003 segment is an active rail yard which is considered ***eligible*** for the National Register of Historic Places under the state railroad context. Irrigation ditch 39FA2330 is recommended ***unevaluated*** until further historical research can be conducted. Site 39FA2579 and the six structures recorded during this project are recommended ***not eligible*** for the National Register due to a lack of integrity and/or being extremely common.

As 39FA2003 is an active railroad, this resource will be avoided by boring underneath or use of existing conduit, if present. It is recommended that 39FA2330 also be bored underneath. Site 39FA2579 and the six recorded newly structures are considered ***not eligible*** for the NRHP and the planned work in these areas will thus have **no effect** on them.

A project determination of "no adverse effect to historic properties" is recommended for the project.

Location

T8S, R2E, section 36; and T9S, R2E, sections 1 and 2
Fall River County, South Dakota
Pedestrian Inventory Acres: 32.57 Windshield Inventory Acres: 94.63 Total Acres: 127.2

Project Description

The City of Edgemont proposes to place water mains in approximately of 10.4 miles of roads through the city, and in off road utilities easements. They also plan to demolish and remove a steel water tank, two concrete cisterns and two other associated structures. A new water tower, water treatment building, heat exchanger, salt silo, electric generator, fuel tank, large concrete pad and a gravel base access area around the water tower are also proposed. The project may be funded by state or federal grants, loans, or guarantees.

Compliance with Federal Laws, Regulations and Other Policies

Cultural Resources inventories were conducted for this project to aid in complying with Section 106 of the National Historic Preservation Act (NHPA), as amended, and with the National Environmental Policy Act (NEPA). Activities undertaken to comply with these Acts must also be in full accord with all other Federal laws and regulations. Section 106 of the NHPA requires determinations of what potential direct, indirect and cumulative effects the proposed activities of a project would have on cultural resources. NEPA compliance requires assessing the potential effect of activities on the environment, which includes cultural resources. NEPA also requires that these potential effects be disclosed to the public, and provides for public comment.

Figure 1. View of project route in southwestern portion facing north.
Photo taken at corner of airport access road and H Street. M. Carpenter 10/10/2014.

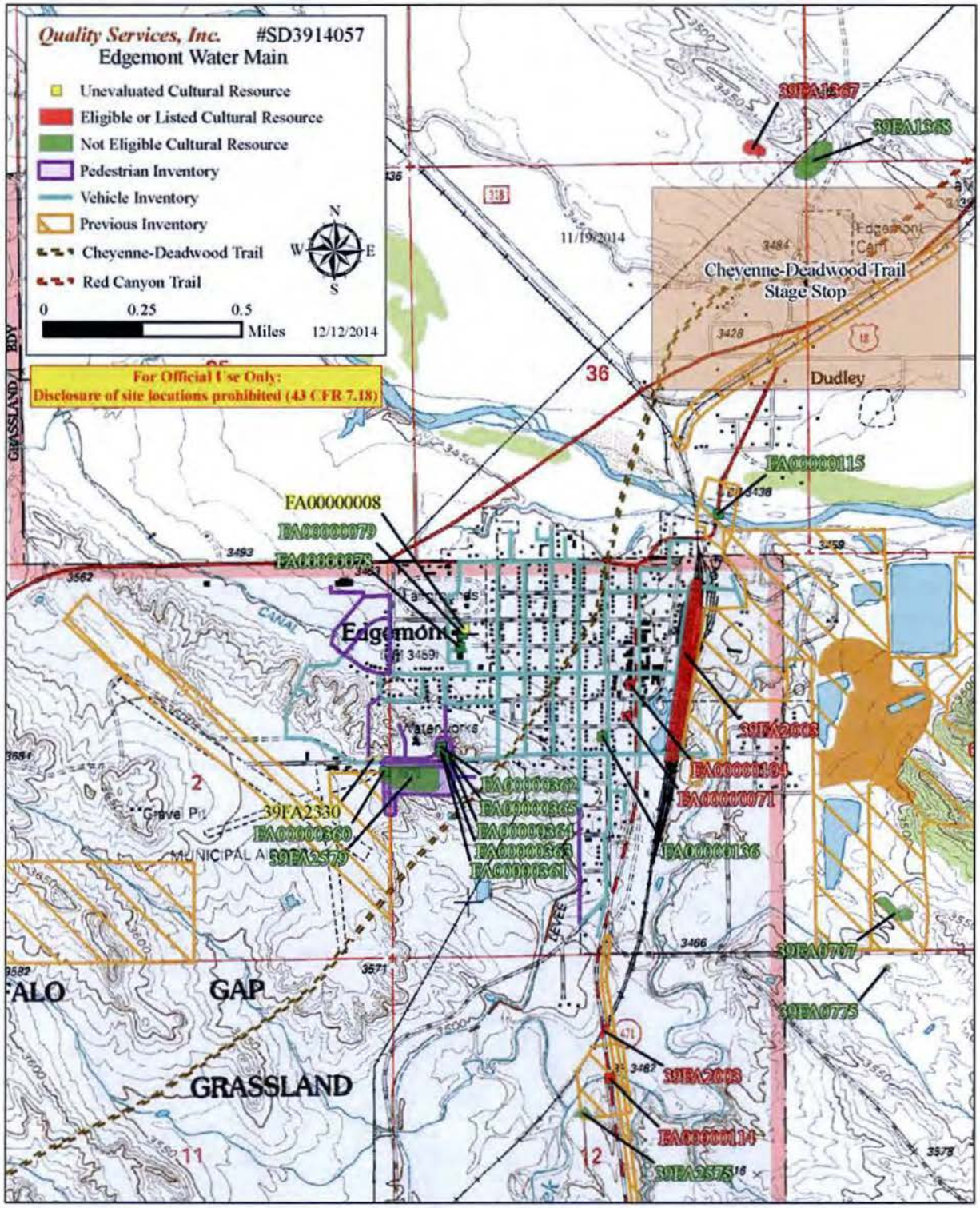

Figure 2. City of Edgemont Water Mains Project Map.
T8S, R2E, section 36, and T9S, R2E, sections 1 and 2, Fall River County, South Dakota
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

Environment

Setting

The project area is, for the most part, adjacent to roadways, both in and surrounding the City of Edgemont. However, two segments of project area in the south and one in the northwestern corner have easements that run through partially disturbed rolling pasture.

The majority of the project area is located within the City of Edgemont on the T-2 (second oldest) terrace of the Cheyenne River at its confluence with Cottonwood Creek. Both streams are mapped as perennial water sources and several entrenched seasonal drainages branch out from these streams. The T-2 terrace is at least 20 to 30 feet higher than the current level of both Cottonwood Creek and the Cheyenne River, and both streams have broad channels cut by meanders. This indicates that flood deposits on the T-2 terrace only occur during extreme events. Given the semi-arid nature of the region, the Edgemont area is not likely to be subject to severe flooding, so the likelihood of finding buried cultural resources is minimal.

There is also a warm spring just south of the project area near the Edgemont Airport. This spring has been modified by the City of Edgemont to redirect part of the flow of the spring into the water system pipeline.

Figure 3. Typical urban setting in western portion of project area, looking south. M. Carpenter 10/10/2014.

In several places, the southern portion of the water pipeline traverses up slope to the top of a ridge where the southern edge of the city is located. It also runs along the northern edge of that ridge. A reservoir compound and a proposed water tower with associated developments also sit

on the northern edge of this ridge. The ridge forms the northern edge of a broad rolling plain. The foothills of the Black Hills begin northeast of the project area.

Figure 4. Developed warm spring adjacent to southwestern portion of project looking west. M. Carpenter 10/10/2014.

Figure 5. Central portion of project area looking north. Landscape within Edgemont's residential neighborhoods have been heavily modified for housing development. M. Carpenter 10/10/2014.

Modern developments are found in and around the survey area. The ground in the pipeline corridor has been previously disturbed from construction of roads, ditches, buildings, lawns, flood control earthworks and buried utilities. The buried utilities include, but are not limited to, storm sewers, gas lines and existing portions of the City of Edgemont water system.

Climate

Regional climate consists of an average temperature of 48°F, with an average annual high of 63°F and average low of 33°F. The warmest months are July and August with an average temperature around 90°F, while the coldest months are December and January, with an average high of 36°F and low of 9°F. The total average yearly precipitation is around 16.29 inches with the highest amounts falling from May through July. Average snowfall is around 33 inches.

Flora

In the city, vegetation in and adjacent to the project corridor is primarily lawn grasses, accompanied by small shrubs, decorative bushes, small local and imported trees, as well as several cottonwoods. In the areas where the pipeline runs through undeveloped land, the vegetation is primarily pasture grass, with small patches of deciduous trees and shrubs in the seasonal drainages. Prickly pear cacti are also present in the pasture areas on rare occasions. Pasture grasses appear to be mixed. Most look like fescue related cattle forage, with vetch mixed in at some locations.

Figure 6. Southern portion of project area looking east.
M. Carpenter 10/10/2014.

In one of the drainages on the southwest portion of the project, man-made landscaping has helped that drainage retain more water, resulting in a narrow area of wetlands grasses, and an

approximately 20 by 40 foot area of cattails, and other reeds. Cattail reeds are also present in a shallow man-made drainage at the base of the slope below where the Reservoir compound sits (Figure 5). Finally, there is a very small area of wet-area plants surrounding the warm spring in the airport area just south of the project (Figure 4).

Figure 7. Disturbed pasture area in northwest corner of project area looking northeast. M. Carpenter 10/10/2014.

Figure 8. Typical ground surface visibility in pasture in southern portion of project. M. Carpenter 10/10/2014.

Ground surface visibility within Edgemont, ranged from 0% to 20% in well-kept lawns to as much as 60% where lawns, fairgrounds and city facilities had patchy grass cover. Much of the urban portion of this project was in landscaped lawn and roadway, which also had concrete sidewalks. In the area where the water pipeline runs parallel to and crosses the rail yard, there is an estimated 100% surface visibility. However, the ground has been highly disturbed and subject to fill episodes, indicating that the ground surface is not natural.

Figure 9. Typical ground surface visibility in disturbed areas of project.
M. Carpenter 10/10/2014.

In portions of the survey area that cross pasture, and/or only partially disturbed ground, the surface visibility ranged greatly. Areas in the seasonal drainages that had been altered to retain water had surface visibility between 10% and 30%. The slopes and high points above these drainages had better surface visibility, in most cases approaching 50%. These high places, mostly on finger ridges that are part of the northern edge of the T-1 terrace, came closest to what should be the natural vegetation regime within this region. Finally, in the pasture areas on the T-1 terrace south of H Street, where residential development had not occurred, the ground was covered in planted forage grasses. Ground surface visibility in these areas ranged from 20 to 40%, depending on recent grazing and episodes of ground disturbance.

Culture History Overview

The South Fork Cheyenne archeological region encompasses the South Fork of the Cheyenne River drainage basin in the southwestern portion of South Dakota with the exception of the

Black Hills, southeastern Pennington County, and Shannon County (Winham and Hannus 1991: 28-2). This area consists of southeastern Meade County, and portions of Pennington, Custer, and Fall River Counties (Winham and Hannus 1991: 28-2). The area is characterized by rolling grasslands broken by deeply-entrenched stream channels (Winham and Hannus 1991: 28-2).

The First Americans c. 15,000 B.P.

Between 25,000 to 11,000 years ago, bitter cold temperatures during the late Wisconsin glaciation caused water to become trapped in advancing ice sheets. The result was a drop in world sea levels that effectively exposed low-lying landmasses, and the original immigrants to the Americas are believed to have arrived by means of an exposed land bridge connecting Siberia with Alaska.

The pathway for further migration south is still under debate. Since the 1950s, conventional understanding was that an "ice-free corridor" existed between the Cordilleran and Laurentide ice sheets as they retreated north when warmer temperatures returned around 15,000 years ago. Without this pathway, many scholars felt that migration into the New World would have been impossible due to the existing glaciers. However, a "growing body of evidence indicates that pathway between the great glaciers of the Last Ice Age was closed – in fact, the way south may have been blocked until the centuries after the dawn of Clovis" (Dixon 1999).

Another recent and popular hypothesis is that Early Americans migrated to the New World via a Pacific Ocean coastal route. Recent work by archeologists and paleontologists has shown that the Northwest coast of North America was not always covered by ice as once thought (Dixon 1999; Dixon and Heaton 2000). In fact, there is evidence that ancient life existed along this coast for tens of thousands of years. Jim Dixon and Tim Heaton's excavation of the coastline has uncovered a continuous record of caribou, fox, and bear bones dating back 50,000 years (Dixon and Heaton 2000). Furthermore, the western coastline was likely more extensive during ice ages. Sea levels were significantly lowered as much of the earth's water was trapped in glacial ice. This, along with the isostatic effects on land masses from the weight of the glaciers, would have exposed substantial tracts of land along coastline providing a route further south.

Archeological sites dating to such antiquity are extremely rare, and only a handful of these sites exist in the Americas. The most notable and intensely investigated site is the Monte Verde site in Chile, South America (Dillehay 1997). This site contained wooden huts, hearths, a wish-bone-shaped structure, and several bone and stone artifacts that date to between 14,050 and 13,600 years ago [cal]. Other sites include the Chesrow Complex in Southeastern Wisconsin (Overstreet 1993, 2000), the La Sena and Jensen site in central Nebraska (Holen 1994, 1995; Holen and May 2002), the Meadowcroft Rockshelter site in southwestern Pennsylvania (Adovasio et al. 1978; Adovasio and Page 2002), sites from the Old Crow Basin in Canada's Yukon Basin (Bonnichsen 1979; Irving et al. 1989), and the Cactus Hill Site in southern Virginia (Dixon 1999; Monastersky 2000; Adovasio and Page 2002).

Although many of these sites have not received complete scientific acceptance, the archaeological evidence appears to support regional adaptation underway 12,000 years ago, and the Early Americans emphasized the local environments for subsistence, which included both a variety of floral and faunal resources (Dixon 1999). Furthermore, both genetic and linguistic

studies are providing mounting evidence that there were multiple migrations of people, and they were not of a shared, single biological or cultural stock (e.g. Schurr and Wallace 1999; Nichols 1990). In other words, the first Americans were likely made up of several people and cultures that migrated from the Old World, and they adapted to many different environments in several different ways.

Clovis, Folsom, & Paleo-Indian c. 13,400[cal]-7600 B.P.

Towards the end of the Wisconsin glaciation, the Plains environment harbored big-game species such as the mammoth and Ice-age bison adapted to the periglacial environment and the seasonal extremes of the times. During this time a new culture, named Clovis after the early archaeological excavations in Clovis, New Mexico, began in the Americas. Based on the lack of any definite occurrence of the Clovis material culture, such as the Clovis projectile point, north of the ice sheets or in the Artic, Clovis is believed to be the first truly indigenous North American culture.

The Clovis tradition people likely lived in highly mobile small bands of people armed with a shared tool kit that included the diagnostic fluted lanceolate Clovis point, a diagnostic crescent moon-shaped biface, gravers, a variety of end scrapers, and a blade-technology with cutting and scraping tools made from the blades. The discovery of kill sites in the western United States have tended to emphasize a life-way based on specialized hunting of now extinct Ice-age big-game animals such as mastodons and mammoths. Martin (1967) even argued that the success of Clovis hunters largely contributed to the megafaunal extinction. However, more recent research has convincingly demonstrated that this type of subsistence was not a widespread important role in Clovis subsistence, and the Clovis people appear to have emphasized a variety of flora and fauna (Anderson and Sassaman 1996; Griffin et al. 1988; Bryan 1991).

Archaeological manifestations associated with the Clovis time period are rare and usually consist of isolated surface-find projectile points. Well known in Plains archaeology, the Lange-Ferguson site in Shannon County is the only Clovis site to be investigated in the State to date (Hannus 1994). This Clovis site is a mammoth kill/butchery locality with direct evidence for the use of mammoth bone tools in the butchering process. No Clovis sites have been found in the South Fork Cheyenne archaeological region to date. However, a site containing a Goshen component (39FA1277) has been found and recorded within the South Fork Cheyenne region.

The Goshen cultural complex is an early Paleo-Indian cultural complex that is known to date to about 11,000 B.P. and is thought by many Plains archaeologists to represent a transitional culture between Clovis and Folsom (Frison 1991: 45). It may be suggested that Goshen is a transitional culture between Clovis and Folsom given the fact that some Goshen sites have been found associated with mammoth remains where as it appears that by Folsom times mammoth had become extinct (Frison 1991: 45). At the lowest level of Kaufman cave in northern Wyoming, a Goshen point was found in direct association with a broken mammoth scapula (Frison 1991: 74). In addition, Goshen points are typologically and morphologically neither Clovis nor Folsom, but do retain characteristics of each (Frison 1991: 45). Goshen points demonstrate a pressure flaking technology and final edge retouch like Folsom, but are basally thinned and not fluted (Frison 1991: 45).

The Younger Dryas cold snap characterized by a worldwide cold interval followed Clovis times and lasted between 11,000 and 9650 B.C. [cal]. As a drier climatic regime resulted in the retreat of spruce forest and the expansion of grassland on the northern plains, many of the Ice-age megafauna died. Bison, however, became well adapted to this environment and the size and mobility of the herds likely increased significantly. Similar to the landscape today, in the Black Hills proper pine forests characterized this area while grasslands surrounded the Hills at the lower elevations.

During this time period, the Folsom complex emerged. This complex is known to date from about 11,000-10,000 B.P. and is easily identified by well-made lanceolate points fluted entirely up to their tips, and the people relied heavily on the bison herds and other big game for subsistence. Bamforth (1988) hypothesizes that as bison herds grew in size; this food resource became more predictable. Folsom groups reacted by using regular and preferred locations, engaging in communal hunts, and concentrating into larger social groups. As evidenced by their specialized point production, this may have led to greater social complexity from Clovis to Folsom.

Like Clovis, Folsom archeological remains are rare and are typically surface finds. No Folsom sites have been reported or recorded within the South Fork Cheyenne archaeological region.

Following and partly overlapping the Folsom period around 10,500 to 9,000 B.P. in addition to a climatic shift more similar to modern times, many regional adaptations appeared in North America. Many Plains archaeologists refer to this period as the Middle Paleo-Indian period (see Frison 1991). This period includes the Alberta, Hell Gap, and Agate Basin cultural complexes. These groups continued to emphasize a subsistence based on bison hunting and were involved in massive bison drives that probably required intimate knowledge of the landscape and several people.

Beginning at about 9,000 B.P. and continuing on to about 8,000 B.P., it appears that Plains groups began to develop a hunting/gathering subsistence mode that was focused on a more generalized resource base. "There is an abrupt change from the stemmed projectile points with transverse pressure flaking of the Middle Paleo-Indian period to the lanceolate style with parallel-oblique flaking that followed" (Frison 1991: 66). This period is referred to as the Late Paleo-Indian period (9,000-8,000 B.P.) and several variations of parallel-oblique flaked, unfluted, lanceolate point forms existed including the Jimmy Allen, Frederick Allen, Pryor Stemmed, Lovell Constricted, Angostura, Lusk, and many others. In addition, the Cody complex is known to date to the Late Paleo-Indian period and includes finely made stemmed spear points such as the Scottsbluff and Eden types. The use of local stones for tool manufacture and the limited distribution of the projectile point types relative to earlier times may suggest that cultural boundaries also were present to some degree.

Four sites (39FA0011, 39FA0833, 39FA1074, and 39FA1452) have been recorded within the South Fork Cheyenne archaeological region that date to the Paleo-Indian period. Of these four sites, one is associated with the Eden cultural complex (39FA1452), one is associated with the Jimmy Allen cultural complex (39FA0011), one is types as a Paleo-Indian artifact scatter (39FA0833), and one is an isolated find consisting of a single parallel-oblique flaked lanceolate projectile point (39FA1074).

Plains Archaic c. 7600 B.P. to 1500 B.P.

The Plains Archaic is defined by a marked subsistence focus on broad based hunting and gathering whereas the preceding Paleo-Indian period is thought to have been focused primarily on big game hunting. A marked increase of groundstone tools such as manos and metates used for processing and grinding plant material is evident in the archaeological record and reflects a major subsistence shift to a more generalized subsistence base (Frison 1998). While this lifeway existed to some degree in the late Paleo-Indian times, it was not as widespread. Frison (1998) writes that the term 'Archaic,' in one sense of the word, is meant to denote an adaptation dominated by hunting and gathering rather than a cultural time period. In fact, many Plains groups continued the Archaic lifestyle well into historic times, and Archaic temporal periods are defined much more by changes in projectile point styles rather than significant changes in lifeways.

Early Plains Archaic c. 7600 to 5000 B.P.

The Early Plains Archaic coincides with an extremely warm and dry climatic episode known as the Hypsithermal or Altithermal. Though the effects of this episode on plants, animals, and people are still debated, Frison (1998) suggests that severe droughts caused plant communities to shift to higher elevations; and, as a result, many Early Plains Archaic people occupied foothill-mountain areas. Frison (ibid.) points to the presence of several Early Archaic sites in low elevation intermountane settings in addition to Early Plains Archaic bison kill sites in the Wyoming Black Hills as mounting evidence for this hypothesis on the human response to the Altithermal. In addition, very few Early Archaic sites have been found on the plains proper and bison remains dramatically decrease in Altithermal aged deposits, reflecting the almost desert like conditions that were thought to exist on the plains during the Early Archaic (Frison 1998:272). Size diminution of bison has been a gradual process throughout the Holocene, and there is some indication of a slight acceleration of this trend through the Altithermal (Frison 1998: 272).

Habitation features, known as pit house features, also first appear during this time (Frison 1991:83). They date toward the end of the Late Archaic period and extend into the Middle Archaic. These features "usually appear as deep, circular stains; sometimes with central post molds… others are oval with multiple post molds along the long axis" (Sundstrom 1996: 2c-16). Cache pits, fire pits, and grinding stone are commonly found in the pit houses. Most of these features are found in the intermountain basins of the northern plains. The presence of these fairly significant habitation features may be associated with some level of sedentism.

Relative to the Paleo-Indian times, Early Archaic bison kill sites are typically small consisting of only 10-20 bison. Hunting strategies included the use of arroyo traps and jumps (much later in the period) and probably required small groups or bands to accomplish. However, many sites such as the Spring Creek site in south-central Nebraska and the Coffey site in northern Kansas contain much more small game and plant remains than large herbivores. Certainly this is an indication of the more generalized resource base.

Other than groundstone implements, the Early Archaic also included the arrival of a new type of projectile point. These projectile points are distinctly side-notched although there are many regional variations of this form. The technological innovation of notching offered a much stronger binding to the foreshaft of a spear while reducing the bonding mass at the same time (Howard 1995).

Early Plains Archaic archaeological sites are fairly rare; however, three were on file within the South Fork Cheyenne region. These sites are 39CU0417, 39FA1045, and 39FA1159. 39FA1045 and 39FA1159 contain diagnostic Hawken projectile points and 39CU0417 contains an early side notch point with at least six associated stone circles.

Middle Plains Archaic c. 4900 to 3000 B.P.

The end of the Altithermal and the return to modern climatic condition marks the beginning of the Middle Archaic Period. Bison populations again proliferated (Frison 1998:89). In addition to a refinement in bison hunting strategies, the Middle Plains Archaic period witnessed an even greater emphasis on plant foods. Reused sandstone plant grinders as well as roasting pits are common at sites dating to this time period. While small bison kill sites are the most typical of the period, Middle Archaic people continued to use bison jumps. One noteworthy innovation by Middle Archaic hunters was the use of bison corrals like that seen at the Scoggin Site in Wyoming. This strategy is very different in that it likely needed much fewer people to operate relative to the other strategies. Overall, Middle Archaic groups developed a carefully planned scheduling of economic activities based on seasonal plants and movements of game.

During this time period, the Plains also witnessed the widespread appearance of stone circles. The features typically measure between 13 and 23 feet in diameter. Although the function of them has been debated, it is generally agreed that most represent a circular anchor "to hold down the cover of a conical (or some other type) lodge" (Frison 1998:154).

The McKean Complex is the most notable Plains Middle Archaic archaeological manifestation, and McKean sites have an extremely wide distribution across the Plains. These site types are most readily recognized by the lanceolate McKean point with an indented base and convex blade edges. However, there are many variations of the McKean point and include side-notched and stemmed forms. Common Middle Archaic site types are bison kills, open occupations, and cave/rock shelters.

There have been 21 Middle Archaic sites recorded within the South Fork Cheyenne region. Of these 21 sites, 11 have been assigned to the McKean complex. Most of these sites are typed as either artifact scatters or occupations; however, a Middle Archaic stone circle site (39PN0375) has also been recorded.

Late Plains Archaic 3000 to 1500 B.P.

The Late Plains Archaic is marked by the appearance of corner-notched points on the Plains. This notching technique produced flared edges with sharp points where the base and edge intersect. In general, Late Archaic people appeared to shift back to a focus on large, upland

game (Deaver and Deaver 1988:96), although other resources were certainly exploited to some extent.

The earliest Late Archaic manifestations are the Pelican Lake and the Yonkee phases (see Frison 1991:105). To date, there have been no Yonkee sites identified in the Sandstone Buttes region. The reason for this may be that the term "Yonkee" is commonly used by archaeologists working on the Northwest Plains, but is not usually used in South Dakota. On the other hand, the Pelican Lake cultural complex is commonly used in South Dakota, especially in the western part of the state. The Pelican Lake cultural complex is thought to represent the earliest of the Late Archaic cultural manifestations on the Plains and is represented in the South Fork Cheyenne archaeological region.

There are 18 sites that have been assigned to the Late Archaic period within the South Fork Cheyenne archaeological region. Of these 18 sites, only four are assigned to the Pelican Lake cultural complex. In addition, one extensively occupied site (39PN1034) is recommended eligible for the National Register of Historic Places (NRHP).

The Late Prehistoric 1500 B.P. to 16th Century A.D.

The Great Plains witnessed significant changes during the Late Prehistoric Period. The innovation of the bow and arrow as indicated by small delicate projectile points was introduced around this time. In addition, ceramics first appear on the Plains during this period (Frison 1991: 116). Although ceramics are present in relatively small amounts on the Northwest Plains, they are valuable cultural makers between the Late Archaic and Late Prehistoric periods (Frison 1991: 116).

Besant and Avonlea phases are typically associated with the continuation of a general Archaic-based lifestyle. Besant represented a highly sophisticated bison hunting culture. Bison kill sites associated with this phase often consist of complicated, skillfully constructed bison corrals similar to modern cattle corrals. The use of these corrals would have required great knowledge and understanding of stampeding animals (Fagan 2000:125). At the Ruby site along the Powder River in Wyoming, a structure at the southern end of this bison corral site is interpreted to be a ceremonial structure. If this is true, this could represent the importance of ritual at communal hunts similar to the rituals documented in historical accounts.

No Besant sites have been recorded within the South Fork Cheyenne region as of May 2005.

Around A.D. 1, the Avonlea phase began on the Plains and continued well into the Late Prehistoric Period. Avonlea points are typically side-notched points with slightly concave bases. Based on their smaller sizes, it is believed that the Avonlea people were the first to use the bow and arrow. It is also widely believed that Avonlea peoples were the first to extensively utilize ceramics on the Plains. Avonlea ceramic styles include net impressed, spiral channeled and smooth surfaces (Dyck 1983:123).

Two Avonlea sites, 39FA0025 and 39FA1450, have been recorded within the South Fork Cheyenne region as of May 2005. Both are described as small artifact scatters.

It is generally accepted that Eastern Woodland groups introduced horticulture onto the Plains. As the name implies, the introduction of horticulture likely spread from the east. These Woodland groups are characterized by fixed settlements, more complex societies, seed horticulture, pottery/ceramic production, and the construction of burial mounds. The Woodland Tradition is generally sub-divided into Early, Middle, and Late Woodland periods as well as other phases and cultures. These further divisions are mainly identified through ceramic types, geographic locales, and temporal ranges.

No sites assigned to the Woodland period were on file with the South Dakota Archaeological Research Center (SARC) within the South Fork Cheyenne region.

The Plains Village period supplanted or continued the Woodland culture in the Middle Missouri around 900 A.D and extended throughout the eastern Plains. The transition is generally marked by larger villages (sometimes with fortifications) and greater horticulture produce including corn, beans, squash, and sunflowers. This period is typically divided into "sub-traditions" and variants based on dates, ceramics, house types, and other characteristics. This includes, in order of antiquity, the Initial (IMM), Extended (EMM), and Terminal (TMM) Middle Missouri Variants and the (IC), Extended (ExC), Post-Contact (PCC), and Disorganized Coalescent Variants.

Seven sites have been assigned to the Plains Village period within the South Fork Cheyenne region. Three of these seven sites (39FA0045, 39FA0860, and 39FA0861) were typed as Extended Coalescent sites based upon diagnostic ceramics.

In all, a total of 20 Late Prehistoric sites have been recorded within the region as of May 2005.

The Protohistoric or Contact Period c.1600-1804

The Protohistoric Period marks the beginning of even greater change on the Plains. The term Protohistoric is associated with the onset of Euro-American presence on the Plains, even though this does not imply there was full-scale or even frequent direct contact with Euro-Americans. Certainly the greatest impact was the arrival of trade goods including horses and firearms. Horses were provided indirectly by the Spanish from the southwest, and firearms came later indirectly from the French, English, and American fur-traders from the northeast. Both trade goods greatly increased the ease of bison hunting and also influenced other once semi-sedentary horticulture groups from the east such as the Cheyenne, Crow, and the Lakota/Dakota to become Plains equestrian nomadic Bison hunters. The Mandan, Hidatsa, and Arikara along the Missouri River also became central providers of firearms to tribes further west.

Many of the Protohistoric Plains groups were highly mobile focusing intensely on bison hunting with only a supplemental emphasis on other resources, although others certainly continued village farming. The need to cover the large migration ranges of bison coupled with the influx of other groups competing for the same resource created much competition between tribes. As a result intertribal conflict became more common, and the power of tribes as well as individuals became defined by the accumulation of European trade goods.

Protohistoric sites are recognized by the occurrence of both native artifacts such as stone tools mixed in with European trade goods such as gun parts, trade beads, metal projectile points, and other metal items.

The SARC database indicates that there is only one site within the South Fork Cheyenne region that can be assigned to the Proto-Historic period. Site 39CU0498 is an extensive lithic scatter with both stone tool artifacts and a gun flint.

The Historic Period 1800-1950

Although smaller trading operations under the control of the Missouri Company were present in the Dakotas and the Middle Missouri during the late 18th century, the purchase of the Louisiana Territory in 1803 and arrival of Lewis and Clark in 1804 signaled the beginning of the Historic Period and full-scale interaction between Native American groups and Euro-Americans. Euro-American fur traders and trappers were the first to enter the region after Lewis and Clark, and the Missouri River became an increasingly important trading locale.

In the early half of the 19th century, permanent settlements of forts and trade posts began to be set up along the Missouri River. The first trading fort was set up by the Missouri Company in 1794 and focused on trapping beaver and otter; this industry did not shift focus to buffalo robes until around 1815. By 1840, buffalo were the most sought after skins in the fur trading business.

Conflicts between the tribes and Euro Americans also escalated. Although once considered "Indian Territory," the United States looked to the west for expansion and settlement. During the 1800s, several treaties aimed at acquiring these Indian lands. While lands cessations were small at first, these could not keep up with the influx of migrants to these areas. Hoping to curtail the growing hostilities between the Northwestern tribes and the American frontier, the Fort Laramie Treaty of 1851 was signed between the United States and the Lakota, Arapaho, Cheyenne, Crow, Assiniboine, Mandan, Arikara, and Shoshone.

This "Great Treaty" and others, however, did little to assuage the conflicts since they were often breached or altogether ignored. In the 1860s, several tribes declared war on the Americas. The United States reacted by establishing several forts in the region. The second "Great Treaty," the Fort Laramie Treaty of 1868, established the Great Sioux reservation in middle South Dakota, and all lands east of the Missouri River were ceded and officially opened for settlement.

Only a few years later, expansion ambitions to the west of the Missouri River again threatened the tribal lands. Political attempts focused at breaking up the Great Sioux Reservation. Two key events accomplished this. The General Allotment Act of 1887, or Dawes Act, allotted 160 to 320 acres to tribal families. The tracts of land were intended to "encourage" the Native Americans to take up farming in order to assimilate them into American economy and society. Surplus reservation lands were then available to be sold to non-Indian settlers. Under fear and broken promises, the state of South Dakota also officially divided the Great Reservation in the five present-day reservations of Standing Rock, the Lower Brule, the Rosebud, the Pine Ridge, and the Cheyenne River Reservations. The National Historic Landmark Wounded Knee in the White River Badlands is the site of the last armed conflict between Native Americans and United

States government troops, fought on December 29, 1890. Following this, most areas to the west were completely opened for settlement.

Ranchers, Farmers, Miners, and entrepreneurs from all over the U.S. began to settle South Dakota in the late 19th century. Most sites that are assigned to the historic period are associated with ranching, farming, railroad, and/or industrial activities. There are several hundred historic period sites on file within the South Fork Cheyenne archaeological region. These site types include dumps, depressions, foundations, well/cisterns, farmsteads, non-farm ruins, artifact scatters, cairns, schools, railroads, cabins, monuments, industrial sites, burials, earthworks, dams, and roads.

Research Design

The methodology of the cultural resource inventory was as follows:

1. Conduct background search of the entire project area and adjacent mile with the SD Archaeological Research Center and SD State Historic Preservation Office records.
2. Review National Register of Historic Places (NRHP) and National Historic Landmarks online databases for cultural resources within one mile of the project area.
3. Conduct Level III windshield inventory in all pipeline corridor areas that are located within the disturbed urban footprint of Edgemont and Level III pedestrian inventory in pasture and relatively undisturbed areas.
4. Revisit previously recorded NRHP ***eligible*** and ***unevaluated*** cultural resources in or near the project to determine potential effects.
5. Conduct National Register of Historic Places evaluations of cultural resources encountered, if needed.

Cultural Resource Records Review

Prior to the fieldwork, records search was conducted with the State Archaeological Research Center (SARC) and State Historic Preservation Office (SHPO) records. The National Register of Historic Places (NRHP) and National Historic Landmarks online databases were also checked. This search identified previously recorded cultural resources, and previous archeological inventories are known within one mile of the project area. Additional information from the record search is included in the table below.

Table 1. Cultural resources within one mile of the proposed project area.

Resource	Type	NRHP Status	Potential Effects
39FA0707	Native American Occupation	*Not Eligible*	**No Effect – Out of APE** 0.56 miles southeast
39FA0775	Native American Isolated Find	*Not Eligible*	**No Effect – Out of APE** 0.70 miles southeast
39FA1367	Native American Artifact Scatter	***Eligible***	**No Effect – Out of APE** 0.98 miles north
39FA1368	Native/Euro-American Artifact Scatter	*Not Eligible*	**No Effect – Out of APE** 0.96 miles north

Resource	Type	NRHP Status	Potential Effects
39FA2003	Chicago and Northwestern Railroad	*Eligible*	**Within APE – Avoid** Bore under grade
39FA2575	Native American Artifact Scatter	*Not Eligible*	**No Effect – Out of APE** 0.43 miles south
FA00000008	Edgemont Armory	*Unevaluated*	**Adjacent to APE – Avoid** 30 feet south
FA00000071	Edgemont Block	*Eligible*	**No Effect – No Longer Extant**
FA00000078	Edgemont High School	*Not Eligible*	**No Effect – Within APE**
FA00000079	Edgemont Elementary	*Not Eligible*	**No Effect – Out of APE** 60 feet east
FA00000104	Bartlett-Myers Building	*Listed*	**No Effect – Out of APE** 100 feet west
FA00000114	Bridge 24-116-133	*Eligible*	**No Effect – Out of APE** 0.35 miles south
FA00000115	Bridge 24-118-119	*Not Eligible*	**No Effect – Out of APE** 470 feet northeast
FA00000136	House	*Not Eligible*	**No Effect – Out of APE** 60 feet west
SARC Misc. Records	Cheyenne River Stagecoach Stop	*Unevaluated*	**No Effect – Out of APE** 0.38 miles north.
SARC Misc. Records	Cheyenne-Deadwood Trail	*Unevaluated*	**No Effect – Within APE** Not Present in Mapped Location
SARC Misc. Records	Red Canyon Trail	*Unevaluated*	**No Effect – Out of APE** 0.76 miles northeast.

Table 2. Previous inventories within one mile of proposed project area.

Survey No.	Author(s)	Year	Title
AFA-0035	Lippincott, K.	1980	Cultural Resources Survey of a Drainage Ditch, Fall River County, South Dakota.
AFA-0042	Lippincott, K.	1979	Cultural Resource Survey of Four Uranium Mill Tailings Disposal Areas, Fall River County, S. Dakota.
AFA-0089	Lippincott, K.	1982	Cultural Resources Survey of a Proposed Land Fill, Fall River County, South Dakota.
AFA-0105	Chevance, T.	1983	Evaluation/Testing of 39FA707, Fall River Cty., SD.
AFA-0144	Haberman, T.	1987	Cultural Resources Survey of the Edgemont Airport in Section 2, T9S, R2E, Fall River County, South Dakota.
AFA-355	Miller, P.	2006	Level III Cultural Resources Inventory of Golden West Telecommunication, Inc.'s Ardmore, Edgemont & Oelrichs Exchanges Buried Cable, Fall River Co., SD.
AFA-0495	Byrne, D.	2014	An Intensive Cultural Resources Survey of SDDOT Bridge Replacement Project No. P 0471(08)27, PCN 039Z, Fall River County, South Dakota.

Survey No.	Author(s)	Year	Title
AFA-0496	Byrne, D.	2014	An Intensive Cultural Resources Survey of SDDOT Bridge Replacement Project BRF 018P(02)13, PCN 02S8, Fall River County, South Dakota.
BLH-0175	Caywood, J. et al	1987	Reconnaissance Cultural Resource Survey of Burlington Northern's Edgemont to Custer Railroad Abandonment Project Area, Fall River and Custer Cos., SD.
DME-0006	Molyneaux, B. et al	1999	Phase I & II Cultural Resource Evaluation of Proposed Railway Corridor From Wall, SD. to the Wyoming Border for the D. M. & E. Railroad Corporation's Powder River Basin Expansion Project. V. VI.
DME-0014	Retter, M. et al	2007	Cultural Resource Inventory of the Dakota, Minnesota Eastern Railroad Corporation's Powder River Expansion Project, Custer, Fall River, and Pennington Cos., SD.
DME-0023	Tatman, J. et al	2008	A Level III Cultural Resource Inventory of the Dakota, Minnesota and Eastern Railroad Corporation's Powder River Basin Expansion Project Corridor, Custer, Fall River, and Pennington Counties, South Dakota. Add. 2.

Survey Methods and Results

October 10, 2014 ***Quality Services, Inc.(QSI)*** archeologist/historian Mark Carpenter and archeologist Vicki Baldwin conducted Level III pedestrian and windshield cultural resource inventory of the proposed water pipeline corridor. The City of Edgemont proposes to place water pipelines, in approximately of 10.4 miles of corridor along roads through the city, and in off road easements. They also plan to demolish and remove a steel water tank, two concrete cisterns and associated structures. A new water tower, water treatment building, heat exchanger, salt silo, electric generator, fuel tank, large concrete pad and a gravel base access area around the water tower are also proposed.

Two types of inventory were conducted for this project. In the majority of the urban area of Edgemont, Level III windshield inventory was conducted to ensure that the proposed corridor was already completely disturbed. Level III pedestrian inventory was conducted in areas outside of the urban setting, as well as an area of urban residences in the northwest corner of the city. The inventory outside of the urban areas was conducted to ascertain how disturbed the project corridor was, and if any cultural resources were present. The Level III pedestrian inventory in northwestern part of the city was conducted to discover the nature of the construction and previous utility disturbance. The pedestrian transects were less than ten meters apart. No subsurface tests were conducted.

The entire pipeline corridor was found to have been disturbed, although to varying degrees. Existing water pipes were present in all of the corridor areas. Within the city, the pipeline corridor was highly disturbed, not only by the existing pipeline, but also by buried gas lines, sewers, communications cable, and overhead utility pole placement. There was also disturbance from road, driveway, sidewalk and parking lot construction, as well as fence construction, and

landscaping for lawns. The route along the southwestern and western portion of the city was completely within the disturbed county road prism and urban residential lots.

The pipeline corridor in the northwestern part of the city, where not in urban residential lots, passed through an open pasture that appears to be owned by the city. One area of this lot is being used for equipment storage, and the remainder appears to be used for parking during events at the fairgrounds, which are 300 feet away. The corridor is already occupied by a six inch PVC water main, and runs down an engineered two-track road that is now mostly overgrown (see Figure 7).

Figure 10. Pedestrian inventory area south of 4th Avenue looking south.
M. Carpenter 10/10/2014.

Level III pedestrian inventory for the pipeline was also conducted in an 875 foot long segment of pipe corridor (Figure 10) that extended south of 4th Avenue to the residential complex at L Street (i.e. the southeast corner of the project area). While currently a pasture, this area contains an existing six inch PVC water main, and was also disturbed by the creation of a levee, plus the road used to get in to the location for construction. An approximately 300 foot area at the south end of this segment showed fewer signs of disturbance. However, this part of the corridor is at the fenceline that marks the edge of a residential area. No cultural resources were present at this location.

The remaining pedestrian inventory was conducted in the area around the existing reservoir compound, proposed water tower location, a containment pond compound, and three pipeline segments that branched off of this block inventory area (see Figure 6). The block inventory area was highly disturbed by the construction of the containment pond, associated earthworks and buildings. Also present were two concrete cisterns, a cinder block filter/maintenance building, a water tank and a valve/pump house for the water tank. Existing water pipes were present

throughout the two compounds. The five structures in the reservoir compound, the containment pond and a small concrete structure south of the pond were recorded for this project (see below).

Figure 11. Proposed water tower compound location looking south from H Street.
M. Carpenter 10/10/2014.

Figure 12. Water pipeline corridor east of proposed water tower looking east.
M. Carpenter 10/10/2014.

The proposed water tower compound (Figure 11) is in a landscaped area east of the containment pond. This area looks to have once had a short access road and possibly a small cinder block

building or was used to store cinder blocks. An existing water main (Figure 12), which serves two adjacent residential structures extends east from the proposed water tower location. This water line is flanked by a sewer system and a buried electric cable.

Figure 13. Water pipeline corridor from reservoir compound looking north.
M. Carpenter 10/10/2014.

Figure 14. Water pipeline corridor from H Street at containment pond looking southeast.
M. Carpenter 10/10/2014.

A second water main from this block inventory extends north from the reservoir compound to 8th Avenue, where it enters an urban residential neighborhood (see Figure 13 and Figure 5 as well). This corridor is occupied by a ten inch water main and is on a hill slope until just before entering the residential area. At the base of the hill, there is a shallow ditch and levee meant to keep a small drainage from flowing into the residential area. This ditch remains wet for most of the year, as shown by the presence of cat-tail reeds (Figure 5).

The third pipeline from the block inventory (Figure 14) extends north from H Street at the containment pond, along a paved driveway which becomes a gravel two-track access road after it passes a city owned building. This road ends at a communications tower and shack with two adjacent water wells. This corridor is currently occupied by a six inch water main and has been highly disturbed by road, water pipeline, communication tower, concrete pad and well construction.

Finally, Pedestrian inventory was conducted along a pipeline route that extends from H Street at the airport access road northward to the southwest corner of F Street. This segment (Figure 1, Figure 15) is approximately 950 feet long and crosses a pasture and drainage area. The corridor is occupied by a six inch water main and traverses the slope from the top of the T-1 terrace to the base of the T-2 terrace and a residential area of the city.

Figure 15. Water pipeline corridor from H Street at airport entrance looking south. M. Carpenter 10/10/2014.

This corridor has had landscaping work to control the flow of a seasonal stream, which includes a small earthen catch dam in the central area, and a second small dam with a drain to allow the water to enter a storm sewer before it gets to the residential area. An abandoned segment of irrigation ditch was recorded at the southern end of this portion of the pipeline corridor (see below).

Cultural Resources Within and Adjacent to the Project Corridor

Several previously recorded structures and a previously unrecorded segment of the historic alignment for the Chicago and Northwestern Railroad are within or adjacent to the City of Edgemont water pipeline corridor. Six structures and two archeological cultural resources were recorded during this project. They are discussed below.

39FA2003 Chicago and Northwestern Railroad

Environmental Description

This railroad segment is located in a developed urban area of the City of Edgemont. There is not significant vegetation in the footprint of the railroad. The area to the west is comprised of built up and landscaped urban lots with numerous structures, roads, sidewalks utilities and some landscaped lawns. In the southwestern portion is a man-made lake that serves as part of the city park. This lake has some small trees and shrubs on the surrounding bank. To the east is a small creek valley, more urban development and areas of open rolling plain with mixed grasses and some trees. Ground surface in the rail yard and immediate area surrounding it is comprised of gravel ballast and built up gravel road surface.

Site Description & Contents

The site is comprised of a portion of the modern configuration of a rail yard. Several segments of this railroad have been recorded in other areas of the state.

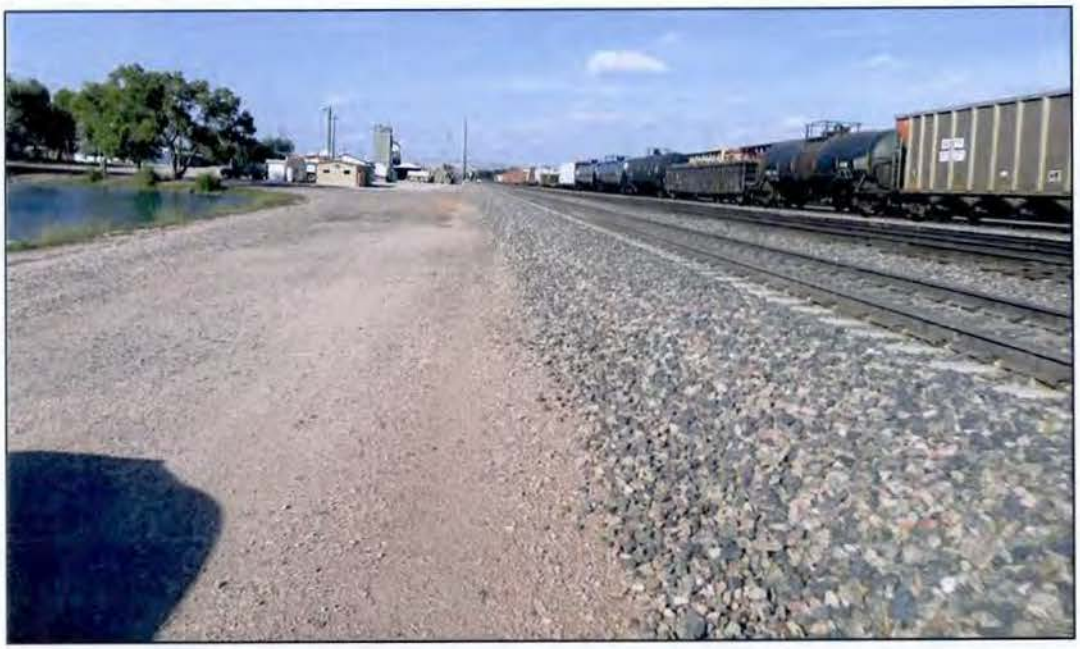

Figure 16. View of newly recorded portion of 39FA2003 looking north.
M. Carpenter 10/10/2014.

This segment of railroad was constructed by the Fremont, Elkhorn and Missouri Valley Railroad circa 1889, and later became a part of the Chicago and Northwestern Railroad. Even later it was acquired by the Burlington Northern, then the Dakota, Minnesota and Eastern (DM&E) Railroad. Currently the surrounding property is owned by the Northern Improvement Company and the BNSF Railroad. The yard originally had a roundhouse which was used for train repair. A spur once led from this rail yard to Deadwood. This spur is now the Mickelson Trail. Currently this is an active rail yard, which appears to be very busy as numerous trains were noted passing through during fieldwork.

Evaluation/Collection Methods

As this is an active rail yard, no collections or subsurface testing took place. Due to current laws regarding railroads, the project area was observed from the adjacent road. Photos of the location were taken.

Figure 17. View of newly recorded portion of 39FA2003 looking south.
M. Carpenter 10/10/2014.

Site Interpretation

This is an active rail yard that is currently being utilized for train traffic and to store coal carrier cars for later use.

National Register of Historic Places Eligibility

This site, while representing the modern configuration of the railroad in the City of Edgemont, still provides a solid example of railroad construction and historic context. As railroads were

very important to the settlement and development of this area, as well as the entire state, it should be considered ***eligible*** for the National Register of Historic Places (NRHP) under Criterion A.

As a public and commercial transportation route, it is highly possible that important historic figures were associated with this railroad at some point. However, it does not appear that it was a significant factor in their lives, so it appears that this railroad is ***not eligible*** under Criterion B.

No significant features or railroad associated architecture are present within this section. The elements present are common to all modern railroads, so this segment is ***not eligible*** under Criterion C.

Also, whereas this railroad is part of a historic event in South Dakota, there is, however, no significant potential for learning further important information about this site. The construction present does not differ from standard railroads present across the country, and all known alignments are either previously mapped or obliterated by later construction. Therefore, this segment should be considered ***not eligible*** under Criterion D.

Management Recommendations

This is the modern configuration of an active railroad. Maintenance, and even reconstruction of this segment, would not destroy its historic integrity. Other, non-railroad associated, construction in this area should avoid damaging the rails and associated grade. It is recommended that any water pipeline placement in rail bed area be bored under the grade or placed in existing conduit, if present.

39FA2330 South Edgemont Irrigation Ditch

Environmental Description

This feature is located on a finger ridge and hill slope that cuts across a north facing seasonal drainage on the southwestern outskirts of the City of Edgemont. The ditch is within a mixed grass covered pasture that also has a few ash and small cottonwood trees. There are several Russian olive trees scattered throughout the surrounding area. Further, there are locations on the lower slope where it appears that manmade drainage improvements have retained moisture and allowed for reeds, cattails and wet grasses to grow. Prickly pear cacti are also present.

Site Description & Contents

This irrigation ditch was excavated into the hillside. It is currently approximately five feet deep. The northern side of the ditch is formed by an earthen embankment that was made by excavating out the soil from the hill and piling it on that side. Aerial photos of this location indicate that the ditch is not recent as portions have been reclaimed for pasture, and another area destroyed by the construction of residences on the outskirts of the City. A north-south running water main has also cut across this ditch forming a "V" shaped notch in the northern embankment. The Edgemont Chamber of Commerce website notes that a 14 mile irrigation ditch was constructed in the 1890s to serve ranches in the area.

Figure 18. Irrigation ditch looking west.
M. Carpenter 10/10/2014.

Figure 19. Irrigation ditch looking east.
M. Carpenter 10/10/2014.

Evaluation/Collection Methods

This site was recorded during an intensive pedestrian inventory of the Water Department property on which it is located. Photos were taken of the ditch, and the site was mapped using aerial photos. No collections were made as the only artifacts present were modern roadside trash. Subsurface testing was not conducted as the earthwork area was completely disturbed during construction and the artifacts present are modern in origin.

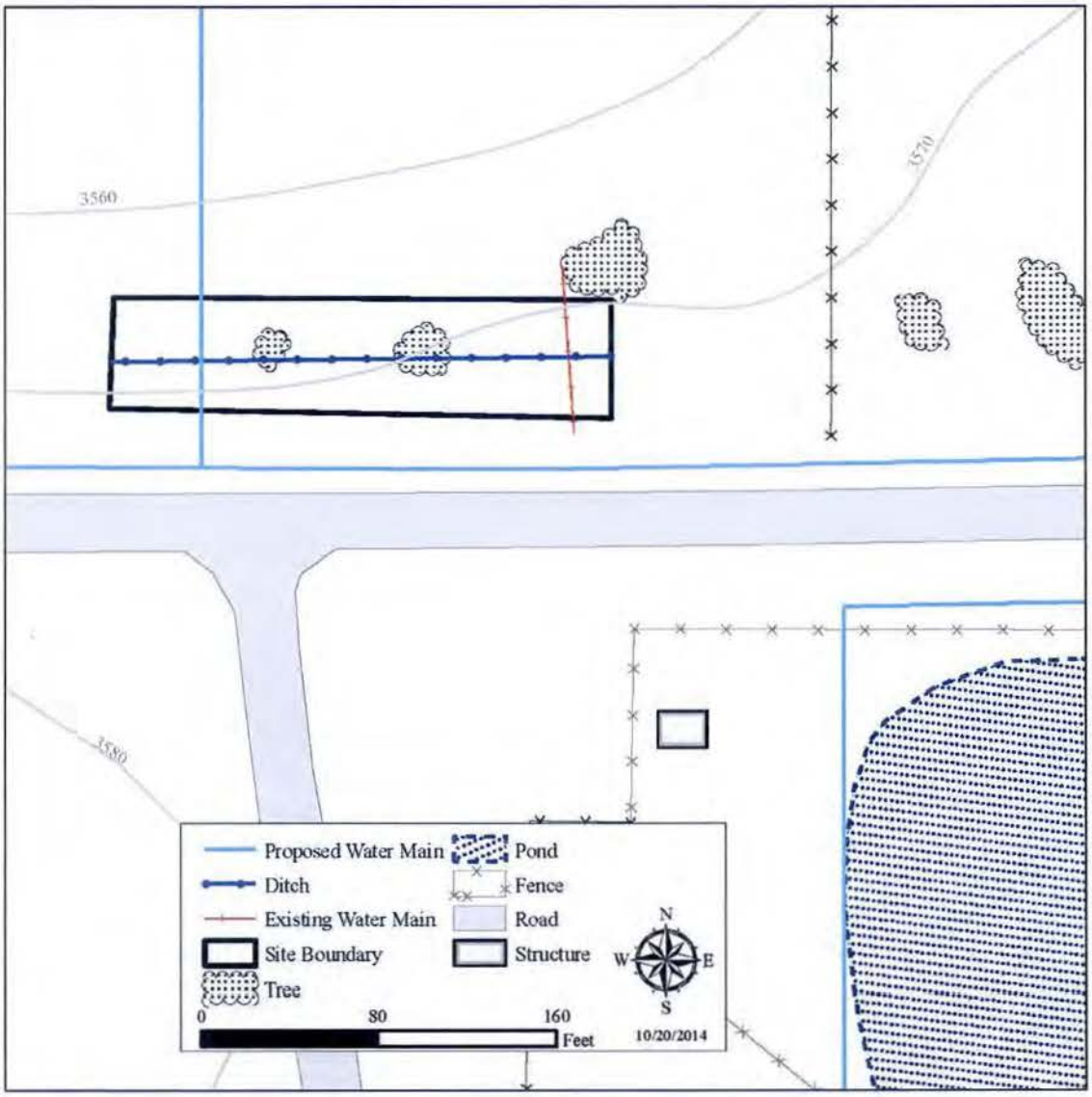

Figure 20. 39FA2330 Site Plan

Site Interpretation

This is a former irrigation ditch that has been disturbed by water main construction and suburban development.

National Register of Historic Places Eligibility

Further research would need to be conducted to determine whether 39FA2330 is part of the historically important 14 mile long canal that helped establish Edgemont as a permanent settlement. This is also true for determining whether anyone historically important was associated with the construction. Until this is accomplished, this site should be considered ***unevaluated*** under Criteria A and B. It does not have any significant construction or architectural features that are indicative of anything other than a canal or ditch used to channel water. For this reason it is recommended that the ditch be considered ***not eligible*** under Criterion C. The only significant information the features of this ditch/canal may be able to provide is its location. As such, this ditch/canal should be considered ***not eligible*** under Criterion D.

Management Recommendations

This site should be avoided and/or protected by boring under the features, or, at the very least, placing any new water mains within the existing water main corridor where it is already damaged. If excavation must take place within the site, the excavation areas should be reconstructed to match the undisturbed portions of the irrigation ditch.

39FA2579 Edgemont Water System Containment Pond

Environmental Description

This water containment pond is located on a hilltop at the southwestern edge of the City of Edgemont. The area to the east has been developed for suburban residences. To the west is a small airport. North, at the base of the hill, are urban residential areas. Areas to the south are rolling pasture. The area of the containment pond has been heavily landscaped for construction of the pond. It is covered in mixed grasses and there are several examples of sagebrush and Russian olive trees scattered throughout the compound. Prickly pear cacti are also present. Ground surface visibility ranged from 10 to 60%, with an overall average of 30%.

Site Description & Contents

39FA2579 is an earthen embankment water containment pond with an equipment storage area at its western end.

The pond area is approximately 30 feet deep and has an earthen embankment collar to increase capacity. There is a perforated drain pipe in the northeast corner. An employee of the City Water Department stated that the pond was constructed by the U.S. Army Corps of Engineers, but had no information on the date it was built. He was also uncertain if the containment pond was ever actually utilized.

Currently, the City Water Department uses the western portion of the fenced compound surrounding this earthwork to store equipment, concrete storm pipe and manhole collars, culvert pipe, fencing material and other objects.

Figure 21. Water containment pond and storage compound looking north.
M. Carpenter 10/10/2014.

Figure 22. Storage portion of compound looking north-northeast.
M. Carpenter 10/10/2014.

Evaluation/Collection Methods

This site was recorded during an intensive pedestrian inventory of the Water Department property on which it is located. Photos were taken of the earthwork and storage area, and the site was mapped using aerial photos. No collections were made as the compound is in active use as a storage area. Subsurface testing was not conducted as the earthwork area was completely disturbed during construction and the artifacts present are modern in origin.

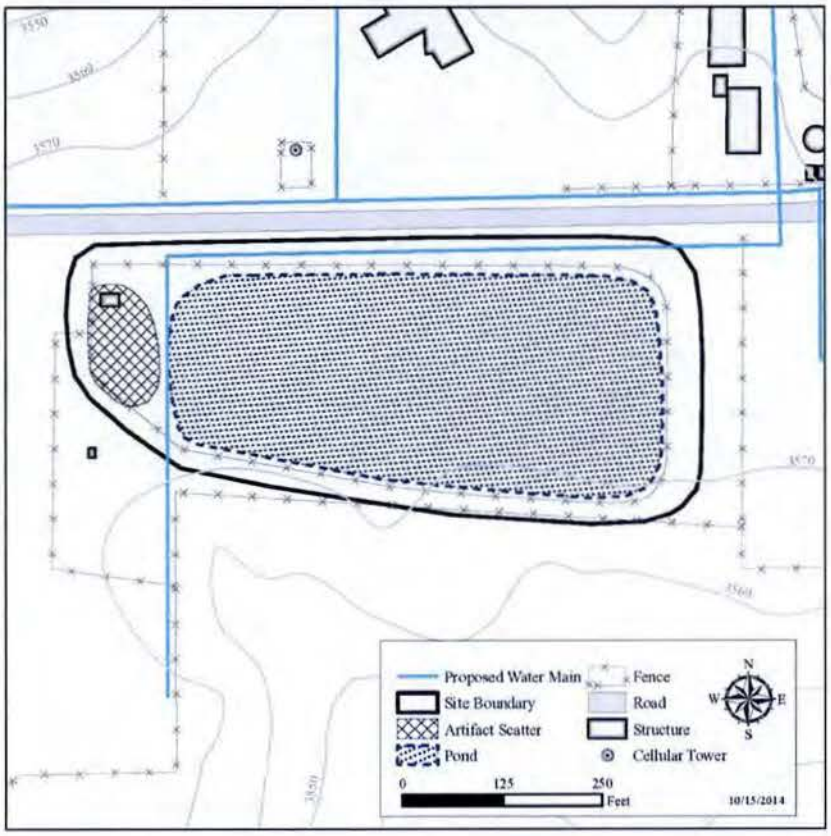

Figure 23. 39FA2579 Site Plan

Site Interpretation

This site is a modern water containment pond that appears to have been constructed within the last 30 years, but may be earlier.

National Register of Historic Places Eligibility

39FA2579 does not fit any of the eligibility requirements for inclusion on the National Register of Historic Places. While it is a part of the water system for the City of Edgemont, it does not appear to be an important part of it. It was constructed by the U.S. Army Corps of Engineers and is very similar to thousands of others built across the country, both with public and private funds. This earthwork will not provide important information about the development of the City of

Edgemont as it appears to be recent and does not appear to have been utilized. As such it is recommended as being ***not eligible*** for the NRHP.

Management Recommendations

No further work or protection recommended.

FA00000008 Edgemont Armory

Edgemont School District and the South Dakota National Guard co-sponsored a 115 by 77 foot Art Deco style poured concrete armory that was completed by the WPA in 1938 for $50,000.

Figure 24. View of Edgemont Armory facing southwest.
Project corridor passes along road in lower right corner of photo. M. Carpenter 10/10/2014.

It is located at 715 D Street. This structure had a full basement that not only contained the office, storage spaces and rifle range, but it also provided space for 18 trucks. The building was first occupied by Company A, 109th Quartermaster Regiment, who remained there until activated for World War II two years later. When the South Dakota Guard units returned home in 1947, several other units occupied the armory until it was turned over to the Edgemont School District in 1961. It is currently considered ***unevaluated*** for the NRHP.

The proposed corridor is located approximately 30 feet north of this building. If the water pipeline is kept within the current utility easement, **there will be no effect to this building**.

FA00000071 Edgemont Block

The Edgemont Block was a quarried sandstone commercial building constructed in 1895 to be the centerpiece of a large retail structure that covered the 600 block of 2nd Avenue. While the planned construction for the entire city block was not completed, the Edgemont Block was determined to be worthy of the NRHP in 1996. In 2002, it was removed from the NRHP after being razed. The October 2014 field visit to this structure revealed that the location is now a vacant lot. The proposed corridor is located approximately 100 feet east of the former location of this building, and **will not affect any structural remains or artifacts that may remain in the lot**.

Figure 25. View of the former Edgemont Block location facing northwest. Project corridor is on opposite side of the street in the right of photo. M. Carpenter 10/10/2014.

FA00000104 The Bartlett-Myers Building

The Bartlett-Myers Building was constructed in 1908 as a combination storefront, one side containing a hardware store, the other an apothecary.

It was placed on the National Register in 2006. The October 2014 field visit to this structure revealed that the building has significantly deteriorated, although its structural integrity remains intact. The proposed corridor is located approximately 100 feet east of the location of this building, and **will not affect it in any way**. Any change in visual effects at this location will be temporary and will only last until the pavement is replaced within the project corridor.

Figure 26. View of Bartlett-Meyers Building facing west.
Project corridor is left to right, where photographer is standing. M. Carpenter 10/10/2014.

FA00000360 Edgemont Water System Storage Shelter

This structure is a poured concrete and chicken wire storage shelter that is partially buried within an embankment.

Figure 27. View of FA00000360 facing southwest.
M. Carpenter 10/10/2014.

According to the Edgemont Water Service, it was reportedly built by U.S. Army Corps of Engineers when they constructed an adjacent earthen embankment for a water containment/storage pond (39PN2579, See Figure 23, southwest of pond area).

It has a one or two room interior with concrete walls built into an embankment. There is a combination wood and chicken wire partitioned portion on exterior which has a concrete floor. The concrete shows signs of weathering, and the plate door that covers one of the concrete doorways is completely rusted. All wooden portions of exterior are weather grayed and warping, while the fence portions completing the exterior enclosures have varying stages of rust.

It is not part of a historic event or associated with a historic person. It is very utilitarian in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. As such, it was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

The Edgemont Water System Reservoir Complex

This Complex consists of five buildings that currently comprise the reservoir portion of the Edgemont Water System. The project calls for these structures to be removed.

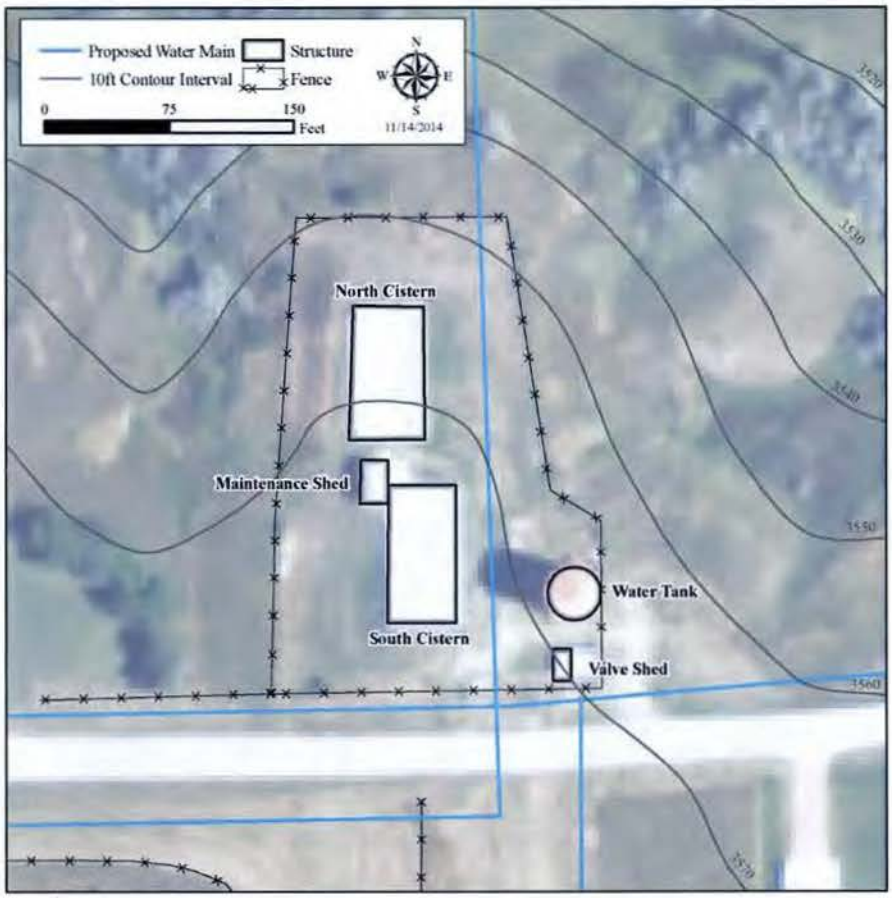

Figure 28. Plan map showing City of Edgemont Reservoir compound.

FA00000361 Edgemont Water System Maintenance Building

This is a single story front gable concrete block maintenance building/garage/filter house with wood facing under the gable, a plywood roof and rolled asphalt roofing material. Roll top front door on south side and single entry person door on east side. There are small windows, one each, on east and west sides. The roll top door is open and interior appears to have been exposed to the elements for an extended period of time. Its roof, exterior walls, and interior walls show paint loss, and staining due to weathering. Some locations, especially the interior walls and roof, show more weathering than others.

Figure 29. View of FA00000361 facing northeast.
M. Carpenter 10/10/2014.

This building has no apparent historic significance and was likely constructed in the 1960s or later. It is not part of a historic event or associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

FA00000362 Edgemont Water System North Cistern/Reservoir

FA00000362 is a 45 foot by 80 foot concrete box cistern with sloping sides and a four to six inch thick concrete slab roof. Four curved metal vent ducts extend vertically from the roof, and are almost all located in the corners of the structure (the northeast vent is offset toward center of north wall). Aerial photos indicate that sections of the concrete roof may have been replaced or patched. Exterior walls show signs of weather fading, staining and possible mildew growth. Mildew or staining may be result of weather induced cracking of concrete.

This generic concrete box cistern is estimated as having been built around the 1940s or later due to the combination of weathering damage and lack of marks in the concrete that would indicate milled lumber forms were used. This tank is used to store and cool water taken from local wells and a warm spring. While this is a core part of the water system that serves the city, it has been refurbished with a modern ventilation system. It is not associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history.

Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

Figure 30. View of FA00000362 facing west.
M. Carpenter 10/10/2014.

FA00000363 Edgemont Water System South Cistern/Reservoir

FA00000363 is also a 45 foot by 80 foot concrete box cistern, although metal extension walls and a metal roof have been added. The metal walls are approximately two feet tall and the roof is flat, although the metal sheets themselves are corrugated. Some of the concrete side walls show evidence of one-by-four or two-by-four lumber used to form them indicating an older time of construction than the northern cistern.

Milled lumber forms were in common use during the 1930s and earlier. Exterior walls show signs of weather fading, staining and possible mildew growth. Mildew or staining may be result of weather induced cracking of concrete which would allow water from the cistern to leak. In some areas mortar was used to seal some cracks and parts of the seam between the metal wall extensions and the concrete base.

This tank is used to store and cool water taken from local wells and a warm spring. While this is a core part of the water system that serves the city, it has been refurbished. It is not associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

Figure 31. View of FA00000363 facing west.
Pipes and small cabinet in center of photo represent a well location. M. Carpenter 10/10/2014.

FA00000364 Edgemont Water System Valve Shed/Pump House

Figure 32. View of FA00000364 facing west.
M. Carpenter 10/10/2014.

This is a metal panel sided shed with two vent pipes on ridge of the roof. There is a small concrete cistern with vented metal roof at eastern base. Structure is estimated to be a circa 1960s or 1970s metal sided shed, although it could be slightly more recent or slightly older.

As the style of this shed is ubiquitous from the 1950s onward, the age is estimated from use and weathering characteristics, such as dents, small rust spots, chipped paint and paint fading, which are readily evident throughout the structure. Building is a generic metal shed and cistern meant to house water system valves and a pump for use with a nearby water tank. It has no apparent historic significance and is not part of a historic event or associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. This building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

FA00000365 Edgemont Water System Standpipe Water Tank

FA00000365 riveted steel standpipe water tank with dome top and concrete base.

Figure 33. View of FA00000365 facing west.
M. Carpenter 10/10/2014.

There is a float style water level indicator with weighted pendulum next to exterior ladder on outside of the tank. Features on the tank look similar to circa 1930s liquid or fuel storage tanks. Weathering has caused some erosion to the matrix of the concrete foundation, exposing the fine gravel clasts in the mix. There is also oxidation staining on the foundation. While the tank itself appears to have been recently repainted, some weather fading is also evident.

While a core part of the current water system, this tank is not a significant part of a historic event or associated with a historic person. It is very common in style and does not represent the work

of a master craftsman. It is not likely to yield information important to local, state or national history. Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

Cheyenne-Deadwood Stagecoach Trail (SARC Miscellaneous Files)

From documentary sources, SARC has mapped the approximate location of the 1876 Cheyenne and Black Hills (i.e. Cheyenne-Deadwood) Stagecoach Line through the City of Edgemont. The locations where SARC has mapped the trail were examined during this project. However, if the trail was at the mapped location(s), it has been obliterated by urban construction.

Also, the terrain crossed by the mapped location appears to be much more rugged than the stagecoach line was likely to have used. The Cottonwood Creek floodplain, only ½ mile or less to the east of the mapped location south of the city, would have provided a much smoother trail. In fact, 39FA2003, the Chicago and Northwestern Railroad, currently occupies a corridor in the Cottonwood Creek valley that is very similar to the mapped location of the stagecoach trail. When the mapped trail and railroad line cross the Cheyenne River, U.S. Highway 18 begins to follow a similar route to the stagecoach road. Given that other transportation ventures typically follow established corridors, especially wagon roads and stagecoach lines, it is very likely that the railroad grade occupies the actual trail location, at least as far as the Cheyenne River crossing. From that point, it is likely that Highway 18 is on or adjacent to the stagecoach trail.

Conclusions and Recommendations

One new segment of previously recorded cultural resource 39FA2003 was located within the project area as was a newly recorded irrigation ditch, 39FA2330. An existing containment pond, 39FA2579, with an associated concrete storage building, FA00000360, were recorded as well. The five buildings to be torn down within the reservoir compound were also recorded. These include, a maintenance shed/filter house: FA00000361, two concrete cisterns: FA00000362 and FA00000363, a valve/pump house: FA00000364 and a riveted steel standpipe water tank: FA00000365.

The 39FA2003 segment is an active rail yard which is considered ***eligible*** for the National Register of Historic Places under the state railroad context. Irrigation ditch 39FA2330 is recommended ***unevaluated*** until further historical research can be conducted. Site 39FA2579 and the six structures recorded during this project are recommended ***not eligible*** for the National Register due to a lack of integrity and/or being extremely common. As 39FA2003 is an active railroad, this resource will be avoided by boring underneath or use of existing conduit, if present. It is recommended that 39FA2330 also be bored underneath. Site 39FA2579 and the six recorded newly structures are considered ***not eligible*** for the NRHP and the planned work in these areas will thus have **no effect** on them.

A project determination of "no adverse effect to historic properties" is recommended for the project.

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Appendix B

Conceptual Project Outline for
South Black Hills Water System
Regionalization with
City of Edgemont
AE2S, Inc.
January 12, 2015.

www.ae2s.com

CONCEPTUAL PROJECT OUTLINE
For
Southern Black Hills Water and City of Edgemont Water Supply Project

Prepared By: Advanced Engineering and Environmental Services, Inc.
Rapid City, SD

Date: January 12, 2015

Purpose:

This document describes a conceptual project where Southern Black Hills Water would construct pipeline and supply source to serve municipal water to the City of Edgemont and rural customers along the pipeline route. The project concept uses the old US Highway 18 right-of-way between Minnekahta Junction and the City of Edgemont as the pipeline route.

This outline and attached drawings are conceptual alternatives only and a final engineering report is needed to provide additional details. The concept provides service area expansion and redundancy for Southern Black Hills and it provides a potential cost effective alternative for water service in the City of Edgemont.

The project success will be contingent upon a partnership between the parties and support from funding agencies. The goal of this project is to provide quality affordable drinking water that conforms with EPA standards to Edgemont and customers in the Southern Black Hills area.

Description:

The conceptual project is shown graphically on the attached layout map and pipeline profile. The conceptual project is divided into two phases. Phase 1 includes a new Madison well and pipeline to Edgemont. Phase 2 includes another Madison well and additional pipeline to connect to the existing SBHW distribution system near Minnekahta Junction.

Completion of Phase 1 would allow water service to be provided to Edgemont. Phase 2 would strengthen and provide additional capacity to the SBHW system.

SBHW Project Components – Phase 1

- One new Madison aquifer well located adjacent to the old Highway 18 right-of-way. Assumed/estimated production rate is 300 gpm.
- Treatment equipment for removal of possible radiological contaminants from the Madison supply source (may not be required).
- A ground level storage reservoir near the well site with an effective volume of 25,000 gallons.

- Two pressure reducing stations.
- 4.8 miles of 10" transmission pipeline.
- 4.0 miles of 8" transmission pipeline.

SBHW Project Components – Phase 2

- Additional Madison Well Ground Level Storage Reservoir, 25,000 gallons.
- Additional 25,000 gallon storage reservoir.
- 6.8 miles of 8" transmission pipeline.

The City of Edgemont is assumed to become a bulk customer of SBHW and the City would construct a new water storage reservoir and a new metering and control valve station within the City to receive, measure and control water supply to the community. Would upgrade one of the existing City wells and install pumping and disinfection systems to provide a back-up supply to SBHW. The other City wells and storage tank would be abandoned or demolished. Major project components to be constructed and operated by the City of Edgemont include the following:

City of Edgemont Project Components

- New 250,000-gallon elevated storage reservoir.
- Metering and control valve station with tank level control system
- Rehabilitate one City well and construct pumping and disinfection systems.
- Abandon remaining wells and existing storage tanks.
- Construct limited distribution system improvements needed to integrate the new supply source and storage tank into the system.

Project Capital Costs:

Budgetary costs for the SBHW and Edgemont components are presented following. Costs include a 30% allowance for contingencies and engineering fees. Costs are based upon historic bid costs for similar work and are not based upon site-specific designs. Costs are considered to be of the "order of magnitude" accuracy. The estimates do not include the cost of land or easement acquisition, if any. Additional detailed study is needed to prepare this information into a formal report.

SBHW Components – Phase 1 Only

8" Pipeline	4.0 miles @ $0.25M/Mile	$1.00 million
10" Pipeline	4.8 miles @ $0.28M/Mile	$1.34
Storage Reservoir	25,000 Gal @ $4/Gal	$0.10
Madison Well (Mcknight)	3,100' @ $300/Ft	$0.95
Well House/Controls	1 Ea @ 0.27M/Ea	$0.27
Pressure Reducing Station	2 Ea @ $0.13M/Ea	$0.26
Highway/River/RR Crossings	4 Ea @ $0.12M/Ea	$0.48
Treatment Equipment (if required)*	(WRT System)	$0.80
	SBHW Subtotal	**$5.20 million**

**Treatment for radiological contaminants using adsorptive media (WRT Z-88). Location at proposed Mcknight well.*

City of Edgemont Components

250,000 Gallon Elevated Tank @ $4/Gal	$1.00 million
Meter and Control Valve Station	$0.25 million
Well and Tank Abandonments	$0.25 million
Rehabilitate BN Well and Add Pump (Stand-By)	$0.40 million
Distribution System Upgrade Allowance	$0.50 million
City of Edgemont Subtotal	**$2.40 million**
Capital Costs for Total Project	**$7.60 million**

SBHW Operating Costs (Added Cost for New System)

Electrical Power:	$11,000/year
Hypochlorite:	$ 4,000/year
Operating Labor/Benefits (500 hrs/yr)	$15,000/year
Equipment Reserves/Maintenance:	$ 5,000/year
Treatment System O&M (if required)	$40,000/year
Administration/Other:	$15,000/year
Total	**$90,000/year**

City of Edgemont Operating Costs:

For purposes of this conceptual plan review, City operating costs are assumed to be reduced from the current $215,000/yr. to $150,000/yr. Savings are expected to accrue from lower electrical and chemical costs and reduced equipment replacement.

Financing and Rates:

The following table reviews scenarios for 40%, 50% and 60% grant or loan forgiveness, 40 year term, 2.4% interest, $7.6 million capital cost. It is assumed that City of Edgemont requires $150,000/year for operation of City system and SBHW requires $90,000/year for operations and administration per the previous estimate.

	Grant Proportion		
	40%	50%	60%
Loan Amount	$4.6M	$3.8M	$3.0M
Annual Loan (City & SBHW) Payment	$177,000/yr	$148,000/yr	$118,000/yr
SBHW Operations	$90,000/yr	$90,000/yr	$90,000/yr
Total Annual Cost	$267,000/yr	$238,000/yr	$208,000/yr
Required Revenue	$267,000/yr	$238,000/yr	$208,000/yr
Add City O&M Cost	$150,000/yr	$150,000/yr	$150,000/yr
Total Revenue Required from City	$417,000/yr	$388,000/yr	$358,000/yr

** Assumes that revenue from rural customers along the pipeline route will be minimal.*

DRAFT

Estimated Annual City Water Use

The total metered usage for Edgemont is approximately 40 MG/yr. The leakage losses and unmetered uses (flushing, etc.) are assumed to be in the range of 15 percent. The estimated total volume of water to be purchased from SBHW is as follows:

City Metered Use:.....40 MG/yr
Unmetered Use (15%): .....6 MG/yr

Total Annual Usage:.....46 MG/yr

Estimated SBHW Bulk Water Rate for Water Sales to Edgemont

	Grant Proportion		
	40%	50%	60%
City Revenue Required*	$267,000/yr	$238,000/yr	$208,000/yr
Estimated Total Use	46MG/yr	46MG/yr	46MG/yr
Required SBHW Bulk Rate	$5.80/1,000 gal	$5.17/1,000 gal	$4.52/1,000 gal

** Excludes City Operation and Maintenance of $150,000/year.*

City Rate Projection

For determination of probable City water rates needed to cover the cost of bulk water purchase from SBHW plus City of Edgemont operating costs, it is assumed that the City will retain the current water rate methodology where customers pay a flat rate (currently, $35/mo) for up to 5,000 gallons, plus a surcharge per 1,000 gallons above 5,000 gallons per month (currently, $1/1,000 gallons up to 10,000 gallons, and $2/1,000 gallons for more than 10,000 gallons). The $35 monthly flat rate is proportioned at $25/month for operations and $10/month for distribution system repair and replacement.

For purposes of this analysis, it is assumed that the $10/month for distribution system repair and replacement will be retained, and that the operations component will be reduced to reflect expected lower operating costs. A monthly rate of $15/month for City operations is assumed.

The City water bill for each customer would consist of the following components:

City Operations:..... $15/mo
Distribution Repair & Replacement: $10/mo
Purchase of SBH Water:.....To Be Determined

Sum of Above = Total Monthly Bill

The total City water use to which surcharge rates apply is estimated below:

400 Users @ 5,000 gal/mo Base Rate: ..... 24 MG/yr
Water Purchased at Surcharge Rates: ..... 16 MG/yr

Total Annual Metered Usage: ..... 40 MG/yr

To minimize the impact on base rates, it is assumed that the surcharge rate for usage in excess of the 5,000-gallon monthly base will be increased significantly. A $5-per-1,000-gallon surcharge has been used for the following example.

The estimated Base Rate for City users needed to cover water purchase from SBH is as follows:

Projected Edgemont Water Rates

	Grant Proportion		
	40%	50%	60%
Projected SBH Bulk Rate per 1,000 gal.	$5.80	$5.17	$4.52
City Cost for Purchase of 46MG/yr	$267,000/yr	$238,000/yr	$386,000/yr
City Operation and Maintenance Budget	$150,000/yr	$150,000/yr	$150,000/yr
Total Water Revenue Needed	$417,000/yr	$388,000/yr	$536,000/yr
Revenue from Surcharge (16MG @ $5/1,000	$80,000/yr	$80,000/yr	$80,000/yr
Estimated Revenue from Base Rate Required	$337,000/yr	$308,000/yr	$278,000/yr
Revenue from Projected $25/mo Base Rate	$120,000/yr	$120,000/yr	$120,000/yr
Revenue Required from Increase in Base Rate	$217,000/yr	$188,000/yr	$158,000/yr
Rate Increase per User for SBH Water Purchase (400 users)	$45/mo	$39/mo	$33/mo
Base Rate	$25/mo	$25/mo	$25/mo
Total Needed Base Rate per User (5,000 Gallons)	$70/mo	$64/mo	$58/mo

Example Based on 50% Grant/50% Loan:

City Rates: $64/mo. for 5,000 gallons
$5/1000 gallons over 5,000 gal.

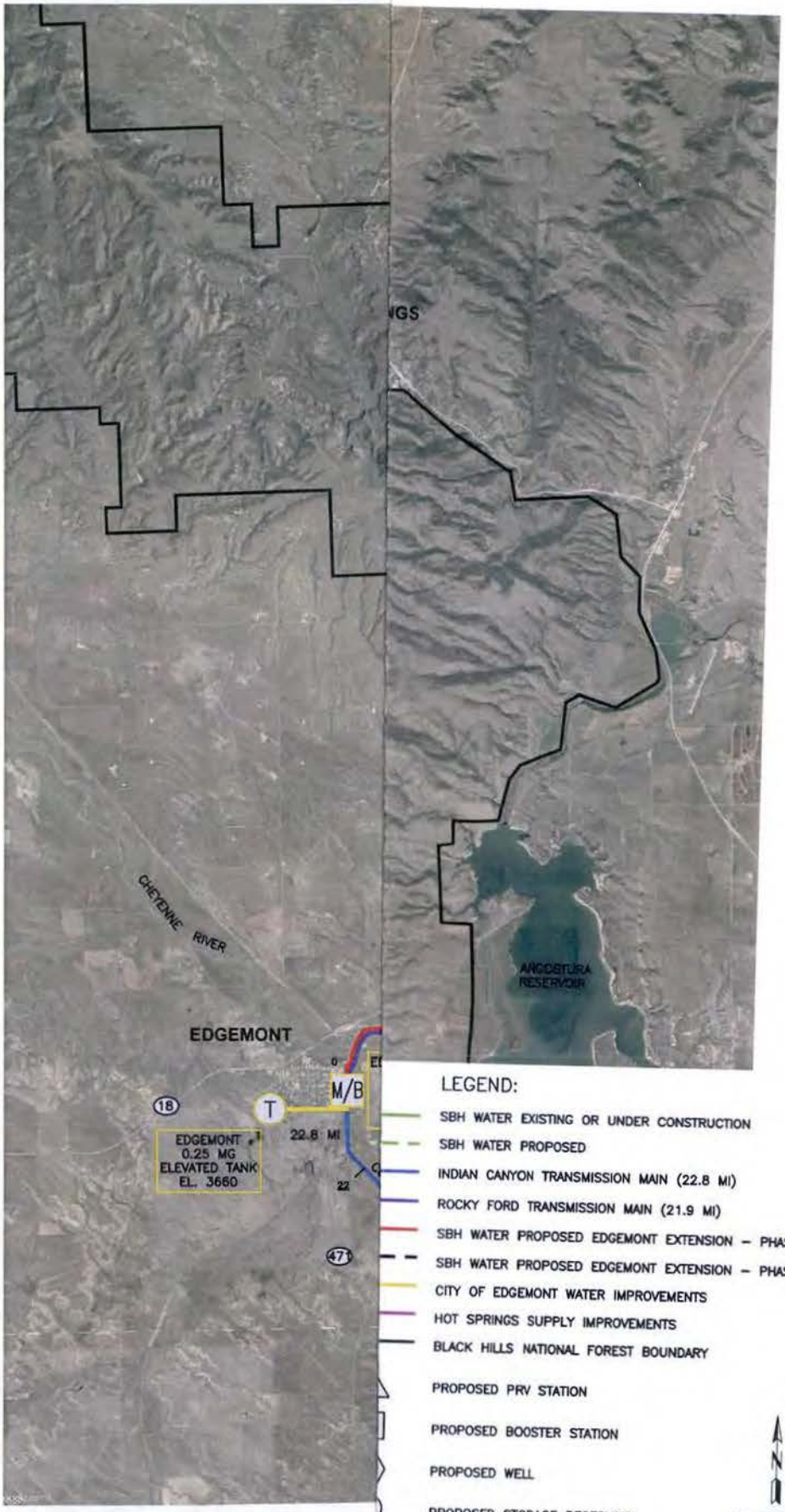
Typical Month:
Total City Usage: 4,000,000 gallons
Metered Use Over 5,000 gal.: 2,000,000 gallons

Cost to Purchase SBH Water @ $5.17/1000 gal = $20,700

City Revenue:

Base Rate:	400 Users x $64/mo.	= $25,600
Surcharge Sales:	2 MG @ $5/1000	= $10,000
Total City Revenue:		$35,600

Net Revenue for City (Total Revenue less Bulk Purchase) $14,900



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	1/12/15	EJ	GW	

AE2S
1560 Concourse Drive
Rapid City, SD 57703
Phone: (605) 341-7800
Fax: (605) 341-7864
www.ae2s.com

SHEET DESCRIPTION: SBH PROJECT CONCEPTS

PROJECT: SOUTHERN BLACK HILLS WATER SYSTEM
EDGEMONT EXPANSION

SHEET: 1

January 12, 2015 1:51:05 p.m.
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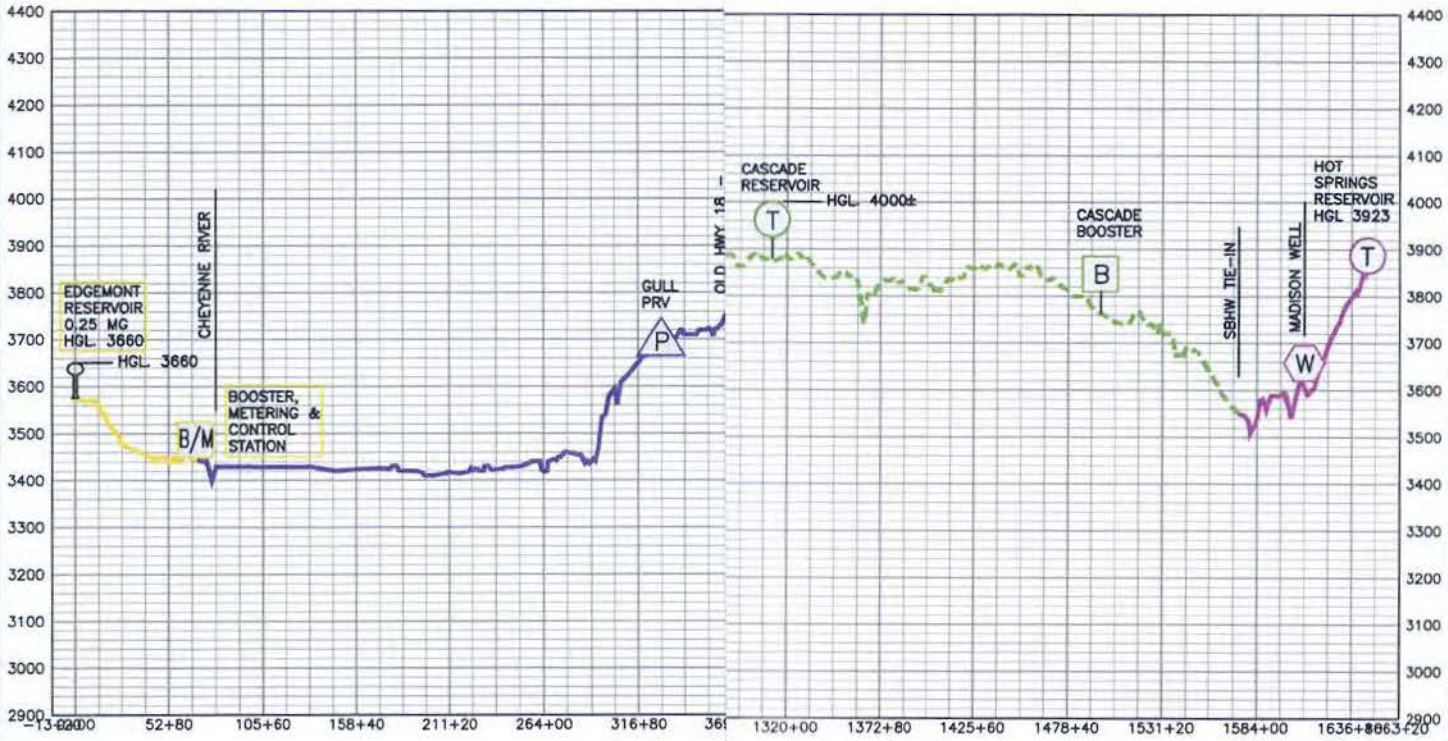

ROCKY FORD ROAD TRANSMISSION
MAIN - PROFILE
SHEET 2

SOUTHERN BLACK HILLS WATER SYSTEM
EDGEMONT EXPANSION

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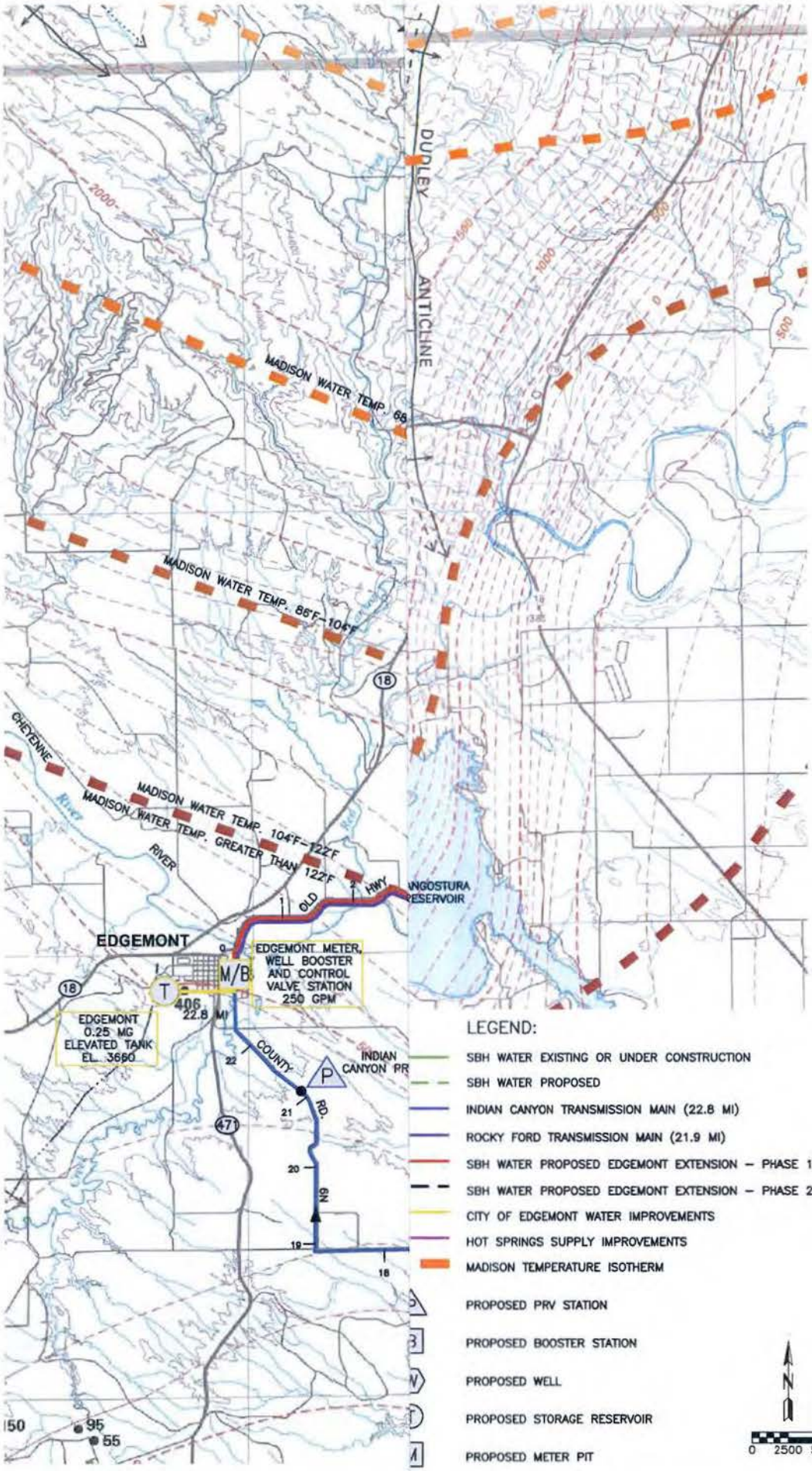

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#	DATE	BY	CKD	DESCRIPTION
	1/12/15	EJ	GW	

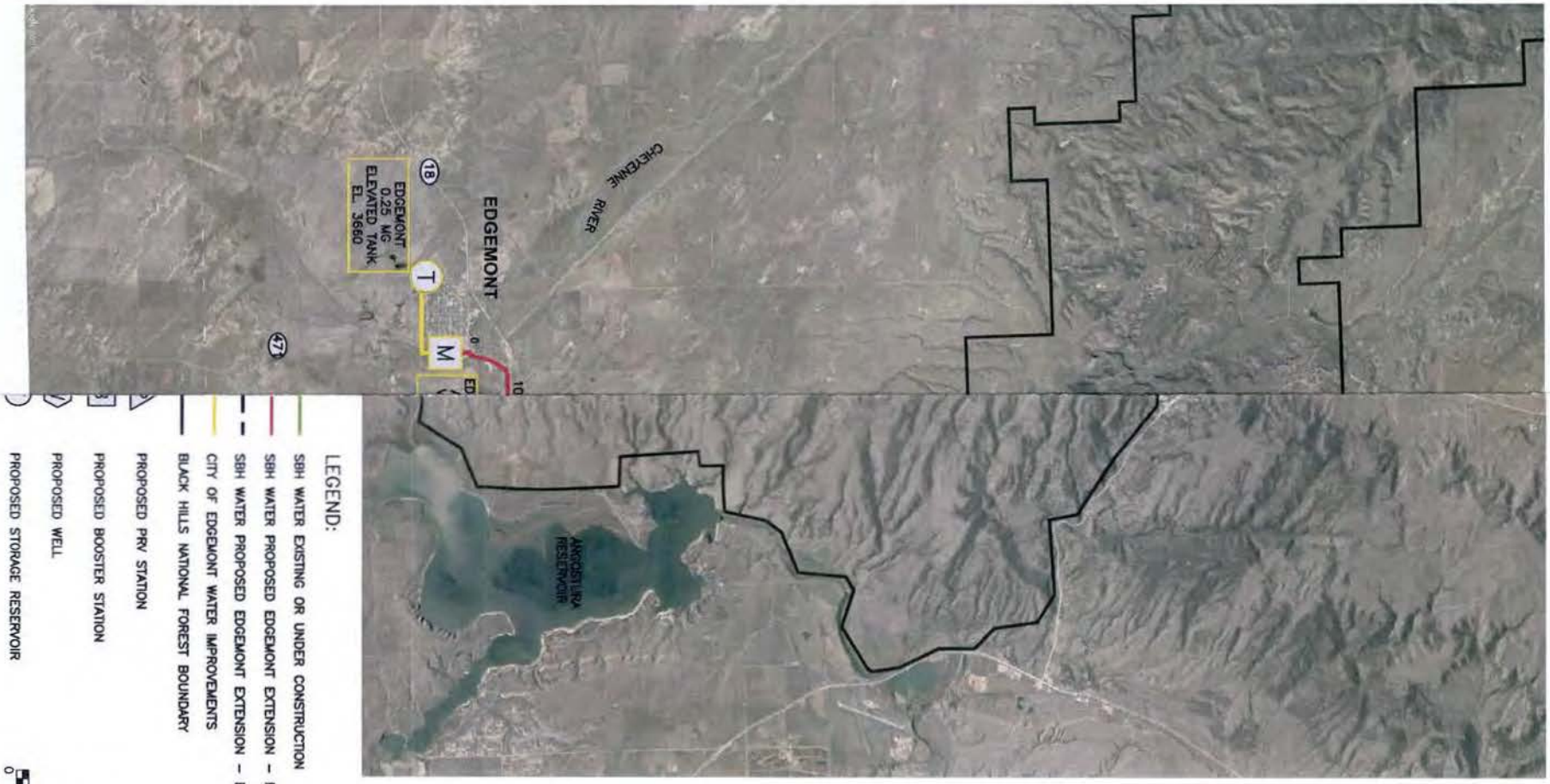
SHEET DESCRIPTION: SBH PROJECT CONCEPTS MADISON AQUIFER

PROJECT: SOUTHERN BLACK HILLS WATER SYSTEM EDGEMONT EXPANSION

SHEET: 3

January 12, 2015 1:49:53 p.m.
Drawing: PROJECT CONCEPTS MAP.DWG (JOENS) (P:\PROJECTS & PROPOSALS\05835-2014-000 SOUTHERN BLACK HILLS RURAL WATER SYSTEM\PROPOSAL\DRAWINGS\FIGURES\)

January 12, 2015 2:20:55 p.m.
Drawing: OPTION 4 PLAN.DWG (JOENS) (P:\PROJECTS & PROPOSALS\05835-2014-000 SOUTHERN BLACK HILLS RURAL WATER SYSTEM\PROPOSAL\DRAWINGS\FIGURES\)



LEGEND:

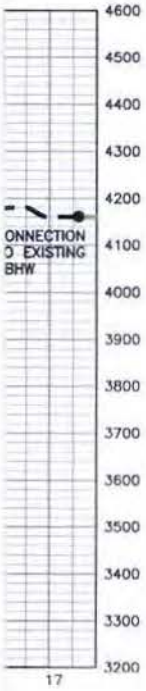
- SBH WATER EXISTING OR UNDER CONSTRUCTION
- SBH WATER PROPOSED EDGEMONT EXTENSION - PHASE 1 (8.6 MI)
- SBH WATER PROPOSED EDGEMONT EXTENSION - PHASE 2 (6.7 MI)
- CITY OF EDGEMONT WATER IMPROVEMENTS
- BLACK HILLS NATIONAL FOREST BOUNDARY
- PROPOSED PRV STATION
- PROPOSED BOOSTER STATION
- PROPOSED WELL
- PROPOSED STORAGE RESERVOIR
- PROPOSED METER PIT

0 2500 5000

SHEET	PROJECT	SHEET DESCRIPTION
4	SOUTHERN BLACK HILLS WATER SYSTEM EDGEMONT EXPANSION	SBH WATER PROPOSED EDGEMONT EXTENSION

#	DATE	BY	CKD	DESCRIPTION
	1/12/15	EJ	GW	

AE2S
1560 Concourse Drive
Rapid City, SD 57703
Phone: (605) 341-7800
Fax: (605) 341-7864
www.ae2s.com



January 12, 2015 2:12:33 p.m.
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SBH WATER PROPOSED
EDGEMONT EXTENSION - PROFILE
SHEET 5

SOUTHERN BLACK HILLS WATER SYSTEM
EDGEMONT EXPANSION

AE2S
1560 Concourse Drive
Rapid City, SD 57703
Phone: (605) 341-7800
Fax: (605) 341-7864
www.ae2s.com

Appendix C

WRT
Preliminary Proposal for the
City of Edgemont, SD
January 21, 2015.

January 21, 2015

Mr. Greg Wierenga
AE2S
1560 Concourse Drive
Rapid City, SD 57703

Subject: Preliminary Proposal for Radium Removal & Gross Alpha Reduction for the City of Edgemont – Wells 2 & 4; Edgemont, SD

Dear Greg:

Thank you for the opportunity to provide this revised preliminary proposal for WRT's Z-88® Gross Alpha and Radium Removal Modular Component System for the City of Edgemont, SD Wells 2 & 4.

Introduction

WRT proposes to reduce the Gross Alpha and remove Radium from the flow produced by Wells 2 & 4 using a two train WRT Modular Component System (MCS) operating in sequence with each train composed of a total of two 63" dia. by 116" tall vessels, each containing WRT's Z-88® media.

Z-88® Radium Removal Modular Component System

WRT provides a complete system for lowering of gross alpha and removal of radium from drinking water, including the process equipment, treatment media, and the safe disposal of used media.

WRT's Z-88® Radium Removal Modular Component System is designed to be added to any new or existing potable water system. Water passes through treatment columns where radium is removed and gross alpha is reduced. When the media is loaded with radium, it is removed from the circuit and replaced on a cost per media exchange basis. WRT conducts the media exchange and places the system back into operation; and provides for the transportation and safe disposal of spent media.

Advantages of the WRT Z-88® Radium Removal Modular Component System includes:

- Nothing is added to the water. No chemicals are added in the treatment process, and nothing is imparted into the water during the treatment process.
- No liquid waste stream is generated by this process; this is a zero-liquid-discharge system.
- Treatment residuals are safely and properly disposed of by WRT.

Water Remediation Technology, 5525 West 56th Avenue, Suite 100, Arvada, Colorado 80002 · Tel: 303-424-5355
Email: info@wrtnet.com · web: www.wrtnet.com

- Minimal Maintenance and Operation required.
- Z-88® Media is NSF, Standard 61 certified for use in drinking water applications.
- Guaranteed process performance

This proposal is based upon WRT providing a complete WRT Z-88® Radium Multiple Component System under a long term contract, including equipment, media, exchange of media when required and proper handling and disposal of used media.

This equipment is provided to the treatment site by WRT and installed by the Utility. WRT delivers and installs media as required directly into the treatment vessel at the treatment site. WRT removes used media directly out of the treatment vessel, into a service vehicle at the site. All handling of media is done by WRT.

WRT provides treatment on a guaranteed cost per gallon treated basis, assuming the risk for media performance, and therefore utilizes the most reliable, cost effective treatment media available.

Used treatment media remains the property and liability of WRT. WRT is licensed and permitted to dispose of used media in an approved facility.

Scope of Supply

WRT will provide a complete Z-88® Radium Removal Modular Component System. This system will include treatment equipment, media, and proper handling and disposition of used media.

WRT will provide the following:

- Design and provide a complete WRT Z-88® 63x116 2T2V Radium Modular Component System to the treatment site.
- Supervise installation of system.
- Provide Operator training and Operation and Maintenance Manuals.
- Maintain system during period of contract.
- Provide Radioactive Materials License services for system operation on behalf of the Client and media handling for the term of the contact.
- Handling of all treatment media.
- Installation and replacement of media.
- Safe transportation and handling of used media.
- Operating analytical fees (analysis of samples required by WRT for operational monitoring).
- Meeting the prescribed discharge standard uranium.

The Utility will be responsible for the following:

- Provide water at current water quality and max. operating pressure of 75 psi.
- Water temperature not to exceed 100 °F.
- Site for treatment system.
- Building to house system.
- Installation of equipment at treatment site, including pipe supports, flange bolts and gaskets.
- Site access for media loading and unloading.
- All permitting and approvals, including Radioactive Materials License for the site (with assistance from WRT) if necessary.
- Maintain site, excluding WRT treatment system.
- Provide utilities to operate system.
- All taxes and use fees.
- Sampling and daily monitoring.
- Compliance analytical fees (analysis of samples required for regulatory compliance).

Contract Terms

- Term of contract is 5 years.
- Monthly charge, based on agreed minimum usage amount.
- Additional usage will be billed on a cost per 1,000 gallons treated basis.
- Charge will be adjusted annually, based upon the Consumer Price Index (CPI).

Budget Pricing

This preliminary proposal is based upon on the water quality information you provided. A field pilot study will be required for confirmation of raw water quality and media performance prior to issuing a firm proposal for this project.

City of Edgemont, SD Wells 2 & 4	
Hydraulic capacity of WRT system:	250 GPM (gallons per minute)
Minimum annual usage for this site: (based upon 130,000 gallons per day average)	47.45 MGY (million gallons per year)
Radium level in the water to be treated:	3.8 pCi/L avg.
Required Radium level of treated water:	5.0 pCi/L (MCL)
Gross Alpha level in the water to be treated:	16.9 to 27.5 pCi/L
Required Gross Alpha level of treated water	15.0 pCi/L (MCL)
Number of sites/treatment locations in this proposal	1 site
Budget Price *	
Treatment Equipment including freight to site	$327,400.00 purchase price, plus applicable taxes
Service Price including, operating media, exchange and proper disposal of media as required, equipment maintenance, Radioactive Materials Licensing and services on a guaranteed cost per year basis.	$0.99/1,000 gallons treated ($47,183.00/year) for base gallons, plus $0.99/1,000 for additional gallons treated, plus applicable taxes

* This proposal is based upon today's costs, and is valid for a period of 60 days. This pricing is based on a minimum annual usage of 47,450,000 gallons per year. Pricing does not include pipe supports, flange bolts or gaskets. This price is based upon the water quality information provided, and is subject to verification which may include a field pilot study. This proposal is based upon WRT standard terms and conditions. The Utility would be required to provide a site and housing for the equipment as required for weather and security protection, installation, electrical service and power, connection piping into and out of the system, and any site engineering, bonding and permitting. Note that taxes are not included. Freight costs will be prepaid and added to invoice. WRT strongly recommends secondary spill containment.

Payment Terms

Treatment equipment is payable net 30 days from receipt of WRT invoice as follows:

- 15% upon delivery of WRT submittal drawings to customer;
- 35% upon customer approval of WRT submittal drawings, in order to release for fabrication;
- 40% upon equipment delivery to customer site or 30 days after the equipment is ready for shipment, whichever is earlier; and
- 10% upon the earliest of: :
    - satisfactory system functioning; or
    - 90 days from vessel and ancillary equipment delivery to site.

Service agreements are payable net 30 days from receipt of WRT invoice, and are invoiced on a monthly basis.

Any amounts not paid when due will be subject to a finance charge of 1½% per month.

Delivery

Submittal drawings will be provided approximately 6-8 weeks after signed contract.

Equipment delivery will be approximately 16-20 weeks after approved drawings and release for fabrication.

Radioactive Materials Licensing & Financial Assurance

PLEASE NOTE: A Radioactive Materials License may be required for the installation and operation of this system, and is NOT INCLUDED in this pricing. Should a Radioactive Materials License be required, WRT can provide the service at an additional cost.

Financial Assurance may be required for this project by the state licensing authority, or the NRC. The cost for providing Financial Assurance is not included in this proposal, and would be the responsibility of the customer.

Conclusion

Thank you for your interest in our company, we look forward to the opportunity to discuss this proposal with you in detail.

Please feel free to contact me with any questions or comments.

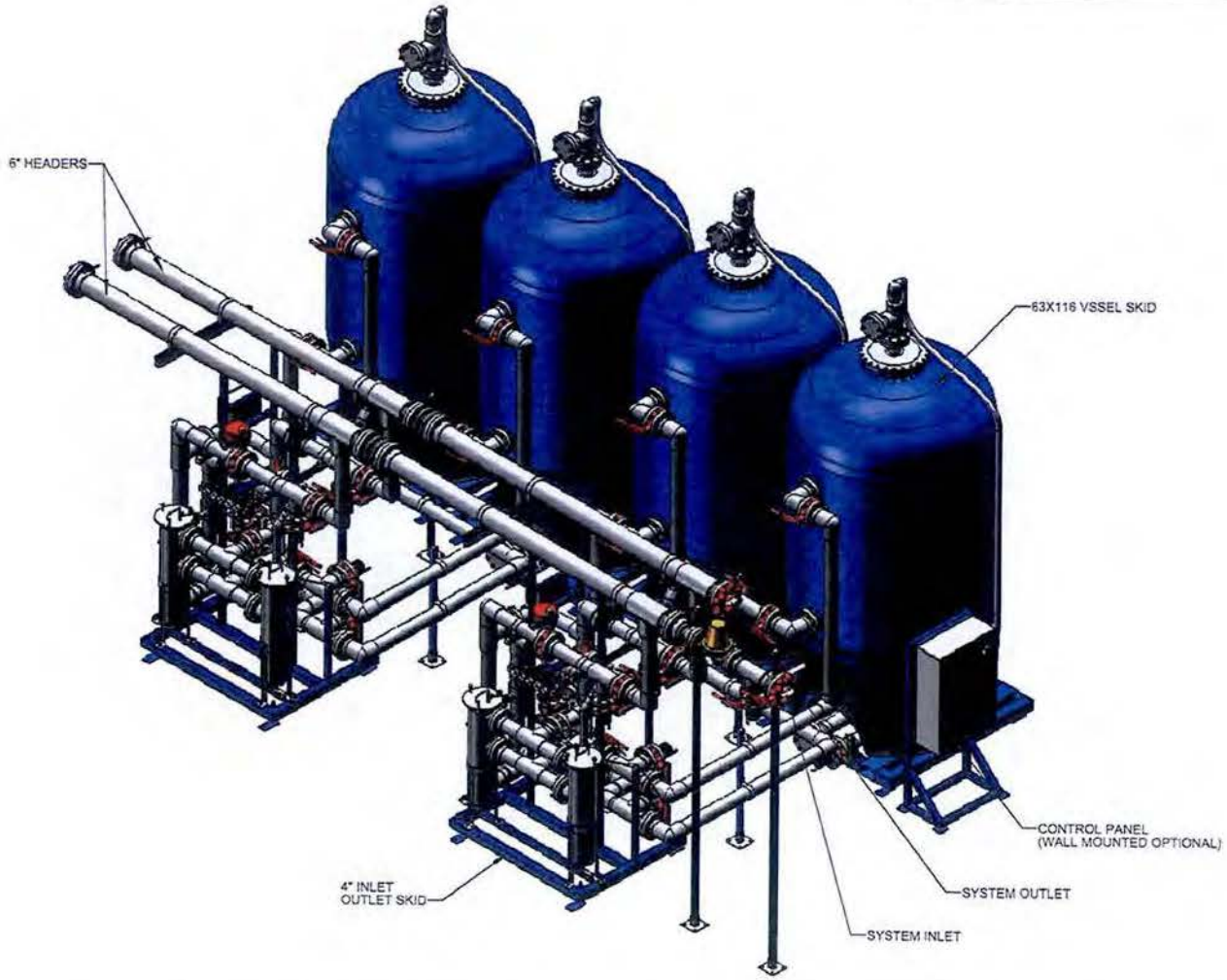
Best regards,

Pete Reko

Pete Reko, West Region Sales Manager
Water Remediation Technology, LLC

REVISIONS							
REV.	ECO	REVISION DESCRIPTION	DATE	DRAWN BY	APPROVED	OPPS APPROVED	ENG APPROVED
1.0	–	ISSUED FOR CONSTRUCTION	9/11/2014	MM	DE	–	DE

63 X 116 350-420GPM MODULAR DOWN FLOW TREATMENT SYSTEM



NOTES:
1. EQUIPMENT CONNECTION LOCATIONS AND OVERALL EQUIPMENT ENVELOPE DIMENSIONS ARE ± 2".
2. ALL GASKETS, BOLT KITS, PIPE SUPPORTS COUPLINGS AND MISC. FITTINGS TO BE SUPPLIED BY WRT AND INSTALLED. ANCHOR BOLTS ARE NOT INCLUDED.
3. ALL FLANGE CONNECTIONS SHALL BE TWO HOLED, LEVEL AND PLUMB.
4. <PARA >PIPE SUPPORTS ARE TO BE LOCATED APPROXIMATELY AS SHOWN ± 2". FINAL LOCATION TO BE DETERMINED AT THE TIME OF EQUIPMENT INSTALLATION.
5. BUILDING SHOWN IS A APPROXIMATE CUSTOMER REPRESENTATION AND NOT INTENDED TO REFLECT ACTUAL DETAILED DESIGN.
6. WRT SUGGESTS SECONDARY CONTAINMENT, A MANUALLY OPERATED SUMP WITHIN CONTAINMENT AREA AND EPOXY COATED FLOORING FOR EASE OF CLEAN UP
7. ASSEMBLIES IN SHOWN VIEWS ARE NOT TO BE MODIFIED OR MIRRORED.

ISSUED FOR CONSTRUCTION
12/19/2014

Wednesday, October 01, 2014 6:52:46

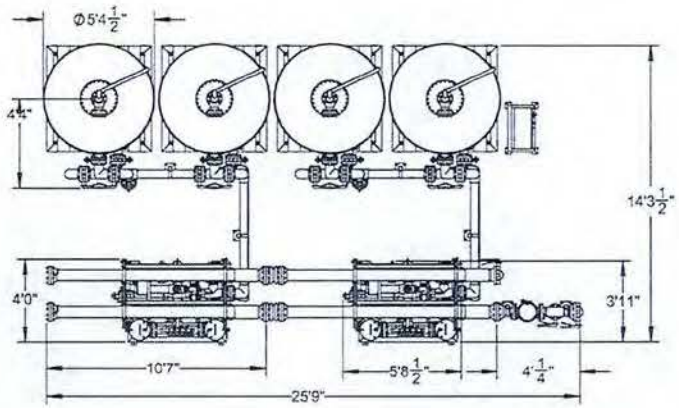
PROPRIETARY AND CONFIDENTIAL
© 2009 WATER REMEDIATION TECHNOLOGY, LLC
ALL RIGHTS RESERVED

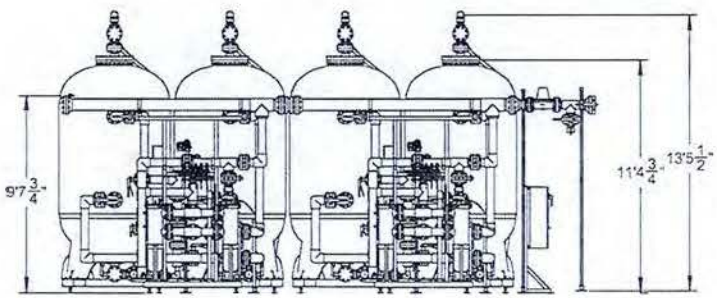
PROJECT: WRT-STD-MCS

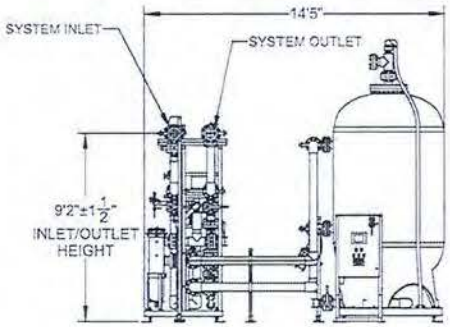
TITLE: 63X116 MODULAR TREATMENT SYSTEM, 2 TRAINS WITH CONTROL PANEL

SIZE: D | DWG. NO.: MCS-63x116-DF-X9102-2T | REV: 1.0

SCALE: 1:15 | SHEET 1 OF 1

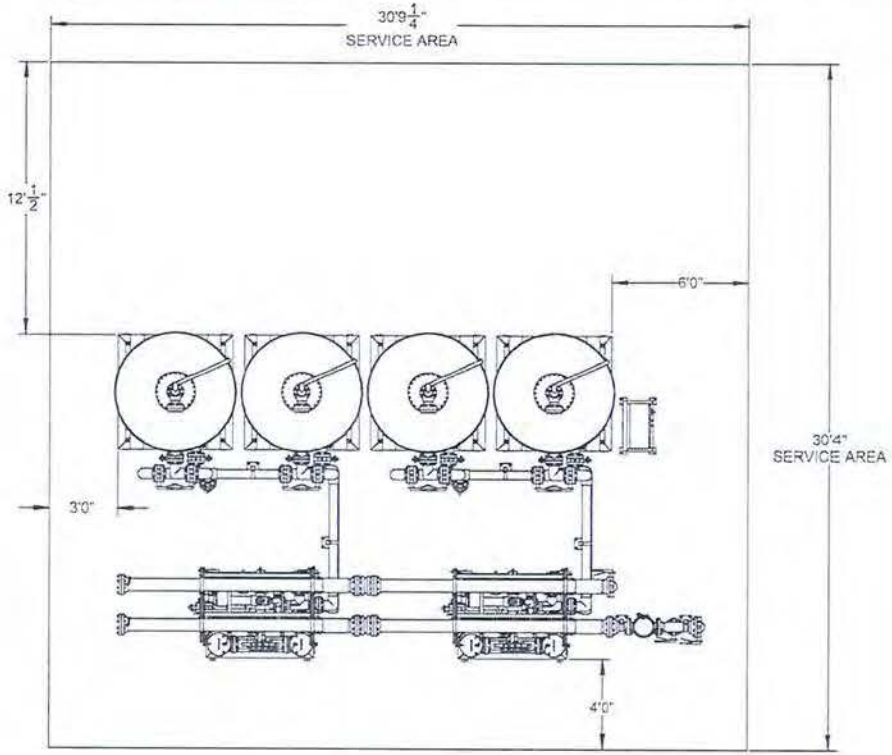


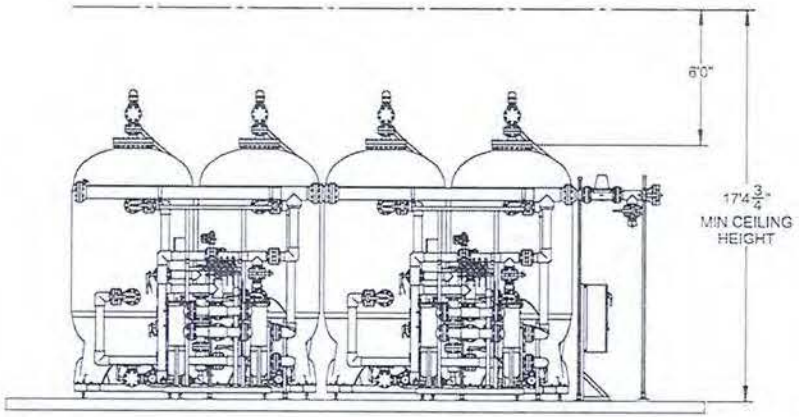




ISSUED FOR CONSTRUCTION
12/11/2014

WRT	PROJECT: WRT STD-MCS	SIZE: D	DWG. NO.: MCS-63x116-DF-X9102-21
		SCALE: 1:1	REV: 1.0





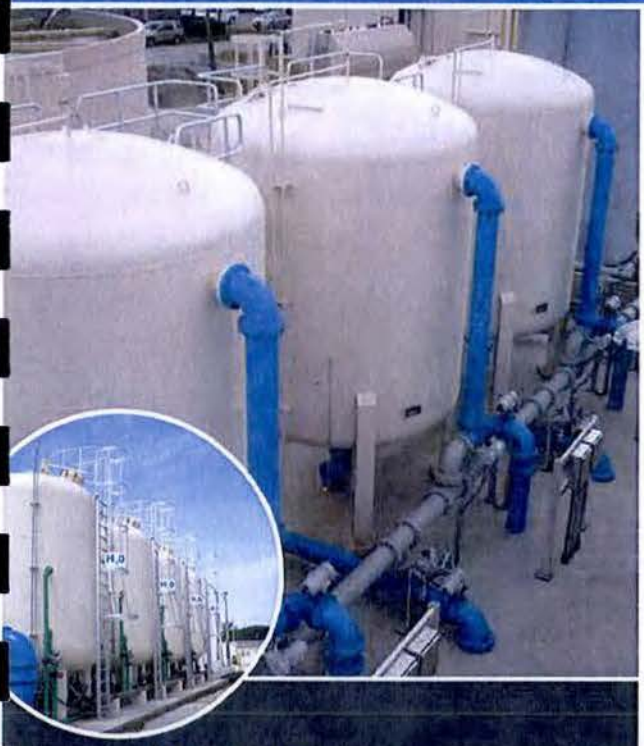
ISSUED FOR CONSTRUCTION
10/17/2014

WRT	PROJECT: WRT STRAHCS	SIZE: D	DWG NO: MCS-63x116-DF-X9102-2T
	MCS-63x116-DF-X9102	SCALE:	REV: 1.0

Appendix D

Tonka Water
Ion Exchange
Preliminary Proposal

CONVENTIONAL ION EXCHANGE



ADVANTAGES

- PLC-based regeneration controls
- Unique non-plugging, non-corroding regenerant distribution system

Proven, reliable ion exchange processes

Tonka Water's Conventional Ion Exchange systems solve a broad range of water treatment issues from uranium removal, to hardness and barium reduction. Conventional Ion Exchange systems incorporate the newest technologies in resin regeneration, guaranteeing an efficient and effective process with custom controls for your system. Tonka Water systems incorporate the latest resin technology utilizing the highest quality resins furnished by well-known manufacturers. Our unique regenerant distribution system accomplishes complete and uniform regeneration of the resin. With over 200 conventional ion exchange installations in the United States alone, Tonka Water's approach is proven consistently effective.

Treatment:

- Arsenic
- Barium
- Hardness
- Nitrates/sulfate
- Organics
- Perchlorate
- Radium
- Fluoride
- Uranium

Tonka Water
13305 Watertower Circle
Plymouth, MN 55441
USA

Tel 763.559.2837
Fax 763.559.1979
Email sales@tonkawater.com

WWW.TONKAWATER.COM

Tonka Water is a trademark of Tonka Equipment Company. ©2014

Tonka Water put together some designs and budgets for Edgemont based on your recent inquiry. They are below for the two flow rates requested. Both are designed around an average total hardness of 516 mg/L as CaCO3 (average of two wells in question), and a final blended hardness of approximately 100 mg/L. Also, the design is with redundancy such that on vessel can be taken out of service while the remaining vessels operate without exceeding the Ten States Standard of 7 gpm/ft2. In this regard the design is fairly conservative, as we have seen it before where system designs go up to 8 gpm/ft2 or more with one vessel out of service; but this should give a good conservative budget, as well. We could certainly look at refining the design as you get further along on the project.

150 GPM

· Three (3) 3'-6" diameter ion exchange vertical pressure vessels, ASME code stamp, sized to treat 121 gpm at a loading rate of 6.3 gpm/ft2 with one vessel out of service (29 gpm bypassed to give approximately 100 mg/L as CaCO3 total hardness), each vessel to include the following:

o Header-lateral inlet distributor with upturned elbows

o PVC header-lateral brine distribution grid

o 36" depth of cation exchange resin

o 15" depth of graded support gravels

o PVC header-lateral underdrain with Tonka non-metallic gravel retaining nozzles (concrete subfill required by installing contractor)

o Full interior finish painting; exterior blasted and primed at factory (finish painting by others on site)

· Pneumatically actuated Bray wafer style butterfly valves (limit switches not included, available at added cost; additional cost required for compliance with American Iron and Steel, if necessary)

· Ductile iron system facepiping (shipped loose for installation by others)

· Solenoid panel including valve solenoids, fully plumbed and wired for external connections by others

· Simplex air compressor package for valve actuation

· Vessel effluent flow meters, one per vessel

· Loss of head pressure gauge panel

· Backwash rate of flow gauge panel

· Brine delivery and dilution components, including brine pump, brine meter, valves, check valves, and other components for a fully functional brine delivery and dilution system (shipped separately for installation by the installing contractor; interconnecting piping by others)

- Bypass/blend components including flow meter, throttling valve, and differential control valve.

- Brine maker/salt storage silo, FRP construction, 36 ton capacity, non-insulated for indoors (insulated for outdoors available at added cost)

- Fully automated PLC control system and panel

- Freight

- Start-up services

Our budgetary price for this system is $287,000.00.

300 GPM
The 300 GPM option includes the appurtenances as described above, only there will be three (3) 5' diameter vessels to treat 242 gpm at 6.2 gpm/ft2 with one vessel out of service (58 gpm bypass).

Our budgetary price for this system is $319,000.00.

Appendix E

Dry Cooler, Inc.
Heat Exchange
Preliminary Proposal

575 S. Glaspie St.
Oxford, MI 48371 USA
Phone: 248-969-3400
Fax: 248-969-3401
www.drycoolers.com

ISO 9001:2008 CERTIFIED

- QUOTATION -

AE2S
1560 Concourse Drive

Rapid City, SD 57703

Attn: **Dylan Striebel, EI**

Proposal: P-19442
Date: August 5, 2014
Work: 605-341-7800
Fax: 605-341-7864

Subject: Edgemont, SD - Potable Water Cooling System - 100 GPM

QTY	ITEM NO.	DESCRIPTION	NET PRICE	TOTAL
	D1451	Aqua-Vent Model AVC-190 Air Cooled Heat Exchanger		
	D1422	CLEAN*LOOP* Model CSX-400-120-PHE-MP Closed-Loop Pump Station with Controls		
1		**PRICE COMPLETE FOR ABOVE:**	$39,950.00	$39,950.00
1	D1355	Recommended Option: 20HP Duplex Backup Pump to AutoStart on Loss of Pressure	$5,075.00	$5,075.00

This quotation is subject to the attached standard terms and conditions.
SHIPMENT: will be made freight collect, Ex-Works point of shipment **6-8 weeks*** after approval of contract and receipt of complete information from Purchaser.
*Dry Coolers reserves the right to modify the delivery schedule as necessary based upon the current production schedule at the time of drawing approval.
TERMS: of payment are 25% with order, 25% upon shipment, balance 30 days net.
IMPORTANT: This proposal is for acceptance within 30 days from the date hereof and shall constitute a contract when accepted by the Purchaser and approved by our contract administrator. Price subject to change due to fluctuations in raw material prices.

Best regards,
Armand

Aqua-Vent Model AVC-190 Air-Cooled Heat Exchanger

Cooling Duty : See attached specification sheet

The major components in the air-cooled heat exchanger include two (2) copper tube heat transfer coils, twelve (12) propeller fans driven by direct drive fan motors, fan venturi panels, approved fan guards, control panel, and mounting legs. The fan motors are factory wired to an electrical control panel with a non-fused lockable disconnect. Fused 110V contactors are provided in the control panel for fan cycling. Fan cycling will require 120V signal from a temperature controller or thermostats*. For outdoor installation.

**Temp controller provided in pump station control panel*

The heat transfer coils are fabricated of 1/2" O.D. seamless copper tubing with mechanically expanded full fin collars for permanent fin-tube contact. Fins are die formed aluminum with corrugations for optimum heat transfer capability. Headers are seamless heavy wall copper tubing. Coil is dry nitrogen leak tested at 380 PSIG in an illuminated water test tank. 250 PSIG maximum operating pressure at 300°F.

Housing for the air-cooler is constructed from heavy gauge galvanized steel, designed to provide maximum casing rigidity as well as high corrosion protection.

Fans are 30" diameter and constructed of aluminum blades riveted to a painted steel hub. Fans are statically balanced and factory run prior to shipping to ensure quiet, trouble-free operation.

Motors are 1-1/2 HP, 1140 RPM and equipped with inherent overload protection. Motors are totally enclosed with permanently lubricated ball bearings and rated for operation at 208 - 230V/460V/3Ø/60 Hz.

PUMP STATION

CLEAN*LOOP* Model CSX-400-120-PHE-MP Closed-Loop Pump Station with Controls

A CLEAN*LOOP* Closed-Loop cooling system isolates your process water from raw plant water using a plate heat exchanger; and with proper water treatment, your equipment will be protected from harmful corrosion and scale build-up.

Coolant is pumped from a sealed reservoir through the plate & frame heat exchanger, where heat is exchanged with the cooling water. The coolant then circulates through the process and back to the sealed reservoir. See attached process diagram.

The system includes:

- Process pump sized for 250 GPM of coolant at 60 PSI. Includes an industrial end-suction pumps closed-coupled to 3500 rpm, TEFC, high efficiency motor.

- 120 gallon reservoir; sized to provide thermal expansiong for the process load during operating cycle. Includes sight glass, drain, fill port, process return connection, and tank blanket

valve regulator, drum vent/relief.

- 4" steel piping supplied with shut-off valves, pressure gauges, check valve for the process pump.

- One (1) plate & frame heat exchanger (PHE) constructed with stainless steel plates and nitrile clip-on gaskets.

- UL508A Listed, NEMA-4 Electrical Control Panel is supplied with the Closed-Loop Pump Station Package. Panel includes a disconnect; control circuit transformer; motor starter(s) for the pump (s), run light(s), and ON/OFF selector switch(es). The panel is factory mounted, wired, and tested.

- *Approximate* skid dimensions (L x W x H): 72" x 36" x 82"

- *Approximate* dry weight: 1000

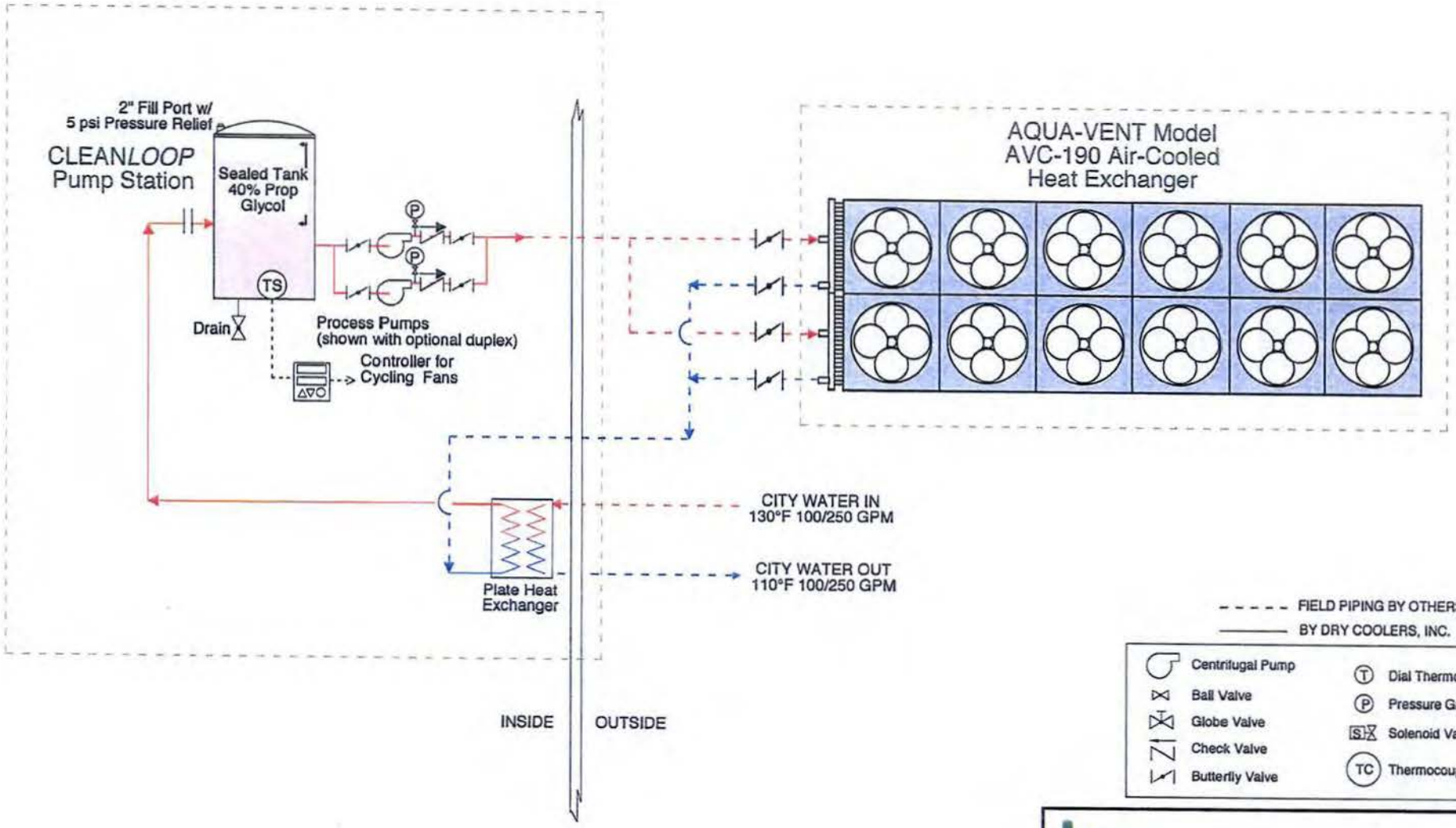
- The pump station is fully pre-assembled, skid-mounted, shop-wired, pressure tested, run tested, primed and finish painted RAL-7035. The system is inspected according Dry Coolers standard ISO 9001:2008 procedures.

- Complete mechanical and electrical drawings are provided to the customer for approval prior to fabrication.

- A complete installation & operation maintenance manual is provided with the unit in both hardcopy and electronic form.

PUMP STATION

Recommended Option: 20HP Duplex Backup Pump to AutoStart on Loss of Pressure
Includes a full capacity backup pump that automatically starts the back up pump upon a drop in system pressure. Factory mounted & piped on the pump station. Includes isolation valves for servicing, check valve, pressure switch, and controls. The duplex option requires approximately 24" extra space on the structural deck.



- - - - - FIELD PIPING BY OTHERS

——— BY DRY COOLERS, INC.

Centrifugal Pump	Dial Thermometer
Ball Valve	Pressure Gauge
Globe Valve	Solenoid Valve
Check Valve	Thermocouple
Butterfly Valve	

Dry Coolers Inc.
ISO 9001:2008 CERTIFIED
575 S. Glaspie St.
Oxford, MI 48371 USA
Phone: 248-969-3400
Fax: 248-969-3401
www.drycoolers.com

COOLING SYSTEM DIAGRAM

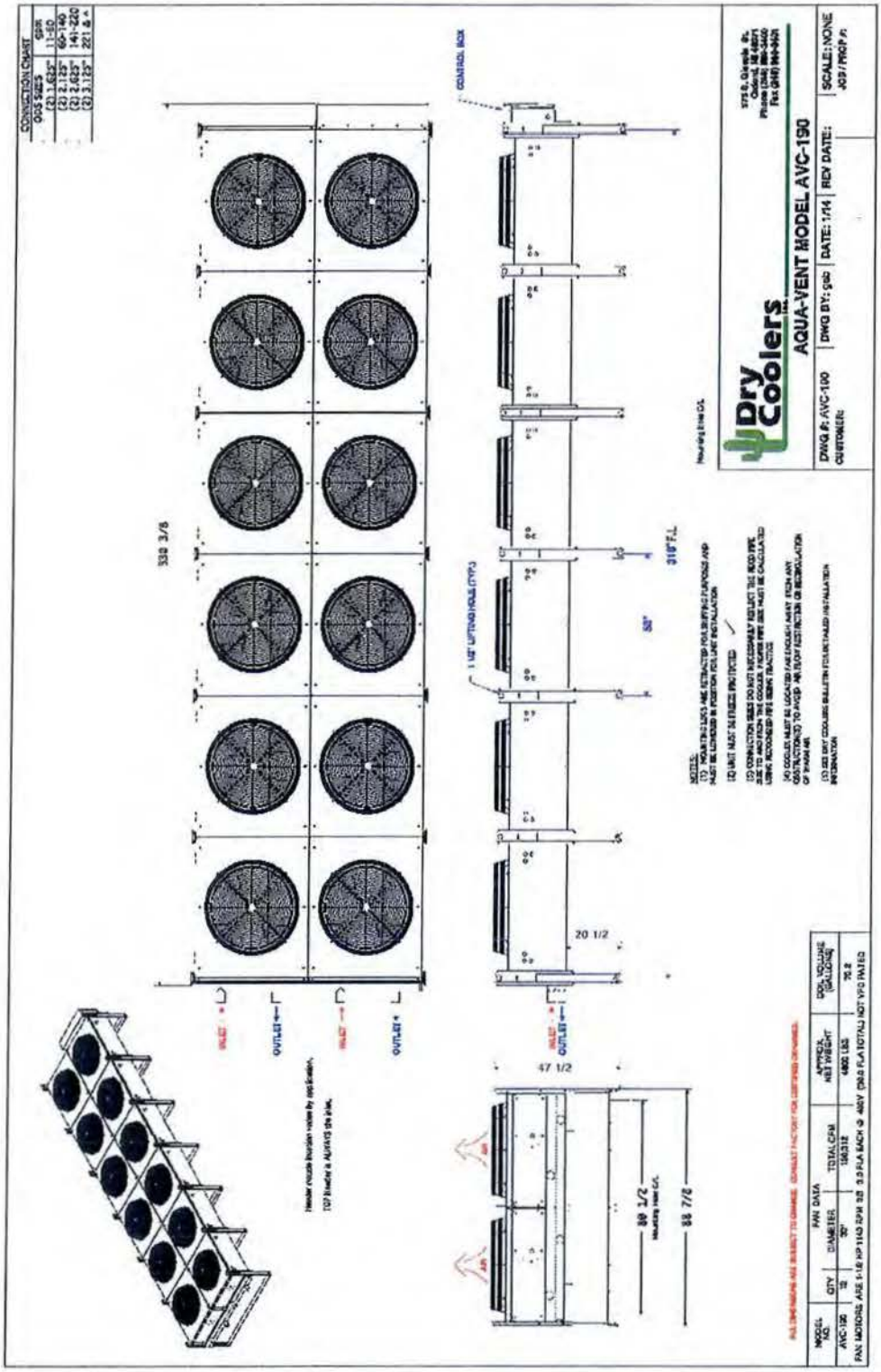
REF: xxx-xxx	BY/DATE: abc, 9/17/2014
CUSTOMER: AE2S	DRW # P-19442 PID

Dry Cooler Thermal Performance

Customer:	AE2S	ACHE Performance Data Sheet R12.1
Ref. No.	P-19442	Dry Coolers Inc.
Date:	5-Aug-14	800-525-8173

Heat Exchanger Performance Data:		
Heat Exchanger Model:	AVC 190 (2x6) - 136	
Number of Units in Parallel:	1	
Fluid Circulated:	40% Propylene Glycol	
Heat Exchanged (Total):	2522000 BTU/hr	738.9 kW
Flow Rate per Unit:	250 gpm	946 l/min
Flow Rate (Total):	250 gpm	946 l/min
Fluid Inlet Temperature:	117 °F	47.2 °C
Fluid Outlet Temperature:	95.4 °F	35.2 °C
Fluid Pressure Drop:	4.1 psi	28.1 kPa
Design Ambient Air (Dry Bulb):	78 °F	25.6 °C
Elevation:	3570 ft	1088 m
Heat Exchanger Structural Data (per unit):		
Length:	26.63 ft	8.12 m
Width:	7.58 ft	2.31 m
Weight (shipping):	4800 lbs	2177 kg
Tubes:		
• Material:	Copper	
• OD:	0.5 in	12.7 mm
Fins:		
• Material:	Aluminum	
• Spacing:	10 fins/inch	394 fins/m
Fans:		
• Quantity (per unit):	12	
• Diameter:	30 in	762 mm
• Type:	Direct Drive - Induced Draft	
• Total Air Flow (per unit):	126300 ACFM	59.62 m3/sec
Motors:		
• Size (each):	1.5 hp	1.1 kW
• Speed:	1,140 RPM	
• Total FLA/unit @ 460 V:	36.0 amps	
• Total FLA/unit @ 230 V:	72.0 amps	

Drawing: AVC-190-136



AVC SERIES AIR COOLED HEAT EXCHANGER

AquaVent AVC Series Air Cooled Heat Exchangers are ideal for efficient, cost effective heat exchange with ambient air, capable of cooling your process to within 5 - 10° F (3 - 5° C) above ambient. These systems are simple, highly efficient, reliable machines.

When combined with the CLEAN**LOOP** closed-loop pump station, the AquaVent air cooler becomes a corrosion resistant, maintenance free method of cooling. There is no need for water makeup, water treatment, water blowdown, unsightly open tanks, clogged strainers or equipment that has to be flushed and cleaned. Other than filling the AVC + CLEAN**LOOP** system with the appropriate concentration of inhibited ethylene or glycol for freeze protection, your system arrives ready for a lifetime of work.

The AquaVent AVC Series air coolers come in one- to six-fan configurations and can be arranged side-by-side or, if there is a space limitation, stacked on top of each other.

Dry Coolers

AQUAVENT AVC AIR COOLED HEAT EXCHANGERS

Plate Heat Exchanger Thermal Performance

THERMOFLOW *Heat Exchanger Design Specification*

Plate Exchanger Model S21A-TL-70

Performance		Hot Side	Cold Side
Flowrate	GPM	250.00	250.00
Inlet Temperature	°F	130.00	95.00
Outlet Temperature	°F	109.43	116.82
Pressure Drop	psi	7.93	13.72
Heat Exchanged	Btu/hr	2,544,800	
	kW	745.84	

Thermodynamic Properties

Fluid Circulated		Water	40% PropGlycol
Density	lbm/ft^3	61.74	63.58
Specific Heat	Btu/lbm-°F	1.00	0.91
Thermal Conductivity	Btu/ft-hr-R	0.36	0.23
Viscosity	lbm/ft-hr	1.34	4.85
Fouling Factors	ft^2-hr-°F/Btu		

Design of Frame & Plates

Plate Arrangement		1-Pass/1-Pass	
Number of Plates		70	
Effective Heat Surface	ft^2	175.66	
Overall U-Value	Btu/ft^2-hr-°F	1,050	
Plate Material		0.5 mm AISI 316	
Gasket Material/Max Temp	°F	Nitrile / 257°F	
Max. Design Temp	°F	250	
Max Working / Test Pres	psi	100 / 150	
Connections		4" ANSI 150# Flange	
Liquid Volume	gal	10.956	
Maximum Number of Plates		155	
Net Weight Dry / Wet	lb	723	813

Dry Coolers Inc.

TERMS AND CONDITIONS

This Quotation is subject to the following standard terms and conditions:

1. This is a Quotation, not a firm offer, and any purchase order issued pursuant to this Quotation shall not result in a contract until it is accepted and acknowledged in writing by Dry Coolers Inc. (DCI) at its office in Oxford, Michigan.
2. UNIT PRICES are subject to adjustment if the quantity actually purchased is less than the quantity described herein.
3. PURCHASER SHALL assume all responsibility for taxes levied by the state in which they operate.
4. TERMS OF PAYMENT are as stated in the attached Quotation.
5. DELIVERY TERMS are F.O.B. DCI's shipping point. Dates of delivery are determined from the date of DCI's acceptance of any order or orders issued by Buyer and are estimates of approximate delivery dates and are not a guarantee of a particular day of delivery. DCI is not liable for any failure or delay in shipment due to any cause beyond its control including, but not limited to, acts of God, war labor difficulties, accidents, shortages or lack of materials, or failure by DCI's suppliers or subcontractors.
6. DCI WARRANTS that all products furnished hereunder will be free from defects in materials and workmanship for one year from the date of shipment and when operated and maintained under design conditions and in accordance with DCI's instructions, will perform in accordance with applicable specifications for one year from date of shipment. If within such one year period any product or portion there of proves, after receipt of prompt notice and inspection by DCI, to be defective as to materials or workmanship, DCI will, at its option, either repair or replace any such product or portion thereof. This warranty is in lieu of all other warranties and DCI DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTIBILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. DCI makes no warranty with respect to components or accessories manufactured by any other party except a expressly warranted by such other party; or for deterioration or failure due to effects of erosion or corrosion. DCI is not liable for any consequential or incidental damages, and in no event shall be liable for any amount in excess of the purchase price of the products described herein.
7. DCI IS NOT RESPONSIBLE FOR compliance with any codes other than as specifically referred to herein. Buyer shall pay any additional costs resulting from the need to comply with any other code.
8. CANCELLATION of any contract resulting from this Quotation or delay by Buyer in acceptance of any shipment may be made only by written agreement executed by both parties.
9. THERE ARE NO provisions with respect to this Quotation not specified herein, this Quotation together with the Buyer's and DCI's acceptance or acknowledgment thereof will constitute the entire contract between the parties with respect to the furnishing of such products.
10. ANY contract resulting from this Quotation shall be governed by and construed in accordance with the laws of the State of Michigan.

Appendix F

Schematic Design Drawings

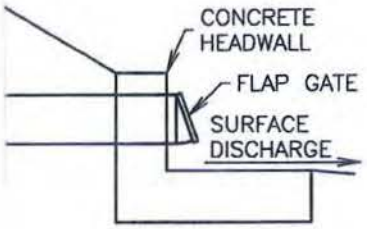
1. Well No. 2 Rehabilitation
2. Well No. 4 Rehabilitation
3. Treatment Plant Site Layout
4. Treatment System Process Diagram
5. Treatment Building Floor Plan
6. Distribution System Improvements

ELEVATION

3661

3574

TO
PU



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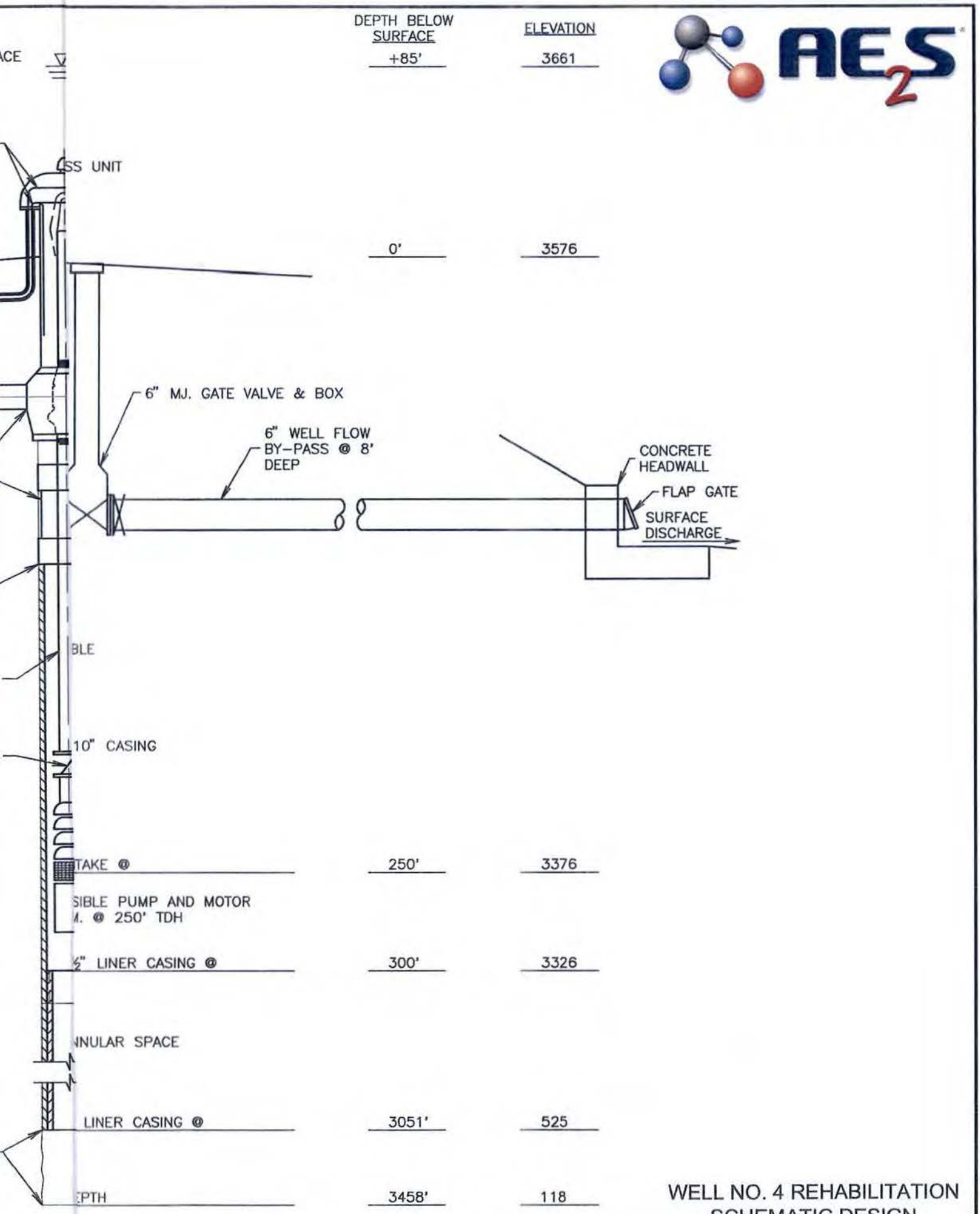
3324

688

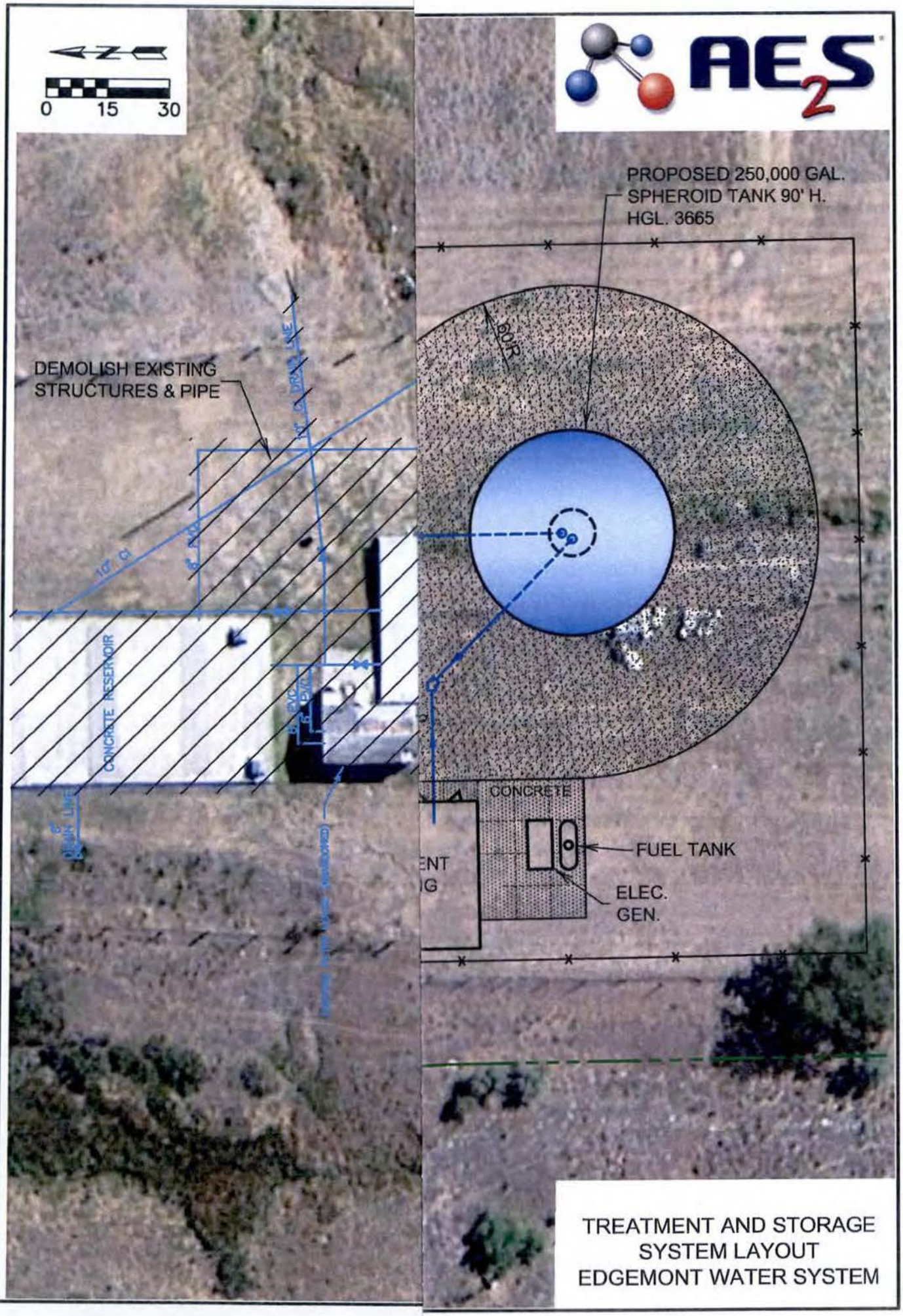
391

WELL NO. 2 REHABILITATION
SCHEMATIC DESIGN

September 23, 2014 10:12:56 a.m.
Drawing: 13134 PUMP SETTING.DWG (FOX) (P:\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)



WELL NO. 4 REHABILITATION
SCHEMATIC DESIGN



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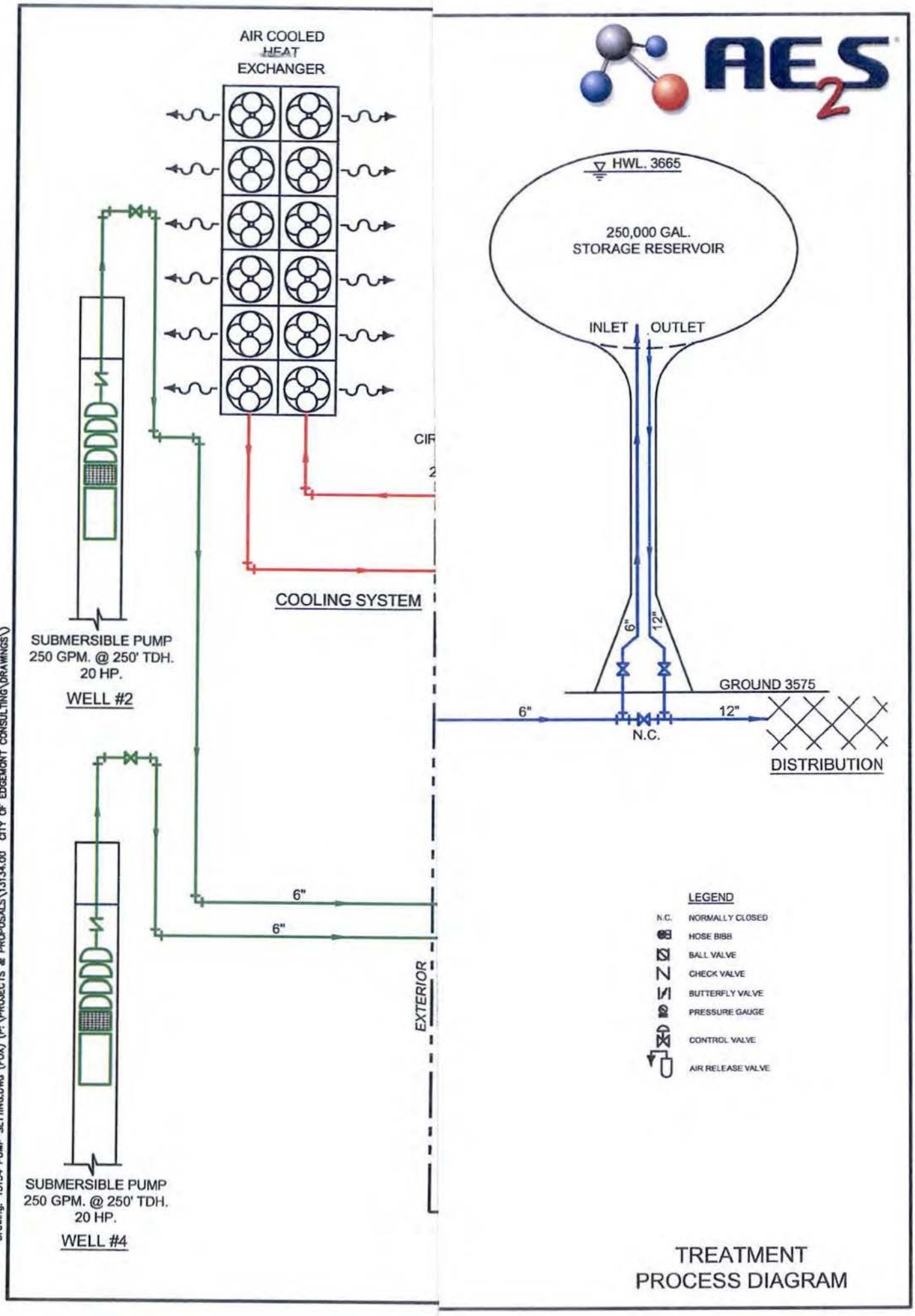

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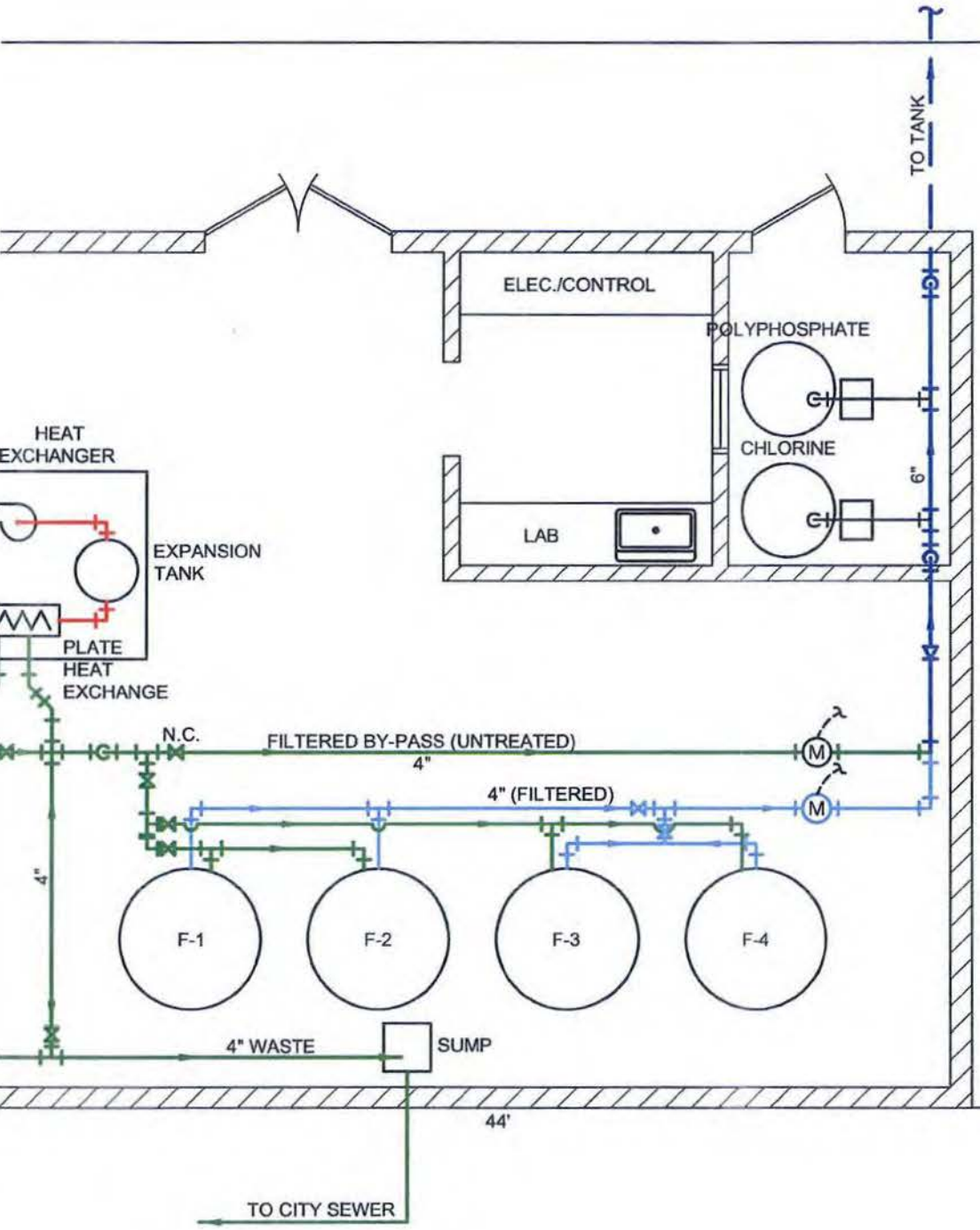
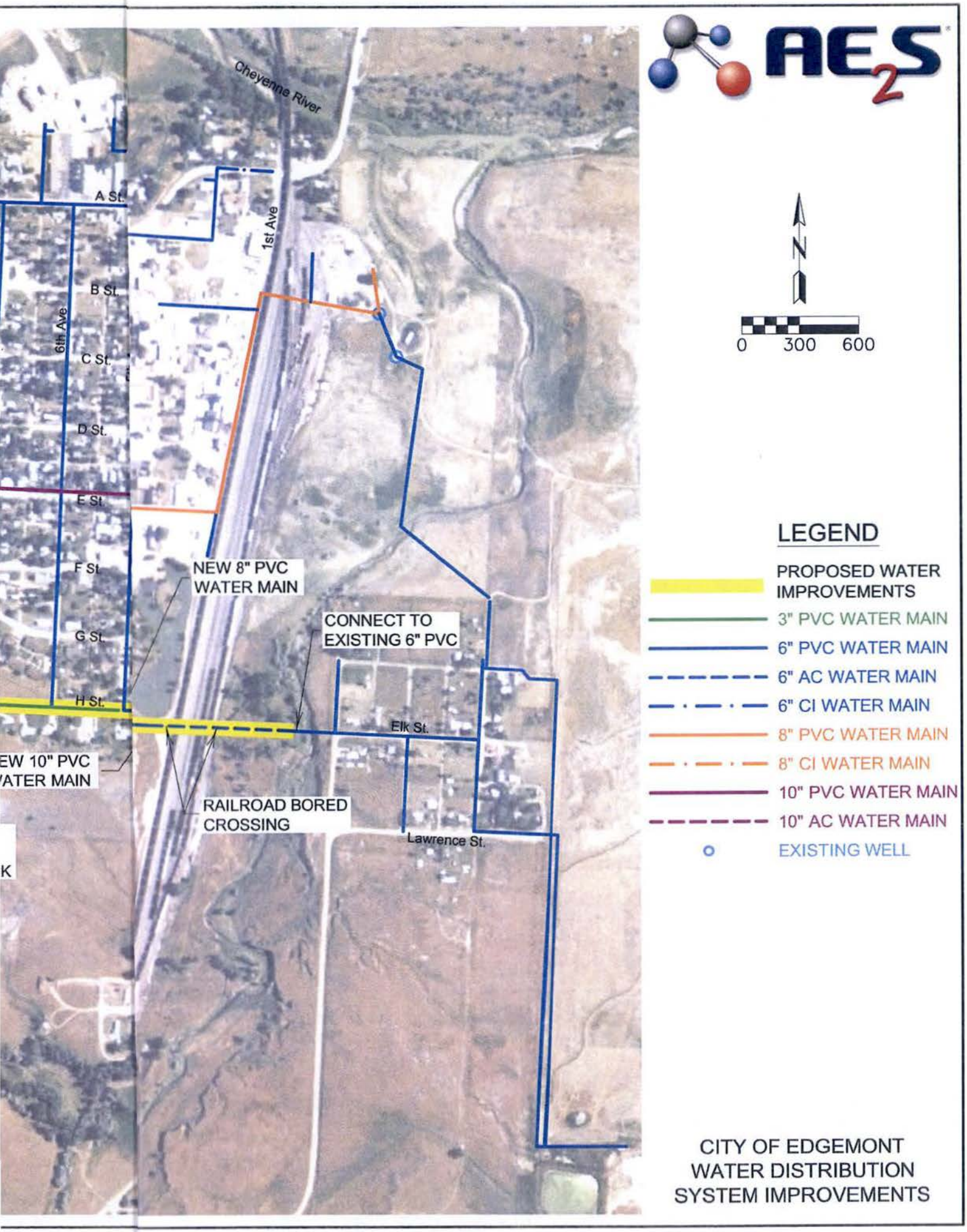


TREATMENT PLAN

SCALE: ⅜" = 1'-0"

TREATMENT
BUILDING PLAN


Cheyenne River
A St.
B St.
C St.
D St.
E St.
F St.
G St.
H St.
6th Ave
1st Ave
Elk St.
Lawrence St.
NEW 8" PVC WATER MAIN
CONNECT TO EXISTING 6" PVC
RAILROAD BORED CROSSING
EW 10" PVC
ATER MAIN
K
N
0 300 600
LEGEND
PROPOSED WATER IMPROVEMENTS
3" PVC WATER MAIN
6" PVC WATER MAIN
6" AC WATER MAIN
6" CI WATER MAIN
8" PVC WATER MAIN
8" CI WATER MAIN
10" PVC WATER MAIN
10" AC WATER MAIN
EXISTING WELL
CITY OF EDGEMONT
WATER DISTRIBUTION
SYSTEM IMPROVEMENTS

Appendix G

Budgetary Cost Estimates

- Well No.2
  Rehabilitation and Pumping System
- Well No. 4
  Rehabilitation and Pumping System
- Treatment Plant
- 250,000 Gal. Spheroid Elevated Tank
- Distribution System Upgrades

Budgetary Cost Estimate

Well No. 4 Rehabilitation and Pump Station

Item	Quantity	Unit Cost	Total
Mobilization	1 LS	$ 22,000	$ 22,000
Construct Temporary Flow By-Pass System	1 LS	$ 11,000	$ 11,000
Remove Surface Piping	1 LS	$ 5,500	$ 5,500
Clean Well Casing Via Scraping	3,050 LF	$ 9	$ 26,840
Video Log of Casing Interior	3,100 LF	$ 2	$ 6,820
5-1/2" O.D. Steel Lower Casing Liner	2,850 LF	$ 33	$ 94,050
8" Steel Upper Casing Liner	250 LF	$ 44	$ 11,000
Set-up for Grouting	1 LS	$ 5,500	$ 5,500
Grout Casing Liners	200 CF	$ 28	$ 5,500
Tapping Sleeve and Valve on 8" for By-Pass	1 EA	$ 3,850	$ 3,850
Pitless Unit on 8" Casing	1 LS	$ 15,400	$ 15,400
6" PVC Flow By-Pass	50 LF	$ 44	$ 2,200
By-Pass Headwall and Flap Valve	1 EA	$ 2,750	$ 2,750
Connect Pitless Discharge to Existing 6" PVC	1 LS	$ 1,650	$ 1,650
6" Gate Valve and Box on Well Discharge	1 EA	$ 1,650	$ 1,650
Underground Electrical to Well Pump	1,400 LF	$ 17	$ 23,100
Submersible Well Pump (20 HP)	1 EA	$ 6,600	$ 6,600
4" Stainless Steel Column Pipe	200 LF	$ 55	$ 11,000
4" Stainless Steel Check Valve	1 EA	$ 1,650	$ 1,650
Submersible Pump Cable	200 LF	$ 8	$ 1,600
Install Pumping Equipment in Well	1 LS	$ 5,500	$ 5,500
Site Restoration	1 LS	$ 3,000	$ 3,000
Incidental Work and Miscellaneous	1 LS	$ 11,220	$ 11,220
		Sub-Total	$ 279,380
		Construction Contingency (10%)	$ 28,000
		Total Construction	**$308,000**

Budgetary Cost Estimate

Well No. 2 Rehabilitation and Pump System

Item	Quantity	Unit Cost	Total
Mobilization	1 LS	$ 22,000	$ 22,000
Construct Temporary Flow By-Pass System	1 LS	$ 11,000	$ 11,000
Remove Surface Piping	1 LS	$ 5,500	$ 5,500
Clean Well Casing Via Scraping	3,050 LF	$ 9	$ 26,840
Video Log of Casing Interior	3,100 LF	$ 2	$ 6,820
5-1/2" O.D. Steel Lower Casing Liner	2,850 LF	$ 33	$ 94,050
8" Steel Upper Casing Liner	250 LF	$ 44	$ 11,000
Set-up for Grouting	1 LS	$ 5,500	$ 5,500
Grout Casing Liners	200 CF	$ 28	$ 5,500
Tapping Sleeve and Valve on 8" for By-Pass	1 EA	$ 3,850	$ 3,850
Pitless Unit on 8" Casing	1 LS	$ 15,400	$ 15,400
6" PVC Flow By-Pass	50 LF	$ 44	$ 2,200
By-Pass Headwall and Flap Valve	1 EA	$ 2,750	$ 2,750
Connect Pitless Discharge to Existing 6" PVC	1 LS	$ 1,650	$ 1,650
6" Gate Valve and Box on Well Discharge	1 EA	$ 1,650	$ 1,650
Underground Electrical to Well Pump	200 LF	$ 17	$ 3,300
Submersible Well Pump (20 HP)	1 EA	$ 6,600	$ 6,600
4" Stainless Steel Column Pipe	200 LF	$ 55	$ 11,000
4" Stainless Steel Check Valve	1 EA	$ 1,650	$ 1,650
Submersible Pump Cable	150 LF	$ 9	$ 1,320
Install Pumping Equipment in Well	1 LS	$ 5,500	$ 5,500
Site Restoration	1 LS	$ 3,300	$ 3,300
Incidental Work and Miscellaneous	1 LS	$ 11,770	$ 11,770
		Sub-Total	$ 260,150
		Construction Contingency (10%)	$ 26,000
		Total Construction	**$ 286,000**

Budgetary Cost Estimate
Water Treatment Plant

Item	Quantity		Unit Cost	Total
Mobilization and Overhead	1	LS	$ 33,000	$33,000
Clearing	1	LS	$ 2,200	$2,200
Site Grading	1	LS	$ 11,000	$11,000
Concrete Sidewalk/Pavement/Equipment Pads	1,500	SF	$ 9	$13,200
Gravel Surfacing	400	TONS	$ 33	$13,200
Security Fencing and Gate	800	LF	$ 32	$25,600
Yard Piping Systems	1	LS	$ 16,500	$16,500
Seeding and Surface Restoration	1	ACRE	$ 3,300	$3,300
Treatment Building Structure and Finishes	1,600	SF	$ 150	$240,000
Water Cooling System Equipment	1	LS	$ 66,000	$66,000
WRT Filter System	1	LS	$ 330,000	$330,000
Chemical Storage and Feed Equipment	1	LS	$ 5,500	$5,500
Mag Meters	1	EA	$ 2,200	$2,200
Process Piping and Valves	1	LS	$ 44,000	$44,000
Piping System Accessories	1	LS	$ 3,300	$3,300
Equipment Installation and Startup	1	LS	$ 99,000	$99,000
Pump and Process Electrical and Controls	1	LS	$ 33,000	$33,000
Building HVAC Systems	1	LS	$ 22,000	$22,000
Emergency Generator/Transfer Switch	1	LS	$ 55,000	$55,000
			Sub-Total	$1,018,000
			Construction Contingency (10%)	$102,000
			Construction Total	**$1,120,000**

Budgetary Cost Estimate

250,000 Gallon Spheroid Elevated Tank

Item	Quantity		Unit Cost	Total
Mobilization	1	LS	$ 30,000	$ 30,000
250,000 Gallon Elevated Tank	1	LS	$ 880,000	$ 880,000
12" PVC Water Main	200	LF	$ 60	$ 12,000
12" D.I. Fittings	3	EA	$ 1,500	$ 4,500
12" Gate Valve and Box	2	EA	$ 3,000	$ 6,000
Fire Hydrant with Auxillary Valve	1	EA	$ 4,950	$ 4,950
Incidental Work/Restoration	1	LS	$ 10,000	$ 10,000
			Sub-Total	$ 947,450
			Construction Contingency (10%)	$95,000
			Construction Total	**$1,042,450**

Budgetary Cost Estimate

Distribution System Improvements

(10" and 8" Mains in H Street)

Item	Quantity		Unit Cost	Total
Mobilization	1	LS	$ 25,000	$ 25,000
8" PVC Water Main	900	LF	$ 40	$ 36,000
10" PVC Water Main	2,600	LF	$ 50	$ 130,000
8" D.I. Fittings	2	EA	$ 600	$ 1,200
10" D.I. Fittings	8	EA	$ 800	$ 6,400
8" Gate Valves and Box	2	EA	$ 2,000	$ 4,000
10" Gate Valves and Box	8	EA	$ 2,500	$ 20,000
Connect to Existing Water Main	8	EA	$ 1,000	$ 8,000
Fire Hydrant w/Auxilary Valve	2	EA	$ 4,500	$ 9,000
1" Service Saddle Corp Stop	7	EA	$ 300	$ 2,100
1" Copper Service	70	LF	$ 40	$ 2,800
1" Curb Stop and Box	7	EA	$ 300	$ 2,100
Reconnect Water Service	7	EA	$ 200	$ 1,400
Railroad Bore and Casing (20")	300	LF	$ 330	$ 99,000
Remove and Replace AC Pavement	2,800	SY	$ 28	$ 78,400
Erosion Control	1	LS	$ 5,000	$ 5,000
Surface Restoration and Seeding	2,500	SY	$ 2	$ 5,000
Removals and Incidental Work	1	LS	$ 20,000	$ 20,000
Traffic Control	1	LS	$ 5,000	$ 5,000
			Sub-Total	$ 460,400
			Construction Contingency (10%)	$46,000
			Construction Total	**$506,400**

Appendix H

Estimated Operating Costs for Treatment System

Estimated Electrical Cost for Edgemont Water System

Electrical Loads	Motor HP	KW
Well Pump (one only)	20	15
Cooling Circulation Pump	20	15
Cooling System Fans	18	14
HVAC/Lighting/Filters/Controls	-	6
	Total	50 KW

Run Time for Treatment System

45,000,000 gal/yr @ 250 gpm = 180,000 minutes = 3000 hours/year

BHP Rates (Municipal Pumping)

Meter Charge: $17/mo

Demand Charge: $5.16 per kw/month

Energy Use: $ .0424 per kwh

Estimated Annual Electrical Costs

Meter Charge: $17/mo x 12 =	$204/year
Demand: $5.16/kw x 50 kw x 12 =	$3096
Energy: 3000 hours x 50 kw x $ .0424 x 12 =	$6360
Total Annual Cost	$9660/year

Estimated Chemical Costs and Media Maintenance for Edgemont Water Treatment System

WRT Media Maintenance Contract

Annual Fee: $47,200/yr

Sodium Hyprochlorite Disinfection

Water Treated: 45,000,000 gal/yr

Chlorine Dose: 1.4 mg/l

Weight of Chlorine Required:

$$\frac{45{,}000{,}000 \text{ gal x } 8.33 \text{ lb/gal}}{1{,}000{,}000} \text{ x } 1.4 = 525 \text{ lbs}$$

Sodium Hypochlorite (12%): 1.0 lb chlorine per gallon

Gallons of Hypochlorite: 1.0 x 525 lbs = 525 gal/yr

Cost of Hypochlorite (bulk delivery by truck): $6/gal

Annual Cost of Hypochlorite: 525 gal. x $6/gal = $3,200/yr

Polyphosphate Feed for Hardness Mitigation

Water Treatment: 45,000,000 gal/yr

Dose: 8 ppm

Cost per 1000 gallons treated: $ .10/1000 gallons

Annual Cost: 45,000,000 gal. x 0.10/1,000 = $4,500/yr

Total Annual Cost for Media Maintenance and Chemicals:

$58,000/yr

Estimated Equipment Repair/Replacement

Cost for Pumping and Treatment System

Component	Value	Service Life	Cost/Year
Well Pump			
Pump and Motor	$6,000		
Cable	$1,000		
Check Valve	$1,000		
	$8,000	20 years	$400/year
Cooling System	$60,000	40 years	$1,500/year
WRT Filters	$330,000	40 years	$8,200/year
Chemical Feed Systems	$5,000	20 years	$250/year
		Total	**$10,400/year**

BLACK HILLS COUNCIL
OF LOCAL GOVERNMENTS

February 25, 2015

U.S. Army Corps of Engineers,
Omaha District
Planning Division
Attn: CENWO-PM-AE
1616 Capitol Ave.
Omaha, NE 68102-4901

Dear Sir or Madam,

I am requesting your written comments regarding an Environmental Assessment that our agency is conducting on behalf of the City of Edgemont, SD. The City is proposing to use Federal Drinking Water State Revolving Loan Funds (SRF) and other sources of funding to implement extensive improvements and upgrades to the municipal water system. Due to the proposed use of Federal monies, a complete Environmental Assessment is required.

LOCATION AND PROJECT OVERVIEW: The City of Edgemont is located in Fall River County in extreme southwestern South Dakota (refer to maps) and has a population of approximately 774 persons. The City is proposing several major improvements to its existing water system including:

- Installation of well casing liner pipe in two existing City wells;
- Construction of well by-pass piping and pitless adaptors as well as installation of submersible well pumps for these same two wells;
- Construction of a water treatment facility with the capabilities to cool the water, reduce radiological contaminants, chlorine disinfection, and anti-scaling remediation of hard water;
- Construction of a 250,000 gallon elevated storage tank and demolition of existing substandard ground storage tanks and steel standpipe reservoir;
- Installation of new water main to connect the new storage tank to the existing distribution system.
- Necessary replacement of old water main segments;
- Other work related to the above improvements as well as necessary engineering, project administration, etc.

More specific details on the above improvements can be found in the attached "Executive Summary" prepared by the City's consulting engineer and in the attached maps. Depending upon funding availability, the final project scope may be reduced from that described above. Other than that, minor project variations are possible as the project proceeds. In the unlikely event that major increases in project scope are proposed that are not reflected in this letter, we will contact you for additional comment.

PROJECT NEED: Generally speaking, much of the existing Edgemont municipal water system is aged and deteriorated. Furthermore, there are specific concerns related to: supply reliability, water temperature, compliance with State Water Quality Standards, potential sources of bacterial contamination, and inadequate water pressure. The proposed project will remedy these issues.

ATTACHMENTS AND PROJECT IMPACTS: To assist in your review of this project, attached please find a vicinity map of Edgemont as well as three maps from the City's engineering report. No significant environmental effects are anticipated from this project. Most areas impacted by the project are portions of the existing water system and have been previously disturbed. The area where the new treatment facility and tank will be constructed is generally level grassland.

COMMENT PERIOD: Please provide me with your written comments within 30 days. Even if you have no comments or concerns, we do need your written response within 30 days in order for the City to apply for the required funding. Please note you that you may have been contacted by a separate agency requesting your comments relative to an Environmental Assessment for this same project. That is a separate assessment for different Federal funding and does not eliminate the need for you to respond to this letter.

If you have any questions regarding this matter or need further information, please contact me.

Sincerely,

Bill Lass

Bill Lass, Senior Planner

Encl.

BLACK HILLS COUNCIL
OF LOCAL GOVERNMENTS

February 25, 2015

U.S. Dept. of the Interior
Fish and Wildlife Service
420 S. Garfield Ave.
Pierre, SD 57501-5408

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I am requesting your written comments regarding an Environmental Assessment that our agency is conducting on behalf of the City of Edgemont, SD. The City is proposing to use Federal Drinking Water State Revolving Loan Funds (SRF) and other sources of funding to implement extensive improvements and upgrades to the municipal water system. Due to the proposed use of Federal monies, a complete Environmental Assessment is required.

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Sincerely,

Bill Lass

Bill Lass, Senior Planner

Encl.

BLACK HILLS COUNCIL
OF LOCAL GOVERNMENTS

February 25, 2015

SD Dept. of Game, Fish & Parks
Division of Wildlife
523 E. Capitol Ave.
Pierre, SD 57501-3182

Dear Sir or Madam,

I am requesting your written comments regarding an Environmental Assessment that our agency is conducting on behalf of the City of Edgemont, SD. The City is proposing to use Federal Drinking Water State Revolving Loan Funds (SRF) and other sources of funding to implement extensive improvements and upgrades to the municipal water system. Due to the proposed use of Federal monies, a complete Environmental Assessment is required.

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upon funding availability, the final project scope may be reduced from that described above. Other than that, minor project variations are possible as the project proceeds. In the unlikely event that major increases in project scope are proposed that are not reflected in this letter, we will contact you for additional comment.

PROJECT NEED: Generally speaking, much of the existing Edgemont municipal water system is aged and deteriorated. Furthermore, there are specific concerns related to: supply reliability, water temperature, compliance with State Water Quality Standards, potential sources of bacterial contamination, and inadequate water pressure. The proposed project will remedy these issues.

ATTACHMENTS AND PROJECT IMPACTS: To assist in your review of this project, attached please find a vicinity map of Edgemont as well as three maps from the City's engineering report. No significant environmental effects are anticipated from this project. Most areas impacted by the project are portions of the existing water system and have been previously disturbed. The area where the new treatment facility and tank will be constructed is generally level grassland.

COMMENT PERIOD: Please provide me with your written comments within 30 days. Even if you have no comments or concerns, we do need your written response within 30 days in order for the City to apply for the required funding. Please note you that you may have been contacted by a separate agency requesting your comments relative to an Environmental Assessment for this same project. That is a separate assessment for different Federal funding and does not eliminate the need for you to respond to this letter.

If you have any questions regarding this matter or need further information, please contact me.

Sincerely,

Bill Lass

Bill Lass, Senior Planner

Encl.

BLACK HILLS COUNCIL
OF LOCAL GOVERNMENTS

February 25, 2015

U.S. Dept. of Agriculture
Natural Resources Conservation Service
200 Fourth St. SW
Huron, SD 57350-2475

Dear Sir or Madam,

I am requesting your written comments regarding an Environmental Assessment that our agency is conducting on behalf of the City of Edgemont, SD. The City is proposing to use Federal Drinking Water State Revolving Loan Funds (SRF) and other sources of funding to implement extensive improvements and upgrades to the municipal water system. Due to the proposed use of Federal monies, a complete Environmental Assessment is required.

LOCATION AND PROJECT OVERVIEW: The City of Edgemont is located in Fall River County in extreme southwestern South Dakota (refer to maps) and has a population of approximately 774 persons. The City is proposing several major improvements to its existing water system including:

- Installation of well casing liner pipe in two existing City wells;
- Construction of well by-pass piping and pitless adaptors as well as installation of submersible well pumps for these same two wells;
- Construction of a water treatment facility with the capabilities to cool the water, reduce radiological contaminants, chlorine disinfection, and anti-scaling remediation of hard water;
- Construction of a 250,000 gallon elevated storage tank and demolition of existing substandard ground storage tanks and steel standpipe reservoir;
- Installation of new water main to connect the new storage tank to the existing distribution system.
- Necessary replacement of old water main segments;
- Other work related to the above improvements as well as necessary engineering, project administration, etc.

More specific details on the above improvements can be found in the attached "Executive Summary" prepared by the City's consulting engineer and in the attached maps. Depending

upon funding availability, the final project scope may be reduced from that described above. Other than that, minor project variations are possible as the project proceeds. In the unlikely event that major increases in project scope are proposed that are not reflected in this letter, we will contact you for additional comment.

PROJECT NEED: Generally speaking, much of the existing Edgemont municipal water system is aged and deteriorated. Furthermore, there are specific concerns related to: supply reliability, water temperature, compliance with State Water Quality Standards, potential sources of bacterial contamination, and inadequate water pressure. The proposed project will remedy these issues.

ATTACHMENTS AND PROJECT IMPACTS: To assist in your review of this project, attached please find a vicinity map of Edgemont as well as three maps from the City's engineering report. No significant environmental effects are anticipated from this project. Most areas impacted by the project are portions of the existing water system and have been previously disturbed. The area where the new treatment facility and tank will be constructed is generally level grassland.

COMMENT PERIOD: Please provide me with your written comments within 30 days. Even if you have no comments or concerns, we do need your written response within 30 days in order for the City to apply for the required funding. Please note you that you may have been contacted by a separate agency requesting your comments relative to an Environmental Assessment for this same project. That is a separate assessment for different Federal funding and does not eliminate the need for you to respond to this letter.

If you have any questions regarding this matter or need further information, please contact me.

Sincerely,

Bill Lass

Bill Lass, Senior Planner

Encl.

Executive Summary

The City of Edgemont, SD proposes to construct improvements to the municipal water system to improve the reliability of supply sources, assure compliance with State Water Quality Standards, eliminate sources of bacterial contamination, provide adequate service pressure to all users and replace deteriorated system components. The proposed project includes the following major components.

Edgemont Water System Improvements

- Install well casing liner pipe in City Wells No. 2 and 4. Casing liners consist of approximately 2800' of 5" steel pipe and 300' of 8" steel pipe for each well.
- Construct flowing well by-pass piping and pitless adaptors for Wells No. 2 and 4. Install submersible well pumps in Wells 2 and 4, each with 250 gpm pumping rate capacity.
- Construct water treatment facility for Wells No. 2 and 4 water production. The treatment system will include a closed-loop forced draft heat exchanger for cooling the well discharge (128°F at wellhead) and an adsorptive media filtration system to reduce radiological contaminates for compliance with Drinking Water Quality Standards. The treatment facility will also include chemical feed systems for chlorine disinfection and polyphosphate for anti-scaling remediation of the hard water supply. The design capacity of the treatment facility is 250 gpm (360,000 gpd).
- Construct a 250,000 gallon elevated storage tank near the treatment facility at an elevation which will provide a minimum service pressure of 40 psi to all users. The 250,000 gallon reservoir will provide for firefighting reserves, emergency storage and additional cooling of the supply. The existing substandard ground storage tanks and steel standpipe will be demolished.
- Construct approximately 2600' of 10" PVC water main and 900' of 8" PVC water main in H Street between the new tank site and Cottonwood Subdivision. The new main will connect the new storage tank to the existing distribution system at multiple locations to strengthen the system hydraulic capacity and remove undersized and non-conforming piping materials from the system.

Major project component locations are shown on the map at the end of this Executive Summary. It is planned to complete the project using competitive bidding methods. The estimated construction cost of major project components and engineering and legal costs is summarized following:

Estimate of Project Costs

Pilot Study and Report for Treatment System	60,000
Well Rehabilitation and Pumping Systems	594,000
Water Treatment Facility	1,120,000
250,000 Gallon Elevated Storage Tank	1,042,000
H Street Distribution Piping and Connection to System	508,000
Demolish Steel Tank	50,000
Demolish Concrete Tanks and Restore Site (By City)	0
Total Construction	$3,374,000
Legal Services (Bond Counsel)	$10,000
Engineering Services	506,000
Total Project	$3,890,000

The well pumping systems and treatment facility will increase operation and maintenance costs for the community. The increased operation and maintenance costs are projected to be approximately $70,200 per year, or about $14.60 per month for each of the 400 service customers. The increased costs are principally for electrical power for pumping, periodic replacement and disposal of adsorptive filter media, treatment chemicals, and increased reserve amounts for pump and equipment replacement. A review of current City water operating budgets indicates that there is an annual budget shortfall of about $19,000, or the equivalent of $4.00 per month per customer. It is planned to increase user rates to make up this existing shortfall.

Project funding is expected to be provided by the South Dakota Department and Environmental Resources via the State Revolving Fund (SRF) program. The funding package may include grant and/or principal forgiveness funding. SRF loan funds will be recovered through user fees, and the annual loan repayment amount is expected to be in the range of $57,000 to $143,000 per year depending upon the proportion of loan and grant funds provided through the SRF program. The anticipated loan terms are 0% interest for 30 years. Loan repayment coverage of 110% is expected to be required and is included in the estimated loan repayment amounts. The anticipated overall effect on customer water rates is shown following.

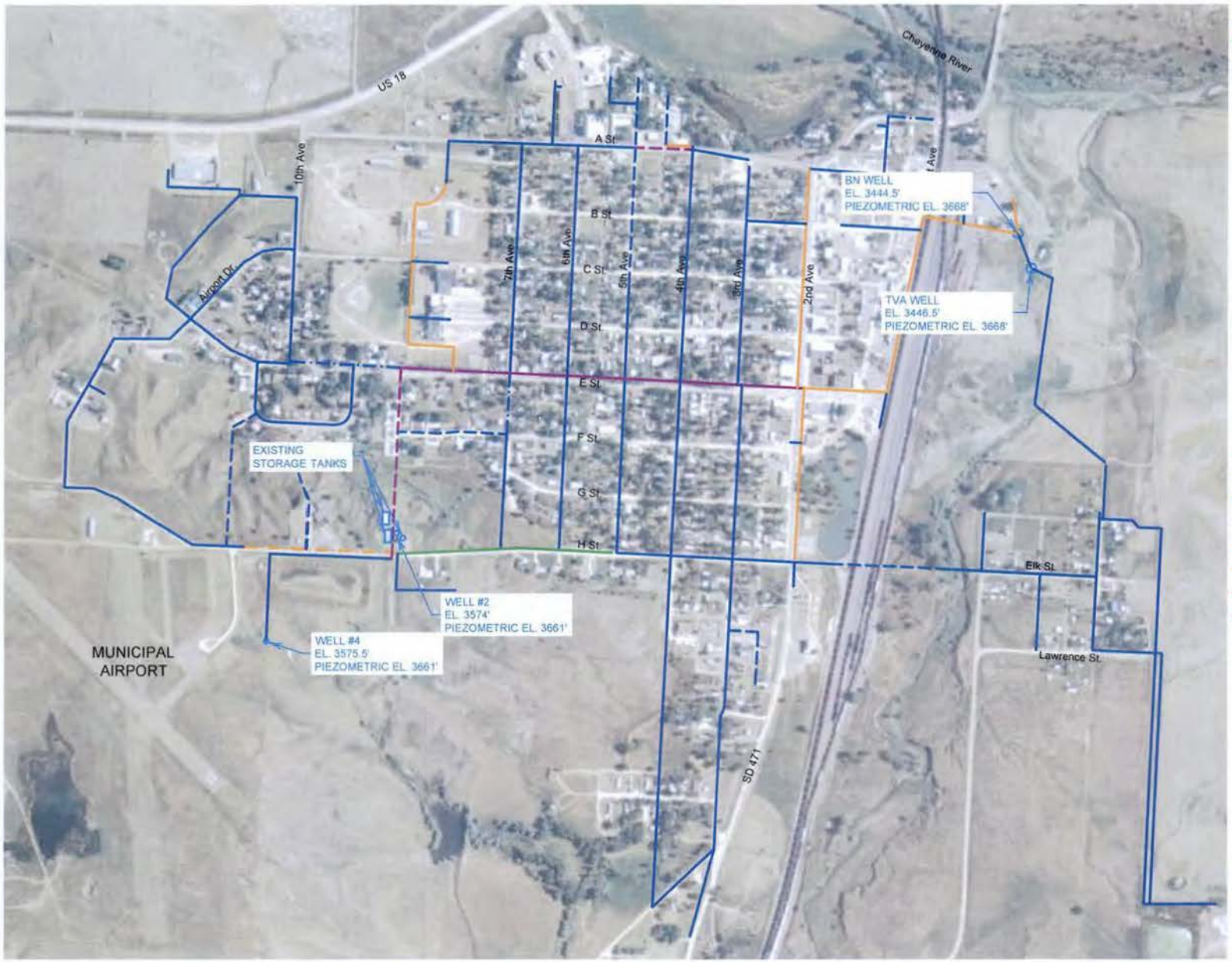
Impact on User Rates

Rate Component	Existing Rate	Estimated Future Rate
Basic Service (Up to 5000 gal/mo.)	$25.45/mo.	$25.45/mo.
Repair and Replace Surcharge	$10.00/mo.	$10.00/mo.
Increase in O&M Costs for New Treatment	-	$14.60/mo.
Current O&M Shortfall [1]	-	$4.00/mo.
Loan Repayment (0% to 60% PF)[2]	-	$11.90 to $29.75/mo.
Adjustment for water Sales >5000 gal/mo.[3]	-	($9.60)/mo.
Total Base Rate	$35.35/mo.	$56.35 to $74.20/mo.

[1] *Estimated current operational loss per user. The financial assessment is currently in progress.*

[2] *Loan repayment based upon anticipated range of principal forgiveness between 0% and 60%. Repayment rate at 110% coverage of loan amount.*

[3] *Assumes rate for water use above 5000 gal/mo. is increased from current $1.00/1000 gallons to $3.00/1000 gallons (23 mg/yr).*



AE2S

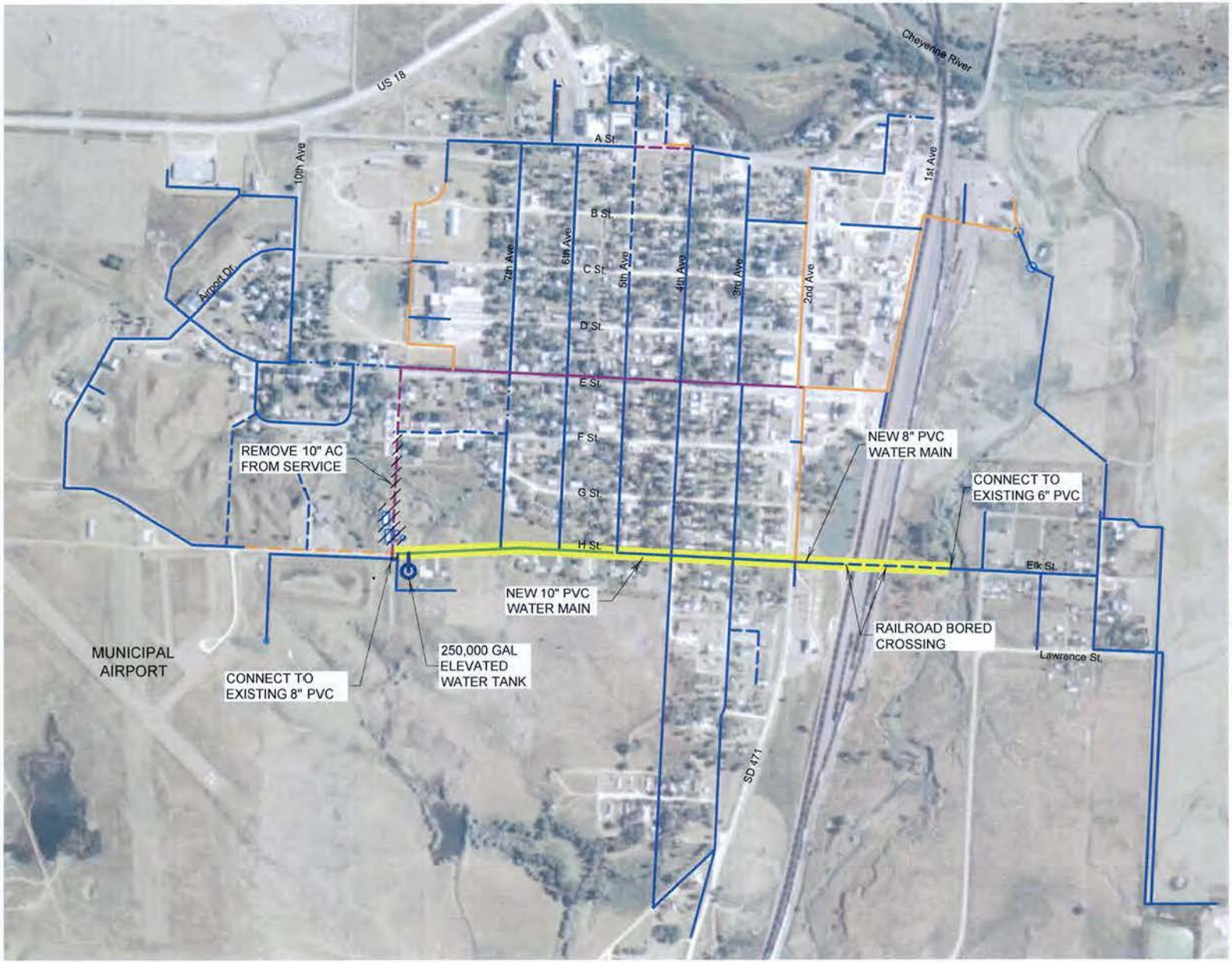
0 300 600

LEGEND

- 3" PVC WATER MAIN
- 6" PVC WATER MAIN
- 6" AC WATER MAIN
- 6" CI WATER MAIN
- 8" PVC WATER MAIN
- 8" CI WATER MAIN
- 10" PVC WATER MAIN
- 10" AC WATER MAIN
- EXISTING WELL

FIGURE 2
CITY OF EDGEMONT
EXISTING WATER
SYSTEM LAYOUT

February 10, 2015 3:30:58 p.m.
Drawing: 13134 EXISTING WATER SYSTEM.DWG (FOX) (P:\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)



AE2S

N

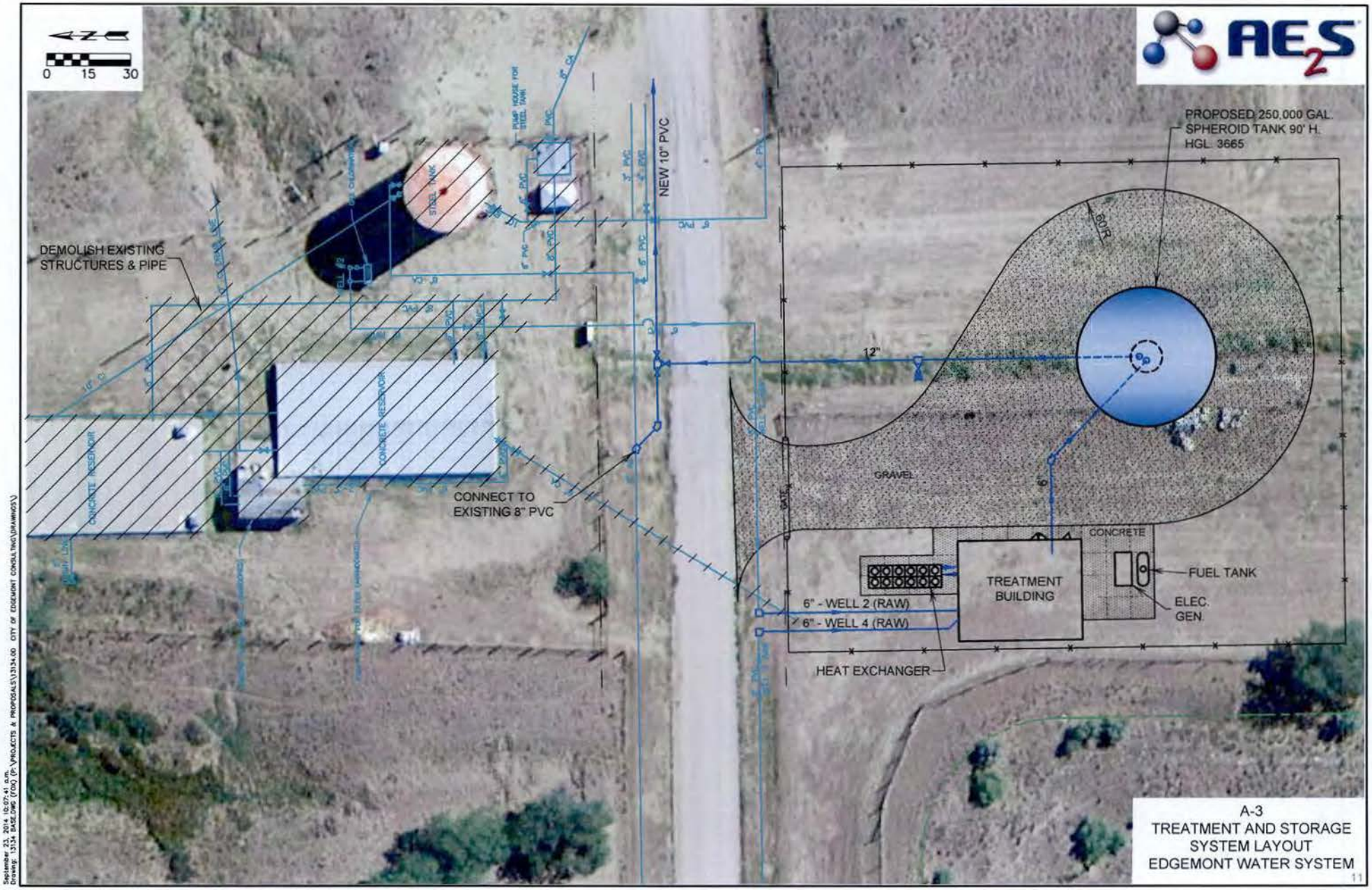
0 300 600

LEGEND

- PROPOSED WATER IMPROVEMENTS
- 3" PVC WATER MAIN
- 6" PVC WATER MAIN
- 6" AC WATER MAIN
- 6" CI WATER MAIN
- 8" PVC WATER MAIN
- 8" CI WATER MAIN
- 10" PVC WATER MAIN
- 10" AC WATER MAIN
- EXISTING WELL

A-6
CITY OF EDGEMONT
WATER DISTRIBUTION
SYSTEM IMPROVEMENTS

February 10, 2015 3:50:58 p.m.
Drawing 13134 EXISTING WATER SYSTEM.DWG (FOX1 (P:\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)



A-3
TREATMENT AND STORAGE SYSTEM LAYOUT
EDGEMONT WATER SYSTEM

September 23, 2014 10:07:41 a.m.
Drawing: 13134 BASE.DWG (FOG) (P:\PROJECTS & PROPOSALS\13134.00 CITY OF EDGEMONT CONSULTING\DRAWINGS\)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
1616 CAPITOL AVENUE
OMAHA NE 68102-4901

REPLY TO
ATTENTION OF

March 10, 2015

Planning, Programs, and Project Management Division

Mr. Bill Lass
Black Hills Council of Local Governments
730 E. Watertown Street, Suite 102
Rapid City, South Dakota 57701

Dear Mr. Lass:

The U.S. Army Corps of Engineers, Omaha District (Corps) has reviewed your letter dated February 25, 2015 (received March 2, 2015) regarding the environmental review of the City of Edgemont's proposal to construct improvements to their municipal water system in Fall River County, South Dakota. We offer the following comments for your consideration:

Your plans should be coordinated with the state water quality office that has jurisdiction within the area where the project is located to ensure compliance with federal and state water quality standards and regulations mandated by the Clean Water Act and administered by the U.S. Environmental Protection Agency. Please coordinate with the South Dakota Department of Environment & Natural Resources concerning state water quality programs.

If you have not already done so, it is recommended you consult with the U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks regarding fish and wildlife resources. In addition, the South Dakota State Historic Preservation Office should be contacted for information and recommendations on potential cultural resources in the project area.

If the proposed waterline construction crosses the floodplains of small drainageways and streams, flood-related problems should not occur if the lines are buried far enough below the beds of drainageways and streams to prevent exposure due to streambed erosion during periods of high floodflows. Any aboveground construction subject to flood damage, such as pump houses, should either be placed above, or flood proofed to, a level above the one percent annual chance flood elevation.

Since the proposed project does not appear to be located within Corps owned or operated lands, your plans should be submitted to the local floodplain administrator for review and approval prior to construction. It should be ensured that the proposed project is in compliance with the floodplain management criteria of Fall River County and the State of South Dakota. In addition, please coordinate with the following floodplain management office:

South Dakota Division of Emergency Management
Attention: Mr. Marc Macy
118 W. Capitol Avenue
Pierre, South Dakota 57501
Telephone: 605-773-3231
Fax: 605-773-3580
Email: marc.macy@state.sd.us

Any proposed placement of dredged or fill material into waters of the United States (including jurisdictional wetlands) requires Department of the Army authorization under Section 404 of the Clean Water Act. You can visit the Omaha District's Regulatory website for permit applications and related information. Please review the information on the provided website (http://www.nwo.usace.army.mil/Missions/RegulatoryProgram.aspx) to determine if this project requires a 404 permit. For a detailed review of the permit requirements, preliminary and final project plans should be sent to:

U.S. Army Corps of Engineers
Pierre Regulatory Office
Attention: Mr. Steve Naylor, CENWO-OD-R-SD
28563 Powerhouse Road, Room 120
Pierre, South Dakota 57501

If you have any questions, please contact Ms. Amanda Ciurej of my staff at (402) 995-2897 or amanda.k.ciurej@usace.army.mil and reference PD# 6600 in the subject line.

Sincerely,

Eric A. Laux
Chief, Environmental Resources and Missouri River
Recovery Program Plan Formulation Section

USDA
United States Department of Agriculture

March 19, 2015

Bill Lass – Senior Planner
Black Hills Council of Local Governments
730 E. Watertown Street, Suite 102
Rapid City, SD 57701

RE: Environmental Review for
Improvements and Upgrades of the Municiple Water System for theCity of Edgemont, SD

Dear Dear Mr. Lass:

Thank you for the opportunity to provide Farmland Protection Policy Act (FPPA) review of this project. The project as outlined will have **no effect** on prime or important farmland.

If you have any questions, please contact me at (605) 348-2889 ext. 104.

Sincerely,

TIMOTHY NORDQUIST
NRCS Conservation Agronomist

Natural Resources Conservation Service
414 E Stumer Road, Suite 700
Voice: 605.348.2889 ext 104 Fax: 855.256.2553
An Equal Opportunity Provider and Employer

DEPARTMENT OF GAME, FISH, AND PARKS
Foss Building
523 East Capitol
Pierre, South Dakota 57501-3182

February 26, 2015

Mr. Bill Lass
Black Hills Council of Local Governments
730 East Watertown St.
Suite 102
Rapid City, SD 57701

RE: Municipal Water System Upgrades
Edgemont, South Dakota

Dear Mr. Lass:

The South Dakota Department of Game, Fish and Parks, Wildlife Division, has reviewed the above project involving several improvements to the existing water system in the City of Edgemont, South Dakota.

At this time, the project as proposed will have no impacts on fish and wildlife resources. If the project design changes, please submit the revised project for review.

Thank you for the opportunity to provide comments on this project. If you have any questions, please contact me at 605.773.6208.

Sincerely,

Leslie Murphy

Leslie Murphy
Senior Biologist

BLACK HILLS COUNCIL
OF LOCAL GOVERNMENTS

RECEIVED
MAR 03 2015
U.S. FISH & WILDLIFE SERVICE

This constitutes a report of the Department of the Interior prepared in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). We have reviewed and have NO OBJECTION to this proposed project.

3/27/15 Scott Larson
Date Field Supervisor

February 25, 2015

U.S. Dept. of the Interior
Fish and Wildlife Service
420 S. Garfield Ave.
Pierre, SD 57501-5408

Dear Sir or Madam,

I am requesting your written comments regarding an Environmental Assessment that our agency is conducting on behalf of the City of Edgemont, SD. The City is proposing to use Federal Drinking Water State Revolving Loan Funds (SRF) and other sources of funding to implement extensive improvements and upgrades to the municipal water system. Due to the proposed use of Federal monies, a complete Environmental Assessment is required.

LOCATION AND PROJECT OVERVIEW: The City of Edgemont is located in Fall River County in extreme southwestern South Dakota (refer to maps) and has a population of approximately 774 persons. The City is proposing several major improvements to its existing water system including:

- Installation of well casing liner pipe in two existing City wells;
- Construction of well by-pass piping and pitless adaptors as well as installation of submersible well pumps for these same two wells;
- Construction of a water treatment facility with the capabilities to cool the water, reduce radiological contaminants, chlorine disinfection, and anti-scaling remediation of hard water;
- Construction of a 250,000 gallon elevated storage tank and demolition of existing substandard ground storage tanks and steel standpipe reservoir;
- Installation of new water main to connect the new storage tank to the existing distribution system.
- Necessary replacement of old water main segments;
- Other work related to the above improvements as well as necessary engineering, project administration, etc.

More specific details on the above improvements can be found in the attached "Executive Summary" prepared by the City's consulting engineer and in the attached maps. Depending

730 E. Watertown Street, Suite 102 ■ Rapid City, SD 57701 ■ (P) 605.394.2681 ■ (F) 605.394.6140 ■ www.blackhillscouncil.com

upon funding availability, the final project scope may be reduced from that described above. Other than that, minor project variations are possible as the project proceeds. In the unlikely event that major increases in project scope are proposed that are not reflected in this letter, we will contact you for additional comment.

PROJECT NEED: Generally speaking, much of the existing Edgemont municipal water system is aged and deteriorated. Furthermore, there are specific concerns related to: supply reliability, water temperature, compliance with State Water Quality Standards, potential sources of bacterial contamination, and inadequate water pressure. The proposed project will remedy these issues.

ATTACHMENTS AND PROJECT IMPACTS: To assist in your review of this project, attached please find a vicinity map of Edgemont as well as three maps from the City's engineering report. No significant environmental effects are anticipated from this project. Most areas impacted by the project are portions of the existing water system and have been previously disturbed. The area where the new treatment facility and tank will be constructed is generally level grassland.

COMMENT PERIOD: Please provide me with your written comments within 30 days. Even if you have no comments or concerns, we do need your written response within 30 days in order for the City to apply for the required funding. Please note you that you may have been contacted by a separate agency requesting your comments relative to an Environmental Assessment for this same project. That is a separate assessment for different Federal funding and does not eliminate the need for you to respond to this letter.

If you have any questions regarding this matter or need further information, please contact me.

Sincerely,

Bill Lass

Bill Lass, Senior Planner

Encl.

8.3.20 CULTURAL RESOURCES EFFECTS ASSESSMENT SUMMARY

Applicant City of Edgemont, SD **Project Contact** Mr. Carl Shaw, Mayor

Address PO Box A, Edgemont, SD 57735-0809 **Telephone Number** 605-662-7422

Legal Location of Project (also refer to attached maps) -

Various locations within the following generally legally described areas (also refer to Cultural Resources Inventory and Site Forms):

- Reservoir Tract and Dutoit Tracts in S1/2, SW1/4, NW1/4 Section 1, T9S, R2E.
- W1/2, SW1/4 less Dutoit Dam Tract, Less Rancho Hacienda Estates Addition in Section 1, T9S, R2E.
- Lot A, Tract 3, Section 2, T9S, R2E.
- Portions of the H-Street right-of-way.
- Portions of the BNSF railroad right-of-way.

City Edgemont, SD **County** Fall River **Project No.**_____

Project Description:

The City is proposing several major improvements to its existing water system including:

- Installation of well casing liner pipe in two existing City wells;
- Construction of well by-pass piping and pitless adaptors as well as installation of submersible well pumps for these same two wells;
- Construction of a water treatment facility with the capabilities to cool the water, reduce radiological contaminants, chlorine disinfection, and anti-scaling remediation of hard water;
- Construction of a 250,000 gallon elevated storage tank and demolition of existing substandard ground storage tanks and steel standpipe reservoir;
- Installation of new water main to connect the new storage tank to the existing distribution system; and,
- Other work related to the above improvements as well as necessary engineering, project administration, etc.

More specific details on the above improvements can be found in the attached "Executive Summary" prepared by the City's consulting engineer and in the attached maps. Depending upon funding availability, the final project scope may be reduced from that described above. Other than that, minor project variations are possible as the project proceeds. In the unlikely event that future major increases in project scope are proposed the SHPO will be once again contacted for comment.

The need for this project generally stems from the fact that much of the existing Edgemont municipal water system is aged and deteriorated. Furthermore, there are specific concerns related to: supply reliability, water temperature, compliance with State Water Quality Standards,

potential sources of bacterial contamination, and inadequate water pressure. The proposed project will remedy these issues.

For projects that involve new construction on vacant land please include information as to what previously occupied the site and whether that site has any known historic or archaeological significance.

Much of the land to be affected by the project has been previously disturbed. Some of this land is currently vacant whereas some is occupied by existing structures or is otherwise developed. All land and structures to be impacted by the project have been included in a Cultural Resources Inventory and an associated series of site forms (see attached) completed by the Edgemont's consulting archaeological firm. With some management recommendations being made, the overall finding in these documents is "No Adverse Effect to Historic Properties."

Please describe below or attach information supporting the determination of effect.

Please refer to attached Cultural Resources Inventory and related site forms.

A map showing the project location is required. Drawings or photographs may also be helpful.

Please refer to maps and photos contained in the attached Cultural Resources Inventory and the site forms.

Please indicate the effect the project will have on cultural resources based on the review performed:

_____ No Historic Properties Affected: There are no historic properties present or the undertaking will not affect any properties eligible for or listed in the National Register of Historic Preservation.

XX____ No Adverse Effect: This property is listed in or eligible for the National Register of Historic Places. This project will have no adverse effect upon the historic significance of the property because the proposed undertaking meets the Secretary of the Interior's Standards for the Treatment of Historic Properties.

_____ Adverse Effect: This property is listed in or eligible for eligible for the National Register of Historic Places. This project will have an adverse effect upon the historic significance of the property. (Attach proposed mitigation measures that may minimize the adverse effect.)

Prepared by: Bill Lass, Senior Planner _____ Date: 2/27/15

DETERMINATION OF EFFECTS

I have reviewed the project description and the information provided concerning historical and cultural effects of this project. Based on that review, the Department of Environment and Natural Resources concurs with the applicant's determination of the effects that the construction of this project will have on historical or cultural resources. Additionally, if historical or cultural resources are discovered during project construction, the contractor is required to cease construction and notify the State Historical Preservation Officer.

Approved by: _____ Date _____

SD Department of Environment and Natural Resources

File: Edgemont-Water-Cultural-Assmt-Form-2-26-15-WGL.doc

Quality Services, Inc.

Archeology-Paleontology-History-NEPA-Consultation-Training
1621 Sheridan Lake Road, Rapid City, SD 57702-3432
Email: info@qualityservices.us.com
Phone: 605-388-5309 Fax: 605-388-5319 Cell: 605-209-0265

SOUTH DAKOTA ARCHEOLOGICAL RESEARCH SITE FORM

Site No. 39FA2579

County: Fall River **Site Name:** Edgemont Water System Containment Pond

NR Status: ***Not Eligible*** **Other No:** Click here to enter text.

Map Reference: Edgemont 1980 **Owner:** State/local

Arch. Region: Black Hills **Topo pos:** Hill Top

Vegetation: Mixed Grass **Substrate:** Silt **Land Use:** Industrial

UTM Centroid: Coord System: NAD 83 **Zone:** 13 **N/** 4794379 **E/** 594361

Surf. Visibility: 30% **Site Elevation:** 1,089 m **Condition:** Extant

Site Dim: 90 m N-S, 183 m E-W **Area:** 1.64 ha **Depth:** Enter text.

Nearest Water: Type: Permanent Spring **Name:** Click here to enter text.

Distance: 108 m **Elevation:** 1,089 m **Direction:** S **Bank:** N

LOCATIONS

Legal Locations	Section	Twp	Rg
N/NW/NW/SW	01	09S	02E
NE/NE/NE/SE	02	09S	02E

COMPONENTS

Site Type	Time Period	Cultural Affiliation
Depression	A.D. 1861-	Euro-American
Artifact Scatter	A.D. 1861-	Euro-American
Choose an item.	Choose an item.	Click here to enter text.
Choose an item.	Choose an item.	Click here to enter text.
Choose an item.	Choose an item.	Click here to enter text.

COMMENTS

Environmental Description

This water containment pond is located on a hilltop at the southwestern edge of the City of Edgemont. The area to the east has been developed for suburban residences. To the west is a small airport. North, at the base of the hill, are urban residential areas. Areas to the south are rolling pasture. The area of the containment pond has been heavily landscaped for construction of the pond. It is covered in mixed grasses and there are several examples of sagebrush and Russian Olive trees scattered throughout the compound. Prickly pear cacti are also present. Ground surface visibility ranged from 10 to 60%, with an overall average of 30%.

Site Description & Contents

39FA2579 is an earthen embankment water containment pond with an equipment storage area at its western end.

Water containment pond and storage compound looking north. M. Carpenter 10/10/2014.

The pond area is approximately 30 feet deep and has an earthen embankment collar to increase capacity. There is a perforated drain pipe in the northeast corner. An employee of the City Water Department stated that the pond was constructed by the U.S. Army Corps of Engineers, but had no information on the date it was built. He was also uncertain if the containment pond was ever actually utilized.

Water containment pond looking west. M. Carpenter 10/10/2014.

Storage portion of compound looking north-northeast. M. Carpenter 10/10/2014.

Currently, the City Water Department uses the western portion of the fenced compound surrounding this earthwork to store equipment, concrete storm pipe and manhole collars, culvert pipe, fencing material and other objects.

Evaluation/Collection Methods

This site was recorded during an intensive pedestrian inventory of the Water Department property on which it is located. Photos were taken of the earthwork and storage area, and the site was mapped using aerial photos. No collections were made as the compound is in active use as a storage area. Subsurface testing was not conducted as the earthwork area was completely disturbed during construction and the artifacts present are modern in origin.

Site Interpretation

This site is a modern water containment pond that appears to have been constructed within the last 30 years, but may be earlier.

National Register of Historic Places Eligibility

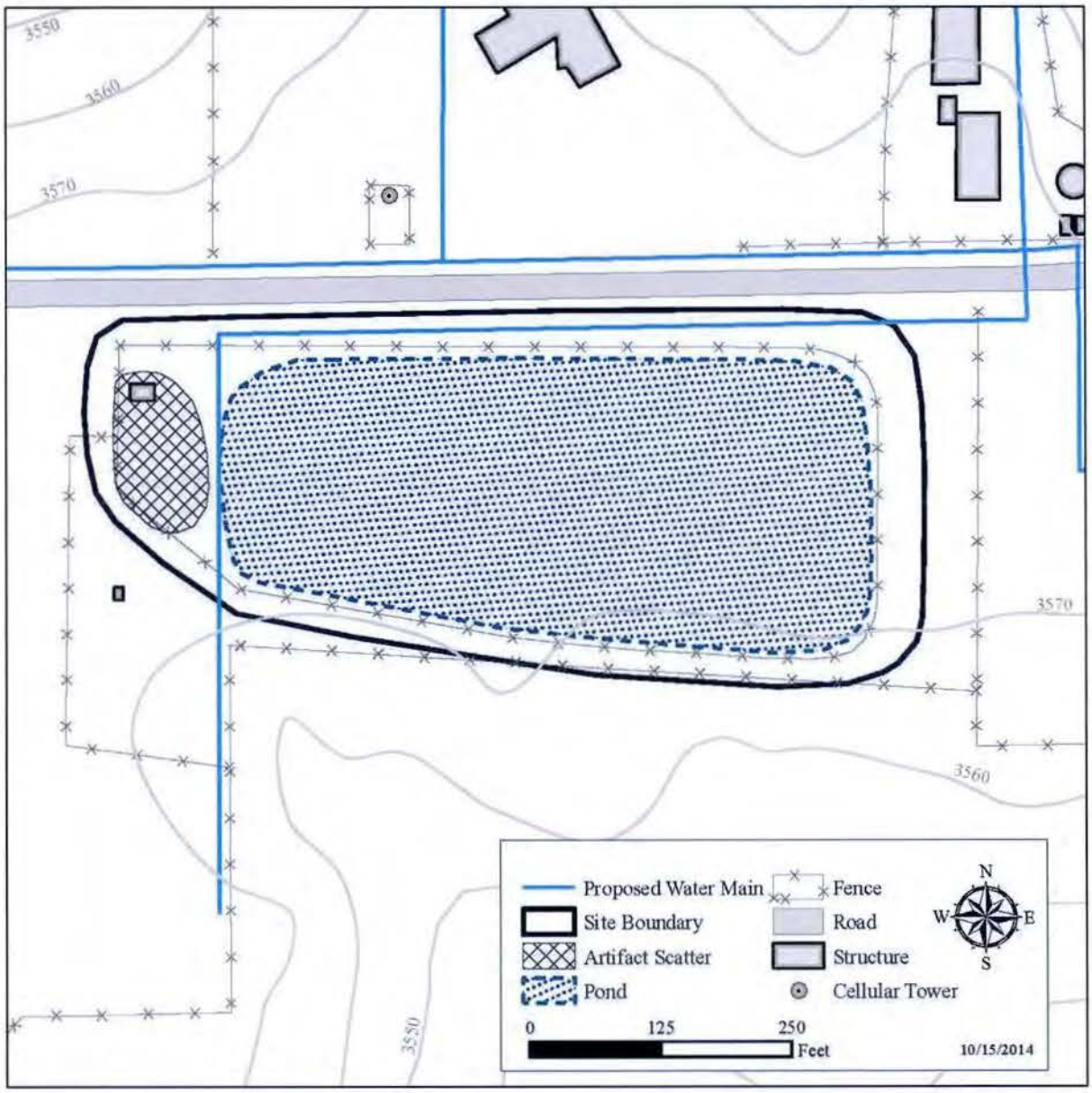
39FA2579 does not appear to fit any of the eligibility requirements for inclusion on the National Register of Historic Places. While it is a part of the water system for the City of Edgemont, it does not appear to be an important part of it. It was constructed by the U.S. Army Corps of Engineers and is very similar to thousands of others built across the country, both with public and private funds. This earthwork will not provide important information about the development of the City of Edgemont as it appears to be recent and does not appear to have been utilized.

Management Recommendations

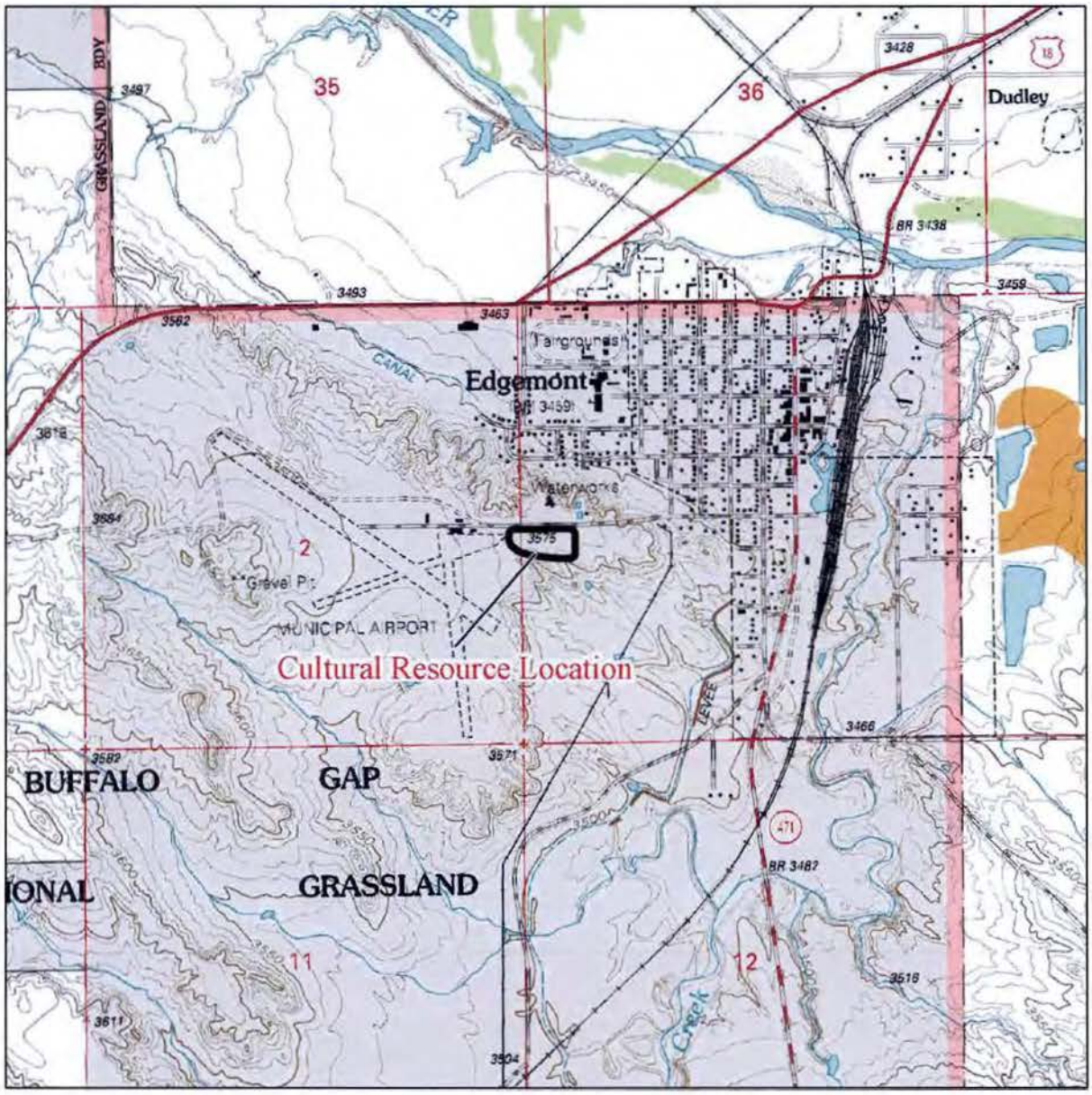
No further work or protection recommended.

Owner Name: City of Edgemont
Owner Address: Edgemont, South Dakota
Form Prepared by: Mark Carpenter Date: 10/15/2014
Project Name: SD3914057 Edgemont Water Mains

ATTACHED MAPS



Site Plan



Site Location Map 1:24,000
Township 9 South, Range 2 East, Section 1
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

LEVEL III

CULTURAL RESOURCES INVENTORY

OF THE

CITY OF EDGEMONT WATER MAIN PROJECT

Fall River County, South Dakota

T8S, R2E, section 36, and T9S, R2E, sections 1 and 2

by

Mark Carpenter

Quality Services, Inc. *Project #SD3914057*

December 15, 2014

Mark Carpenter
Principal Investigator

Quality Services, Inc.
Archeology, History, Paleontology & Tribal Consultation
1621 Sheridan Lake Road
Rapid City, South Dakota 57702
Phone 605-388-5309
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Abstract

Level III pedestrian and windshield cultural resources inventory was conducted for the proposed City of Edgemont Water Facilities, which are within the South Fork Cheyenne Study Unit. The city proposes to place water pipelines, in approximately of 10.4 miles of corridor, located along roads through the city and in off road easements. Edgemont also plans to demolish and remove a steel water tank, two concrete cisterns, and two other associated structures. A new water tower, water treatment building, heat exchanger, salt silo, electric generator, fuel tank, a large concrete pad and a gravel base access area are proposed for the area east of an existing containment pond structure.

One new segment of previously recorded cultural resource 39FA2003 was located within the project area as was a newly recorded irrigation ditch, 39FA2330. An existing containment pond, 39FA2579, with an associated concrete storage building, FA00000360, were recorded as well.

The five buildings to be torn down within the reservoir compound were also recorded. These include, a maintenance shed/filter house: FA00000361, two concrete cisterns: FA00000362 and FA00000363, a valve/pump house: FA00000364 and a riveted steel standpipe water tank: FA00000365.

The 39FA2003 segment is an active rail yard which is considered ***eligible*** for the National Register of Historic Places under the state railroad context. Irrigation ditch 39FA2330 is recommended ***unevaluated*** until further historical research can be conducted. Site 39FA2579 and the six structures recorded during this project are recommended ***not eligible*** for the National Register due to a lack of integrity and/or being extremely common.

As 39FA2003 is an active railroad, this resource will be avoided by boring underneath or use of existing conduit, if present. It is recommended that 39FA2330 also be bored underneath. Site 39FA2579 and the six recorded newly structures are considered ***not eligible*** for the NRHP and the planned work in these areas will thus have **no effect** on them.

A project determination of "no adverse effect to historic properties" is recommended for the project.

Location

T8S, R2E, section 36; and T9S, R2E, sections 1 and 2
Fall River County, South Dakota
Pedestrian Inventory Acres: 32.57 Windshield Inventory Acres: 94.63 Total Acres: 127.2

Project Description

The City of Edgemont proposes to place water mains in approximately of 10.4 miles of roads through the city, and in off road utilities easements. They also plan to demolish and remove a steel water tank, two concrete cisterns and two other associated structures. A new water tower, water treatment building, heat exchanger, salt silo, electric generator, fuel tank, large concrete pad and a gravel base access area around the water tower are also proposed. The project may be funded by state or federal grants, loans, or guarantees.

Compliance with Federal Laws, Regulations and Other Policies

Cultural Resources inventories were conducted for this project to aid in complying with Section 106 of the National Historic Preservation Act (NHPA), as amended, and with the National Environmental Policy Act (NEPA). Activities undertaken to comply with these Acts must also be in full accord with all other Federal laws and regulations. Section 106 of the NHPA requires determinations of what potential direct, indirect and cumulative effects the proposed activities of a project would have on cultural resources. NEPA compliance requires assessing the potential effect of activities on the environment, which includes cultural resources. NEPA also requires that these potential effects be disclosed to the public, and provides for public comment.

Figure 1. View of project route in southwestern portion facing north.
Photo taken at corner of airport access road and H Street. M. Carpenter 10/10/2014.

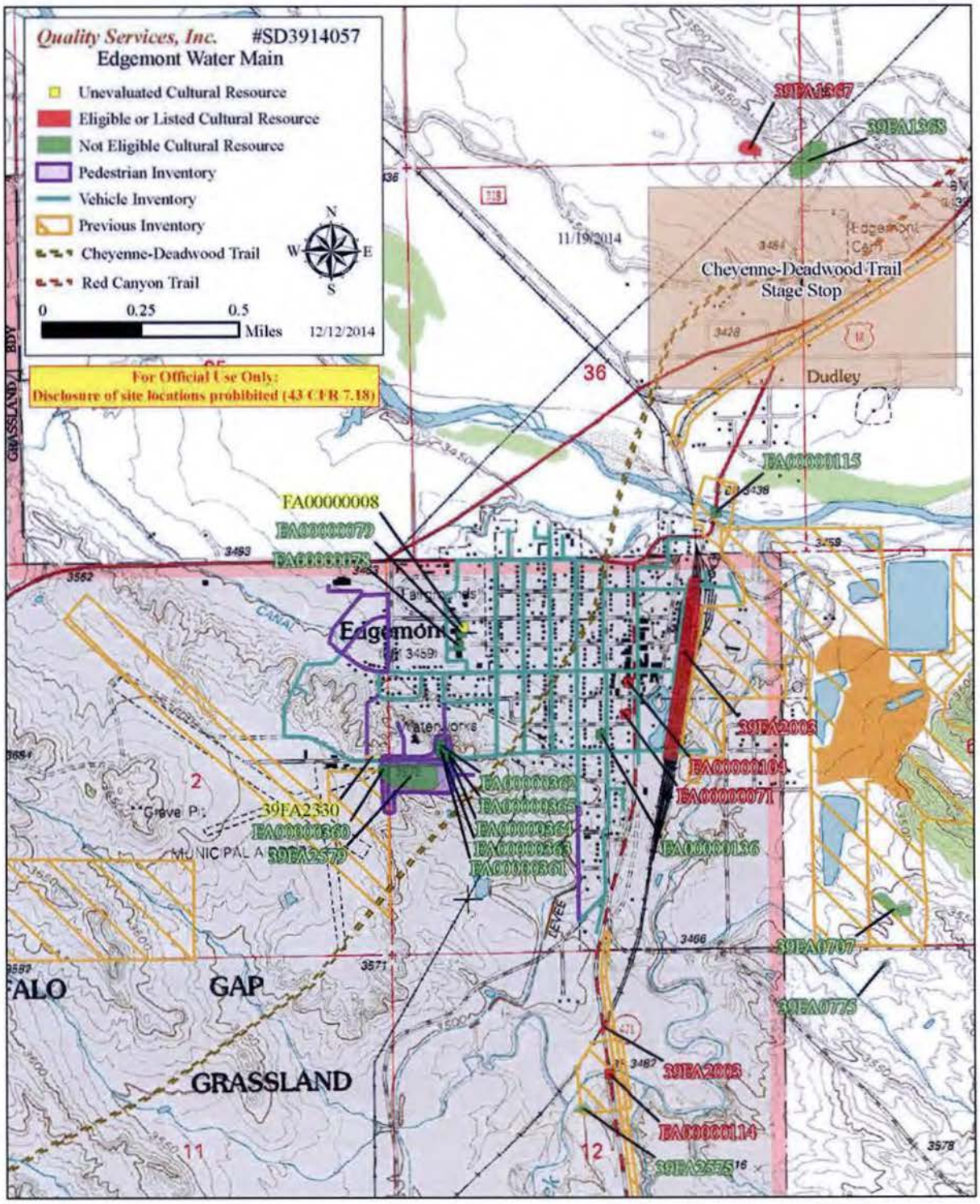

Figure 2. City of Edgemont Water Mains Project Map.
T8S, R2E, section 36, and T9S, R2E, sections 1 and 2, Fall River County, South Dakota
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

Environment

Setting

The project area is, for the most part, adjacent to roadways, both in and surrounding the City of Edgemont. However, two segments of project area in the south and one in the northwestern corner have easements that run through partially disturbed rolling pasture.

The majority of the project area is located within the City of Edgemont on the T-2 (second oldest) terrace of the Cheyenne River at its confluence with Cottonwood Creek. Both streams are mapped as perennial water sources and several entrenched seasonal drainages branch out from these streams. The T-2 terrace is at least 20 to 30 feet higher than the current level of both Cottonwood Creek and the Cheyenne River, and both streams have broad channels cut by meanders. This indicates that flood deposits on the T-2 terrace only occur during extreme events. Given the semi-arid nature of the region, the Edgemont area is not likely to be subject to severe flooding, so the likelihood of finding buried cultural resources is minimal.

There is also a warm spring just south of the project area near the Edgemont Airport. This spring has been modified by the City of Edgemont to redirect part of the flow of the spring into the water system pipeline.

Figure 3. Typical urban setting in western portion of project area, looking south.
M. Carpenter 10/10/2014.

In several places, the southern portion of the water pipeline traverses up slope to the top of a ridge where the southern edge of the city is located. It also runs along the northern edge of that ridge. A reservoir compound and a proposed water tower with associated developments also sit

on the northern edge of this ridge. The ridge forms the northern edge of a broad rolling plain. The foothills of the Black Hills begin northeast of the project area.

Figure 4. Developed warm spring adjacent to southwestern portion of project looking west. M. Carpenter 10/10/2014.

Figure 5. Central portion of project area looking north. Landscape within Edgemont's residential neighborhoods have been heavily modified for housing development. M. Carpenter 10/10/2014.

Modern developments are found in and around the survey area. The ground in the pipeline corridor has been previously disturbed from construction of roads, ditches, buildings, lawns, flood control earthworks and buried utilities. The buried utilities include, but are not limited to, storm sewers, gas lines and existing portions of the City of Edgemont water system.

Climate

Regional climate consists of an average temperature of 48°F, with an average annual high of 63°F and average low of 33°F. The warmest months are July and August with an average temperature around 90°F, while the coldest months are December and January, with an average high of 36°F and low of 9°F. The total average yearly precipitation is around 16.29 inches with the highest amounts falling from May through July. Average snowfall is around 33 inches.

Flora

In the city, vegetation in and adjacent to the project corridor is primarily lawn grasses, accompanied by small shrubs, decorative bushes, small local and imported trees, as well as several cottonwoods. In the areas where the pipeline runs through undeveloped land, the vegetation is primarily pasture grass, with small patches of deciduous trees and shrubs in the seasonal drainages. Prickly pear cacti are also present in the pasture areas on rare occasions. Pasture grasses appear to be mixed. Most look like fescue related cattle forage, with vetch mixed in at some locations.

Figure 6. Southern portion of project area looking east.
M. Carpenter 10/10/2014.

In one of the drainages on the southwest portion of the project, man-made landscaping has helped that drainage retain more water, resulting in a narrow area of wetlands grasses, and an

approximately 20 by 40 foot area of cattails, and other reeds. Cattail reeds are also present in a shallow man-made drainage at the base of the slope below where the Reservoir compound sits (Figure 5). Finally, there is a very small area of wet-area plants surrounding the warm spring in the airport area just south of the project (Figure 4).

Figure 7. Disturbed pasture area in northwest corner of project area looking northeast. M. Carpenter 10/10/2014.

Figure 8. Typical ground surface visibility in pasture in southern portion of project. M. Carpenter 10/10/2014.

Ground surface visibility within Edgemont, ranged from 0% to 20% in well-kept lawns to as much as 60% where lawns, fairgrounds and city facilities had patchy grass cover. Much of the urban portion of this project was in landscaped lawn and roadway, which also had concrete sidewalks. In the area where the water pipeline runs parallel to and crosses the rail yard, there is an estimated 100% surface visibility. However, the ground has been highly disturbed and subject to fill episodes, indicating that the ground surface is not natural.

Figure 9. Typical ground surface visibility in disturbed areas of project.
M. Carpenter 10/10/2014.

In portions of the survey area that cross pasture, and/or only partially disturbed ground, the surface visibility ranged greatly. Areas in the seasonal drainages that had been altered to retain water had surface visibility between 10% and 30%. The slopes and high points above these drainages had better surface visibility, in most cases approaching 50%. These high places, mostly on finger ridges that are part of the northern edge of the T-1 terrace, came closest to what should be the natural vegetation regime within this region. Finally, in the pasture areas on the T-1 terrace south of H Street, where residential development had not occurred, the ground was covered in planted forage grasses. Ground surface visibility in these areas ranged from 20 to 40%, depending on recent grazing and episodes of ground disturbance.

Culture History Overview

The South Fork Cheyenne archeological region encompasses the South Fork of the Cheyenne River drainage basin in the southwestern portion of South Dakota with the exception of the

Black Hills, southeastern Pennington County, and Shannon County (Winham and Hannus 1991: 28-2). This area consists of southeastern Meade County, and portions of Pennington, Custer, and Fall River Counties (Winham and Hannus 1991: 28-2). The area is characterized by rolling grasslands broken by deeply-entrenched stream channels (Winham and Hannus 1991: 28-2).

The First Americans c. 15,000 B.P.

Between 25,000 to 11,000 years ago, bitter cold temperatures during the late Wisconsin glaciation caused water to become trapped in advancing ice sheets. The result was a drop in world sea levels that effectively exposed low-lying landmasses, and the original immigrants to the Americas are believed to have arrived by means of an exposed land bridge connecting Siberia with Alaska.

The pathway for further migration south is still under debate. Since the 1950s, conventional understanding was that an "ice-free corridor" existed between the Cordilleran and Laurentide ice sheets as they retreated north when warmer temperatures returned around 15,000 years ago. Without this pathway, many scholars felt that migration into the New World would have been impossible due to the existing glaciers. However, a "growing body of evidence indicates that pathway between the great glaciers of the Last Ice Age was closed – in fact, the way south may have been blocked until the centuries after the dawn of Clovis" (Dixon 1999).

Another recent and popular hypothesis is that Early Americans migrated to the New World via a Pacific Ocean coastal route. Recent work by archeologists and paleontologists has shown that the Northwest coast of North America was not always covered by ice as once thought (Dixon 1999; Dixon and Heaton 2000). In fact, there is evidence that ancient life existed along this coast for tens of thousands of years. Jim Dixon and Tim Heaton's excavation of the coastline has uncovered a continuous record of caribou, fox, and bear bones dating back 50,000 years (Dixon and Heaton 2000). Furthermore, the western coastline was likely more extensive during ice ages. Sea levels were significantly lowered as much of the earth's water was trapped in glacial ice. This, along with the isostatic effects on land masses from the weight of the glaciers, would have exposed substantial tracts of land along coastline providing a route further south.

Archeological sites dating to such antiquity are extremely rare, and only a handful of these sites exist in the Americas. The most notable and intensely investigated site is the Monte Verde site in Chile, South America (Dillehay 1997). This site contained wooden huts, hearths, a wish-bone-shaped structure, and several bone and stone artifacts that date to between 14,050 and 13,600 years ago [cal]. Other sites include the Chesrow Complex in Southeastern Wisconsin (Overstreet 1993, 2000), the La Sena and Jensen site in central Nebraska (Holen 1994, 1995; Holen and May 2002), the Meadowcroft Rockshelter site in southwestern Pennsylvania (Adovasio et al. 1978; Adovasio and Page 2002), sites from the Old Crow Basin in Canada's Yukon Basin (Bonnichsen 1979; Irving et al. 1989), and the Cactus Hill Site in southern Virginia (Dixon 1999; Monastersky 2000; Adovasio and Page 2002).

Although many of these sites have not received complete scientific acceptance, the archaeological evidence appears to support regional adaptation underway 12,000 years ago, and the Early Americans emphasized the local environments for subsistence, which included both a variety of floral and faunal resources (Dixon 1999). Furthermore, both genetic and linguistic

studies are providing mounting evidence that there were multiple migrations of people, and they were not of a shared, single biological or cultural stock (e.g. Schurr and Wallace 1999; Nichols 1990). In other words, the first Americans were likely made up of several people and cultures that migrated from the Old World, and they adapted to many different environments in several different ways.

Clovis, Folsom, & Paleo-Indian c. 13,400[cal]-7600 B.P.

Towards the end of the Wisconsin glaciation, the Plains environment harbored big-game species such as the mammoth and Ice-age bison adapted to the periglacial environment and the seasonal extremes of the times. During this time a new culture, named Clovis after the early archaeological excavations in Clovis, New Mexico, began in the Americas. Based on the lack of any definite occurrence of the Clovis material culture, such as the Clovis projectile point, north of the ice sheets or in the Artic, Clovis is believed to be the first truly indigenous North American culture.

The Clovis tradition people likely lived in highly mobile small bands of people armed with a shared tool kit that included the diagnostic fluted lanceolate Clovis point, a diagnostic crescent moon-shaped biface, gravers, a variety of end scrapers, and a blade-technology with cutting and scraping tools made from the blades. The discovery of kill sites in the western United States have tended to emphasize a life-way based on specialized hunting of now extinct Ice-age big-game animals such as mastodons and mammoths. Martin (1967) even argued that the success of Clovis hunters largely contributed to the megafaunal extinction. However, more recent research has convincingly demonstrated that this type of subsistence was not a widespread important role in Clovis subsistence, and the Clovis people appear to have emphasized a variety of flora and fauna (Anderson and Sassaman 1996; Griffin et al. 1988; Bryan 1991).

Archaeological manifestations associated with the Clovis time period are rare and usually consist of isolated surface-find projectile points. Well known in Plains archaeology, the Lange-Ferguson site in Shannon County is the only Clovis site to be investigated in the State to date (Hannus 1994). This Clovis site is a mammoth kill/butchery locality with direct evidence for the use of mammoth bone tools in the butchering process. No Clovis sites have been found in the South Fork Cheyenne archaeological region to date. However, a site containing a Goshen component (39FA1277) has been found and recorded within the South Fork Cheyenne region.

The Goshen cultural complex is an early Paleo-Indian cultural complex that is known to date to about 11,000 B.P. and is thought by many Plains archaeologists to represent a transitional culture between Clovis and Folsom (Frison 1991: 45). It may be suggested that Goshen is a transitional culture between Clovis and Folsom given the fact that some Goshen sites have been found associated with mammoth remains where as it appears that by Folsom times mammoth had become extinct (Frison 1991: 45). At the lowest level of Kaufman cave in northern Wyoming, a Goshen point was found in direct association with a broken mammoth scapula (Frison 1991: 74). In addition, Goshen points are typologically and morphologically neither Clovis nor Folsom, but do retain characteristics of each (Frison 1991: 45). Goshen points demonstrate a pressure flaking technology and final edge retouch like Folsom, but are basally thinned and not fluted (Frison 1991: 45).

The Younger Dryas cold snap characterized by a worldwide cold interval followed Clovis times and lasted between 11,000 and 9650 B.C. [cal]. As a drier climatic regime resulted in the retreat of spruce forest and the expansion of grassland on the northern plains, many of the Ice-age megafauna died. Bison, however, became well adapted to this environment and the size and mobility of the herds likely increased significantly. Similar to the landscape today, in the Black Hills proper pine forests characterized this area while grasslands surrounded the Hills at the lower elevations.

During this time period, the Folsom complex emerged. This complex is known to date from about 11,000-10,000 B.P. and is easily identified by well-made lanceolate points fluted entirely up to their tips, and the people relied heavily on the bison herds and other big game for subsistence. Bamforth (1988) hypothesizes that as bison herds grew in size; this food resource became more predictable. Folsom groups reacted by using regular and preferred locations, engaging in communal hunts, and concentrating into larger social groups. As evidenced by their specialized point production, this may have led to greater social complexity from Clovis to Folsom.

Like Clovis, Folsom archeological remains are rare and are typically surface finds. No Folsom sites have been reported or recorded within the South Fork Cheyenne archaeological region.

Following and partly overlapping the Folsom period around 10,500 to 9,000 B.P. in addition to a climatic shift more similar to modern times, many regional adaptations appeared in North America. Many Plains archaeologists refer to this period as the Middle Paleo-Indian period (see Frison 1991). This period includes the Alberta, Hell Gap, and Agate Basin cultural complexes. These groups continued to emphasize a subsistence based on bison hunting and were involved in massive bison drives that probably required intimate knowledge of the landscape and several people.

Beginning at about 9,000 B.P. and continuing on to about 8,000 B.P., it appears that Plains groups began to develop a hunting/gathering subsistence mode that was focused on a more generalized resource base. "There is an abrupt change from the stemmed projectile points with transverse pressure flaking of the Middle Paleo-Indian period to the lanceolate style with parallel-oblique flaking that followed" (Frison 1991: 66). This period is referred to as the Late Paleo-Indian period (9,000-8,000 B.P.) and several variations of parallel-oblique flaked, unfluted, lanceolate point forms existed including the Jimmy Allen, Frederick Allen, Pryor Stemmed, Lovell Constricted, Angostura, Lusk, and many others. In addition, the Cody complex is known to date to the Late Paleo-Indian period and includes finely made stemmed spear points such as the Scottsbluff and Eden types. The use of local stones for tool manufacture and the limited distribution of the projectile point types relative to earlier times may suggest that cultural boundaries also were present to some degree.

Four sites (39FA0011, 39FA0833, 39FA1074, and 39FA1452) have been recorded within the South Fork Cheyenne archaeological region that date to the Paleo-Indian period. Of these four sites, one is associated with the Eden cultural complex (39FA1452), one is associated with the Jimmy Allen cultural complex (39FA0011), one is types as a Paleo-Indian artifact scatter (39FA0833), and one is an isolated find consisting of a single parallel-oblique flaked lanceolate projectile point (39FA1074).

Plains Archaic c. 7600 B.P. to 1500 B.P.

The Plains Archaic is defined by a marked subsistence focus on broad based hunting and gathering whereas the preceding Paleo-Indian period is thought to have been focused primarily on big game hunting. A marked increase of groundstone tools such as manos and metates used for processing and grinding plant material is evident in the archaeological record and reflects a major subsistence shift to a more generalized subsistence base (Frison 1998). While this lifeway existed to some degree in the late Paleo-Indian times, it was not as widespread. Frison (1998) writes that the term 'Archaic,' in one sense of the word, is meant to denote an adaptation dominated by hunting and gathering rather than a cultural time period. In fact, many Plains groups continued the Archaic lifestyle well into historic times, and Archaic temporal periods are defined much more by changes in projectile point styles rather than significant changes in lifeways.

Early Plains Archaic c. 7600 to 5000 B.P.

The Early Plains Archaic coincides with an extremely warm and dry climatic episode known as the Hypsithermal or Altithermal. Though the effects of this episode on plants, animals, and people are still debated, Frison (1998) suggests that severe droughts caused plant communities to shift to higher elevations; and, as a result, many Early Plains Archaic people occupied foothill-mountain areas. Frison (ibid.) points to the presence of several Early Archaic sites in low elevation intermountane settings in addition to Early Plains Archaic bison kill sites in the Wyoming Black Hills as mounting evidence for this hypothesis on the human response to the Altithermal. In addition, very few Early Archaic sites have been found on the plains proper and bison remains dramatically decrease in Altithermal aged deposits, reflecting the almost desert like conditions that were thought to exist on the plains during the Early Archaic (Frison 1998:272). Size diminution of bison has been a gradual process throughout the Holocene, and there is some indication of a slight acceleration of this trend through the Altithermal (Frison 1998: 272).

Habitation features, known as pit house features, also first appear during this time (Frison 1991:83). They date toward the end of the Late Archaic period and extend into the Middle Archaic. These features "usually appear as deep, circular stains; sometimes with central post molds… others are oval with multiple post molds along the long axis" (Sundstrom 1996: 2c-16). Cache pits, fire pits, and grinding stone are commonly found in the pit houses. Most of these features are found in the intermountain basins of the northern plains. The presence of these fairly significant habitation features may be associated with some level of sedentism.

Relative to the Paleo-Indian times, Early Archaic bison kill sites are typically small consisting of only 10-20 bison. Hunting strategies included the use of arroyo traps and jumps (much later in the period) and probably required small groups or bands to accomplish. However, many sites such as the Spring Creek site in south-central Nebraska and the Coffey site in northern Kansas contain much more small game and plant remains than large herbivores. Certainly this is an indication of the more generalized resource base.

Other than groundstone implements, the Early Archaic also included the arrival of a new type of projectile point. These projectile points are distinctly side-notched although there are many regional variations of this form. The technological innovation of notching offered a much stronger binding to the foreshaft of a spear while reducing the bonding mass at the same time (Howard 1995).

Early Plains Archaic archaeological sites are fairly rare; however, three were on file within the South Fork Cheyenne region. These sites are 39CU0417, 39FA1045, and 39FA1159. 39FA1045 and 39FA1159 contain diagnostic Hawken projectile points and 39CU0417 contains an early side notch point with at least six associated stone circles.

Middle Plains Archaic c. 4900 to 3000 B.P.

The end of the Altithermal and the return to modern climatic condition marks the beginning of the Middle Archaic Period. Bison populations again proliferated (Frison 1998:89). In addition to a refinement in bison hunting strategies, the Middle Plains Archaic period witnessed an even greater emphasis on plant foods. Reused sandstone plant grinders as well as roasting pits are common at sites dating to this time period. While small bison kill sites are the most typical of the period, Middle Archaic people continued to use bison jumps. One noteworthy innovation by Middle Archaic hunters was the use of bison corrals like that seen at the Scoggin Site in Wyoming. This strategy is very different in that it likely needed much fewer people to operate relative to the other strategies. Overall, Middle Archaic groups developed a carefully planned scheduling of economic activities based on seasonal plants and movements of game.

During this time period, the Plains also witnessed the widespread appearance of stone circles. The features typically measure between 13 and 23 feet in diameter. Although the function of them has been debated, it is generally agreed that most represent a circular anchor "to hold down the cover of a conical (or some other type) lodge" (Frison 1998:154).

The McKean Complex is the most notable Plains Middle Archaic archaeological manifestation, and McKean sites have an extremely wide distribution across the Plains. These site types are most readily recognized by the lanceolate McKean point with an indented base and convex blade edges. However, there are many variations of the McKean point and include side-notched and stemmed forms. Common Middle Archaic site types are bison kills, open occupations, and cave/rock shelters.

There have been 21 Middle Archaic sites recorded within the South Fork Cheyenne region. Of these 21 sites, 11 have been assigned to the McKean complex. Most of these sites are typed as either artifact scatters or occupations; however, a Middle Archaic stone circle site (39PN0375) has also been recorded.

Late Plains Archaic 3000 to 1500 B.P.

The Late Plains Archaic is marked by the appearance of corner-notched points on the Plains. This notching technique produced flared edges with sharp points where the base and edge intersect. In general, Late Archaic people appeared to shift back to a focus on large, upland

game (Deaver and Deaver 1988:96), although other resources were certainly exploited to some extent.

The earliest Late Archaic manifestations are the Pelican Lake and the Yonkee phases (see Frison 1991:105). To date, there have been no Yonkee sites identified in the Sandstone Buttes region. The reason for this may be that the term "Yonkee" is commonly used by archaeologists working on the Northwest Plains, but is not usually used in South Dakota. On the other hand, the Pelican Lake cultural complex is commonly used in South Dakota, especially in the western part of the state. The Pelican Lake cultural complex is thought to represent the earliest of the Late Archaic cultural manifestations on the Plains and is represented in the South Fork Cheyenne archaeological region.

There are 18 sites that have been assigned to the Late Archaic period within the South Fork Cheyenne archaeological region. Of these 18 sites, only four are assigned to the Pelican Lake cultural complex. In addition, one extensively occupied site (39PN1034) is recommended eligible for the National Register of Historic Places (NRHP).

The Late Prehistoric 1500 B.P. to 16th Century A.D.

The Great Plains witnessed significant changes during the Late Prehistoric Period. The innovation of the bow and arrow as indicated by small delicate projectile points was introduced around this time. In addition, ceramics first appear on the Plains during this period (Frison 1991: 116). Although ceramics are present in relatively small amounts on the Northwest Plains, they are valuable cultural makers between the Late Archaic and Late Prehistoric periods (Frison 1991: 116).

Besant and Avonlea phases are typically associated with the continuation of a general Archaic-based lifestyle. Besant represented a highly sophisticated bison hunting culture. Bison kill sites associated with this phase often consist of complicated, skillfully constructed bison corrals similar to modern cattle corrals. The use of these corrals would have required great knowledge and understanding of stampeding animals (Fagan 2000:125). At the Ruby site along the Powder River in Wyoming, a structure at the southern end of this bison corral site is interpreted to be a ceremonial structure. If this is true, this could represent the importance of ritual at communal hunts similar to the rituals documented in historical accounts.

No Besant sites have been recorded within the South Fork Cheyenne region as of May 2005.

Around A.D. 1, the Avonlea phase began on the Plains and continued well into the Late Prehistoric Period. Avonlea points are typically side-notched points with slightly concave bases. Based on their smaller sizes, it is believed that the Avonlea people were the first to use the bow and arrow. It is also widely believed that Avonlea peoples were the first to extensively utilize ceramics on the Plains. Avonlea ceramic styles include net impressed, spiral channeled and smooth surfaces (Dyck 1983:123).

Two Avonlea sites, 39FA0025 and 39FA1450, have been recorded within the South Fork Cheyenne region as of May 2005. Both are described as small artifact scatters.

It is generally accepted that Eastern Woodland groups introduced horticulture onto the Plains. As the name implies, the introduction of horticulture likely spread from the east. These Woodland groups are characterized by fixed settlements, more complex societies, seed horticulture, pottery/ceramic production, and the construction of burial mounds. The Woodland Tradition is generally sub-divided into Early, Middle, and Late Woodland periods as well as other phases and cultures. These further divisions are mainly identified through ceramic types, geographic locales, and temporal ranges.

No sites assigned to the Woodland period were on file with the South Dakota Archaeological Research Center (SARC) within the South Fork Cheyenne region.

The Plains Village period supplanted or continued the Woodland culture in the Middle Missouri around 900 A.D and extended throughout the eastern Plains. The transition is generally marked by larger villages (sometimes with fortifications) and greater horticulture produce including corn, beans, squash, and sunflowers. This period is typically divided into "sub-traditions" and variants based on dates, ceramics, house types, and other characteristics. This includes, in order of antiquity, the Initial (IMM), Extended (EMM), and Terminal (TMM) Middle Missouri Variants and the (IC), Extended (ExC), Post-Contact (PCC), and Disorganized Coalescent Variants.

Seven sites have been assigned to the Plains Village period within the South Fork Cheyenne region. Three of these seven sites (39FA0045, 39FA0860, and 39FA0861) were typed as Extended Coalescent sites based upon diagnostic ceramics.

In all, a total of 20 Late Prehistoric sites have been recorded within the region as of May 2005.

The Protohistoric or Contact Period c.1600-1804

The Protohistoric Period marks the beginning of even greater change on the Plains. The term Protohistoric is associated with the onset of Euro-American presence on the Plains, even though this does not imply there was full-scale or even frequent direct contact with Euro-Americans. Certainly the greatest impact was the arrival of trade goods including horses and firearms. Horses were provided indirectly by the Spanish from the southwest, and firearms came later indirectly from the French, English, and American fur-traders from the northeast. Both trade goods greatly increased the ease of bison hunting and also influenced other once semi-sedentary horticulture groups from the east such as the Cheyenne, Crow, and the Lakota/Dakota to become Plains equestrian nomadic Bison hunters. The Mandan, Hidatsa, and Arikara along the Missouri River also became central providers of firearms to tribes further west.

Many of the Protohistoric Plains groups were highly mobile focusing intensely on bison hunting with only a supplemental emphasis on other resources, although others certainly continued village farming. The need to cover the large migration ranges of bison coupled with the influx of other groups competing for the same resource created much competition between tribes. As a result intertribal conflict became more common, and the power of tribes as well as individuals became defined by the accumulation of European trade goods.

Protohistoric sites are recognized by the occurrence of both native artifacts such as stone tools mixed in with European trade goods such as gun parts, trade beads, metal projectile points, and other metal items.

The SARC database indicates that there is only one site within the South Fork Cheyenne region that can be assigned to the Proto-Historic period. Site 39CU0498 is an extensive lithic scatter with both stone tool artifacts and a gun flint.

The Historic Period 1800-1950

Although smaller trading operations under the control of the Missouri Company were present in the Dakotas and the Middle Missouri during the late 18th century, the purchase of the Louisiana Territory in 1803 and arrival of Lewis and Clark in 1804 signaled the beginning of the Historic Period and full-scale interaction between Native American groups and Euro-Americans. Euro-American fur traders and trappers were the first to enter the region after Lewis and Clark, and the Missouri River became an increasingly important trading locale.

In the early half of the 19th century, permanent settlements of forts and trade posts began to be set up along the Missouri River. The first trading fort was set up by the Missouri Company in 1794 and focused on trapping beaver and otter; this industry did not shift focus to buffalo robes until around 1815. By 1840, buffalo were the most sought after skins in the fur trading business.

Conflicts between the tribes and Euro Americans also escalated. Although once considered "Indian Territory," the United States looked to the west for expansion and settlement. During the 1800s, several treaties aimed at acquiring these Indian lands. While lands cessations were small at first, these could not keep up with the influx of migrants to these areas. Hoping to curtail the growing hostilities between the Northwestern tribes and the American frontier, the Fort Laramie Treaty of 1851 was signed between the United States and the Lakota, Arapaho, Cheyenne, Crow, Assiniboine, Mandan, Arikara, and Shoshone.

This "Great Treaty" and others, however, did little to assuage the conflicts since they were often breached or altogether ignored. In the 1860s, several tribes declared war on the Americas. The United States reacted by establishing several forts in the region. The second "Great Treaty," the Fort Laramie Treaty of 1868, established the Great Sioux reservation in middle South Dakota, and all lands east of the Missouri River were ceded and officially opened for settlement.

Only a few years later, expansion ambitions to the west of the Missouri River again threatened the tribal lands. Political attempts focused at breaking up the Great Sioux Reservation. Two key events accomplished this. The General Allotment Act of 1887, or Dawes Act, allotted 160 to 320 acres to tribal families. The tracts of land were intended to "encourage" the Native Americans to take up farming in order to assimilate them into American economy and society. Surplus reservation lands were then available to be sold to non-Indian settlers. Under fear and broken promises, the state of South Dakota also officially divided the Great Reservation in the five present-day reservations of Standing Rock, the Lower Brule, the Rosebud, the Pine Ridge, and the Cheyenne River Reservations. The National Historic Landmark Wounded Knee in the White River Badlands is the site of the last armed conflict between Native Americans and United

States government troops, fought on December 29, 1890. Following this, most areas to the west were completely opened for settlement.

Ranchers, Farmers, Miners, and entrepreneurs from all over the U.S. began to settle South Dakota in the late 19th century. Most sites that are assigned to the historic period are associated with ranching, farming, railroad, and/or industrial activities. There are several hundred historic period sites on file within the South Fork Cheyenne archaeological region. These site types include dumps, depressions, foundations, well/cisterns, farmsteads, non-farm ruins, artifact scatters, cairns, schools, railroads, cabins, monuments, industrial sites, burials, earthworks, dams, and roads.

Research Design

The methodology of the cultural resource inventory was as follows:

1. Conduct background search of the entire project area and adjacent mile with the SD Archaeological Research Center and SD State Historic Preservation Office records.
2. Review National Register of Historic Places (NRHP) and National Historic Landmarks online databases for cultural resources within one mile of the project area.
3. Conduct Level III windshield inventory in all pipeline corridor areas that are located within the disturbed urban footprint of Edgemont and Level III pedestrian inventory in pasture and relatively undisturbed areas.
4. Revisit previously recorded NRHP ***eligible*** and ***unevaluated*** cultural resources in or near the project to determine potential effects.
5. Conduct National Register of Historic Places evaluations of cultural resources encountered, if needed.

Cultural Resource Records Review

Prior to the fieldwork, records search was conducted with the State Archaeological Research Center (SARC) and State Historic Preservation Office (SHPO) records. The National Register of Historic Places (NRHP) and National Historic Landmarks online databases were also checked. This search identified previously recorded cultural resources, and previous archeological inventories are known within one mile of the project area. Additional information from the record search is included in the table below.

Table 1. Cultural resources within one mile of the proposed project area.

Resource	Type	NRHP Status	Potential Effects
39FA0707	Native American Occupation	***Not Eligible***	**No Effect – Out of APE** 0.56 miles southeast
39FA0775	Native American Isolated Find	***Not Eligible***	**No Effect – Out of APE** 0.70 miles southeast
39FA1367	Native American Artifact Scatter	***Eligible***	**No Effect – Out of APE** 0.98 miles north
39FA1368	Native/Euro-American Artifact Scatter	***Not Eligible***	**No Effect – Out of APE** 0.96 miles north

Resource	Type	NRHP Status	Potential Effects
39FA2003	Chicago and Northwestern Railroad	*Eligible*	**Within APE – Avoid** Bore under grade
39FA2575	Native American Artifact Scatter	*Not Eligible*	**No Effect – Out of APE** 0.43 miles south
FA00000008	Edgemont Armory	*Unevaluated*	**Adjacent to APE – Avoid** 30 feet south
FA00000071	Edgemont Block	*Eligible*	**No Effect – No Longer Extant**
FA00000078	Edgemont High School	*Not Eligible*	**No Effect – Within APE**
FA00000079	Edgemont Elementary	*Not Eligible*	**No Effect – Out of APE** 60 feet east
FA00000104	Bartlett-Myers Building	*Listed*	**No Effect – Out of APE** 100 feet west
FA00000114	Bridge 24-116-133	*Eligible*	**No Effect – Out of APE** 0.35 miles south
FA00000115	Bridge 24-118-119	*Not Eligible*	**No Effect – Out of APE** 470 feet northeast
FA00000136	House	*Not Eligible*	**No Effect – Out of APE** 60 feet west
SARC Misc. Records	Cheyenne River Stagecoach Stop	*Unevaluated*	**No Effect – Out of APE** 0.38 miles north.
SARC Misc. Records	Cheyenne-Deadwood Trail	*Unevaluated*	**No Effect – Within APE** Not Present in Mapped Location
SARC Misc. Records	Red Canyon Trail	*Unevaluated*	**No Effect – Out of APE** 0.76 miles northeast.

Table 2. Previous inventories within one mile of proposed project area.

Survey No.	Author(s)	Year	Title
AFA-0035	Lippincott, K.	1980	Cultural Resources Survey of a Drainage Ditch, Fall River County, South Dakota.
AFA-0042	Lippincott, K.	1979	Cultural Resource Survey of Four Uranium Mill Tailings Disposal Areas, Fall River County, S. Dakota.
AFA-0089	Lippincott, K.	1982	Cultural Resources Survey of a Proposed Land Fill, Fall River County, South Dakota.
AFA-0105	Chevance, T.	1983	Evaluation/Testing of 39FA707, Fall River Cty., SD.
AFA-0144	Haberman, T.	1987	Cultural Resources Survey of the Edgemont Airport in Section 2, T9S, R2E, Fall River County, South Dakota.
AFA-355	Miller, P.	2006	Level III Cultural Resources Inventory of Golden West Telecommunication, Inc.'s Ardmore, Edgemont & Oelrichs Exchanges Buried Cable, Fall River Co., SD.
AFA-0495	Byrne, D.	2014	An Intensive Cultural Resources Survey of SDDOT Bridge Replacement Project No. P 0471(08)27, PCN 039Z, Fall River County, South Dakota.

Survey No.	Author(s)	Year	Title
AFA-0496	Byrne, D.	2014	An Intensive Cultural Resources Survey of SDDOT Bridge Replacement Project BRF 018P(02)13, PCN 02S8, Fall River County, South Dakota.
BLH-0175	Caywood, J. et al	1987	Reconnaissance Cultural Resource Survey of Burlington Northern's Edgemont to Custer Railroad Abandonment Project Area, Fall River and Custer Cos., SD.
DME-0006	Molyneaux, B. et al	1999	Phase I & II Cultural Resource Evaluation of Proposed Railway Corridor From Wall, SD. to the Wyoming Border for the D. M. & E. Railroad Corporation's Powder River Basin Expansion Project. V. VI.
DME-0014	Retter, M. et al	2007	Cultural Resource Inventory of the Dakota, Minnesota Eastern Railroad Corporation's Powder River Expansion Project, Custer, Fall River, and Pennington Cos., SD.
DME-0023	Tatman, J. et al	2008	A Level III Cultural Resource Inventory of the Dakota, Minnesota and Eastern Railroad Corporation's Powder River Basin Expansion Project Corridor, Custer, Fall River, and Pennington Counties, South Dakota. Add. 2.

Survey Methods and Results

October 10, 2014 ***Quality Services, Inc.(QSI)*** archeologist/historian Mark Carpenter and archeologist Vicki Baldwin conducted Level III pedestrian and windshield cultural resource inventory of the proposed water pipeline corridor. The City of Edgemont proposes to place water pipelines, in approximately of 10.4 miles of corridor along roads through the city, and in off road easements. They also plan to demolish and remove a steel water tank, two concrete cisterns and associated structures. A new water tower, water treatment building, heat exchanger, salt silo, electric generator, fuel tank, large concrete pad and a gravel base access area around the water tower are also proposed.

Two types of inventory were conducted for this project. In the majority of the urban area of Edgemont, Level III windshield inventory was conducted to ensure that the proposed corridor was already completely disturbed. Level III pedestrian inventory was conducted in areas outside of the urban setting, as well as an area of urban residences in the northwest corner of the city. The inventory outside of the urban areas was conducted to ascertain how disturbed the project corridor was, and if any cultural resources were present. The Level III pedestrian inventory in northwestern part of the city was conducted to discover the nature of the construction and previous utility disturbance. The pedestrian transects were less than ten meters apart. No subsurface tests were conducted.

The entire pipeline corridor was found to have been disturbed, although to varying degrees. Existing water pipes were present in all of the corridor areas. Within the city, the pipeline corridor was highly disturbed, not only by the existing pipeline, but also by buried gas lines, sewers, communications cable, and overhead utility pole placement. There was also disturbance from road, driveway, sidewalk and parking lot construction, as well as fence construction, and

landscaping for lawns. The route along the southwestern and western portion of the city was completely within the disturbed county road prism and urban residential lots.

The pipeline corridor in the northwestern part of the city, where not in urban residential lots, passed through an open pasture that appears to be owned by the city. One area of this lot is being used for equipment storage, and the remainder appears to be used for parking during events at the fairgrounds, which are 300 feet away. The corridor is already occupied by a six inch PVC water main, and runs down an engineered two-track road that is now mostly overgrown (see Figure 7).

Figure 10. Pedestrian inventory area south of 4th Avenue looking south.
M. Carpenter 10/10/2014.

Level III pedestrian inventory for the pipeline was also conducted in an 875 foot long segment of pipe corridor (Figure 10) that extended south of 4th Avenue to the residential complex at L Street (i.e. the southeast corner of the project area). While currently a pasture, this area contains an existing six inch PVC water main, and was also disturbed by the creation of a levee, plus the road used to get in to the location for construction. An approximately 300 foot area at the south end of this segment showed fewer signs of disturbance. However, this part of the corridor is at the fenceline that marks the edge of a residential area. No cultural resources were present at this location.

The remaining pedestrian inventory was conducted in the area around the existing reservoir compound, proposed water tower location, a containment pond compound, and three pipeline segments that branched off of this block inventory area (see Figure 6). The block inventory area was highly disturbed by the construction of the containment pond, associated earthworks and buildings. Also present were two concrete cisterns, a cinder block filter/maintenance building, a water tank and a valve/pump house for the water tank. Existing water pipes were present

throughout the two compounds. The five structures in the reservoir compound, the containment pond and a small concrete structure south of the pond were recorded for this project (see below).

Figure 11. Proposed water tower compound location looking south from H Street.
M. Carpenter 10/10/2014.

Figure 12. Water pipeline corridor east of proposed water tower looking east.
M. Carpenter 10/10/2014.

The proposed water tower compound (Figure 11) is in a landscaped area east of the containment pond. This area looks to have once had a short access road and possibly a small cinder block

building or was used to store cinder blocks. An existing water main (Figure 12), which serves two adjacent residential structures extends east from the proposed water tower location. This water line is flanked by a sewer system and a buried electric cable.

Figure 13. Water pipeline corridor from reservoir compound looking north.
M. Carpenter 10/10/2014.

Figure 14. Water pipeline corridor from H Street at containment pond looking southeast.
M. Carpenter 10/10/2014.

A second water main from this block inventory extends north from the reservoir compound to 8th Avenue, where it enters an urban residential neighborhood (see Figure 13 and Figure 5 as well). This corridor is occupied by a ten inch water main and is on a hill slope until just before entering the residential area. At the base of the hill, there is a shallow ditch and levee meant to keep a small drainage from flowing into the residential area. This ditch remains wet for most of the year, as shown by the presence of cat-tail reeds (Figure 5).

The third pipeline from the block inventory (Figure 14) extends north from H Street at the containment pond, along a paved driveway which becomes a gravel two-track access road after it passes a city owned building. This road ends at a communications tower and shack with two adjacent water wells. This corridor is currently occupied by a six inch water main and has been highly disturbed by road, water pipeline, communication tower, concrete pad and well construction.

Finally, Pedestrian inventory was conducted along a pipeline route that extends from H Street at the airport access road northward to the southwest corner of F Street. This segment (Figure 1, Figure 15) is approximately 950 feet long and crosses a pasture and drainage area. The corridor is occupied by a six inch water main and traverses the slope from the top of the T-1 terrace to the base of the T-2 terrace and a residential area of the city.

Figure 15. Water pipeline corridor from H Street at airport entrance looking south. M. Carpenter 10/10/2014.

This corridor has had landscaping work to control the flow of a seasonal stream, which includes a small earthen catch dam in the central area, and a second small dam with a drain to allow the water to enter a storm sewer before it gets to the residential area. An abandoned segment of irrigation ditch was recorded at the southern end of this portion of the pipeline corridor (see below).

Cultural Resources Within and Adjacent to the Project Corridor

Several previously recorded structures and a previously unrecorded segment of the historic alignment for the Chicago and Northwestern Railroad are within or adjacent to the City of Edgemont water pipeline corridor. Six structures and two archeological cultural resources were recorded during this project. They are discussed below.

39FA2003 Chicago and Northwestern Railroad

Environmental Description

This railroad segment is located in a developed urban area of the City of Edgemont. There is not significant vegetation in the footprint of the railroad. The area to the west is comprised of built up and landscaped urban lots with numerous structures, roads, sidewalks utilities and some landscaped lawns. In the southwestern portion is a man-made lake that serves as part of the city park. This lake has some small trees and shrubs on the surrounding bank. To the east is a small creek valley, more urban development and areas of open rolling plain with mixed grasses and some trees. Ground surface in the rail yard and immediate area surrounding it is comprised of gravel ballast and built up gravel road surface.

Site Description & Contents

The site is comprised of a portion of the modern configuration of a rail yard. Several segments of this railroad have been recorded in other areas of the state.

Figure 16. View of newly recorded portion of 39FA2003 looking north.
M. Carpenter 10/10/2014.

This segment of railroad was constructed by the Fremont, Elkhorn and Missouri Valley Railroad circa 1889, and later became a part of the Chicago and Northwestern Railroad. Even later it was acquired by the Burlington Northern, then the Dakota, Minnesota and Eastern (DM&E) Railroad. Currently the surrounding property is owned by the Northern Improvement Company and the BNSF Railroad. The yard originally had a roundhouse which was used for train repair. A spur once led from this rail yard to Deadwood. This spur is now the Mickelson Trail. Currently this is an active rail yard, which appears to be very busy as numerous trains were noted passing through during fieldwork.

Evaluation/Collection Methods

As this is an active rail yard, no collections or subsurface testing took place. Due to current laws regarding railroads, the project area was observed from the adjacent road. Photos of the location were taken.

Figure 17. View of newly recorded portion of 39FA2003 looking south.
M. Carpenter 10/10/2014.

Site Interpretation

This is an active rail yard that is currently being utilized for train traffic and to store coal carrier cars for later use.

National Register of Historic Places Eligibility

This site, while representing the modern configuration of the railroad in the City of Edgemont, still provides a solid example of railroad construction and historic context. As railroads were

very important to the settlement and development of this area, as well as the entire state, it should be considered ***eligible*** for the National Register of Historic Places (NRHP) under Criterion A.

As a public and commercial transportation route, it is highly possible that important historic figures were associated with this railroad at some point. However, it does not appear that it was a significant factor in their lives, so it appears that this railroad is ***not eligible*** under Criterion B.

No significant features or railroad associated architecture are present within this section. The elements present are common to all modern railroads, so this segment is ***not eligible*** under Criterion C.

Also, whereas this railroad is part of a historic event in South Dakota, there is, however, no significant potential for learning further important information about this site. The construction present does not differ from standard railroads present across the country, and all known alignments are either previously mapped or obliterated by later construction. Therefore, this segment should be considered ***not eligible*** under Criterion D.

Management Recommendations

This is the modern configuration of an active railroad. Maintenance, and even reconstruction of this segment, would not destroy its historic integrity. Other, non-railroad associated, construction in this area should avoid damaging the rails and associated grade. It is recommended that any water pipeline placement in rail bed area be bored under the grade or placed in existing conduit, if present.

39FA2330 South Edgemont Irrigation Ditch

Environmental Description

This feature is located on a finger ridge and hill slope that cuts across a north facing seasonal drainage on the southwestern outskirts of the City of Edgemont. The ditch is within a mixed grass covered pasture that also has a few ash and small cottonwood trees. There are several Russian olive trees scattered throughout the surrounding area. Further, there are locations on the lower slope where it appears that manmade drainage improvements have retained moisture and allowed for reeds, cattails and wet grasses to grow. Prickly pear cacti are also present.

Site Description & Contents

This irrigation ditch was excavated into the hillside. It is currently approximately five feet deep. The northern side of the ditch is formed by an earthen embankment that was made by excavating out the soil from the hill and piling it on that side. Aerial photos of this location indicate that the ditch is not recent as portions have been reclaimed for pasture, and another area destroyed by the construction of residences on the outskirts of the City. A north-south running water main has also cut across this ditch forming a "V" shaped notch in the northern embankment. The Edgemont Chamber of Commerce website notes that a 14 mile irrigation ditch was constructed in the 1890s to serve ranches in the area.

Figure 18. Irrigation ditch looking west.
M. Carpenter 10/10/2014.

Figure 19. Irrigation ditch looking east.
M. Carpenter 10/10/2014.

Evaluation/Collection Methods

This site was recorded during an intensive pedestrian inventory of the Water Department property on which it is located. Photos were taken of the ditch, and the site was mapped using aerial photos. No collections were made as the only artifacts present were modern roadside trash. Subsurface testing was not conducted as the earthwork area was completely disturbed during construction and the artifacts present are modern in origin.

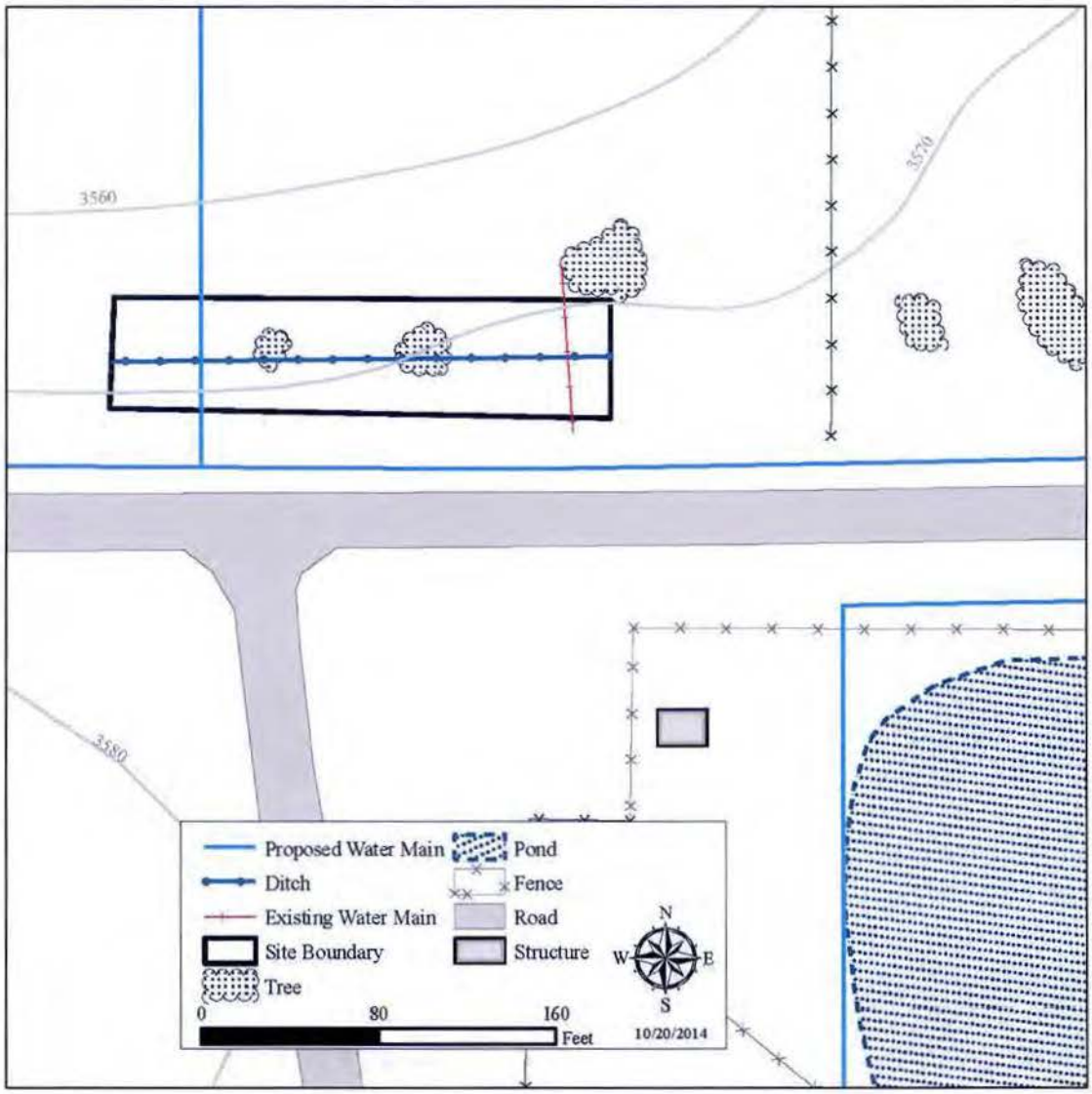

Figure 20. 39FA2330 Site Plan

Site Interpretation

This is a former irrigation ditch that has been disturbed by water main construction and suburban development.

National Register of Historic Places Eligibility

Further research would need to be conducted to determine whether 39FA2330 is part of the historically important 14 mile long canal that helped establish Edgemont as a permanent settlement. This is also true for determining whether anyone historically important was associated with the construction. Until this is accomplished, this site should be considered ***unevaluated*** under Criteria A and B. It does not have any significant construction or architectural features that are indicative of anything other than a canal or ditch used to channel water. For this reason it is recommended that the ditch be considered ***not eligible*** under Criterion C. The only significant information the features of this ditch/canal may be able to provide is its location. As such, this ditch/canal should be considered ***not eligible*** under Criterion D.

Management Recommendations

This site should be avoided and/or protected by boring under the features, or, at the very least, placing any new water mains within the existing water main corridor where it is already damaged. If excavation must take place within the site, the excavation areas should be reconstructed to match the undisturbed portions of the irrigation ditch.

39FA2579 Edgemont Water System Containment Pond

Environmental Description

This water containment pond is located on a hilltop at the southwestern edge of the City of Edgemont. The area to the east has been developed for suburban residences. To the west is a small airport. North, at the base of the hill, are urban residential areas. Areas to the south are rolling pasture. The area of the containment pond has been heavily landscaped for construction of the pond. It is covered in mixed grasses and there are several examples of sagebrush and Russian olive trees scattered throughout the compound. Prickly pear cacti are also present. Ground surface visibility ranged from 10 to 60%, with an overall average of 30%.

Site Description & Contents

39FA2579 is an earthen embankment water containment pond with an equipment storage area at its western end.

The pond area is approximately 30 feet deep and has an earthen embankment collar to increase capacity. There is a perforated drain pipe in the northeast corner. An employee of the City Water Department stated that the pond was constructed by the U.S. Army Corps of Engineers, but had no information on the date it was built. He was also uncertain if the containment pond was ever actually utilized.

Currently, the City Water Department uses the western portion of the fenced compound surrounding this earthwork to store equipment, concrete storm pipe and manhole collars, culvert pipe, fencing material and other objects.

Figure 21. Water containment pond and storage compound looking north.
M. Carpenter 10/10/2014.

Figure 22. Storage portion of compound looking north-northeast.
M. Carpenter 10/10/2014.

Evaluation/Collection Methods

This site was recorded during an intensive pedestrian inventory of the Water Department property on which it is located. Photos were taken of the earthwork and storage area, and the site was mapped using aerial photos. No collections were made as the compound is in active use as a storage area. Subsurface testing was not conducted as the earthwork area was completely disturbed during construction and the artifacts present are modern in origin.

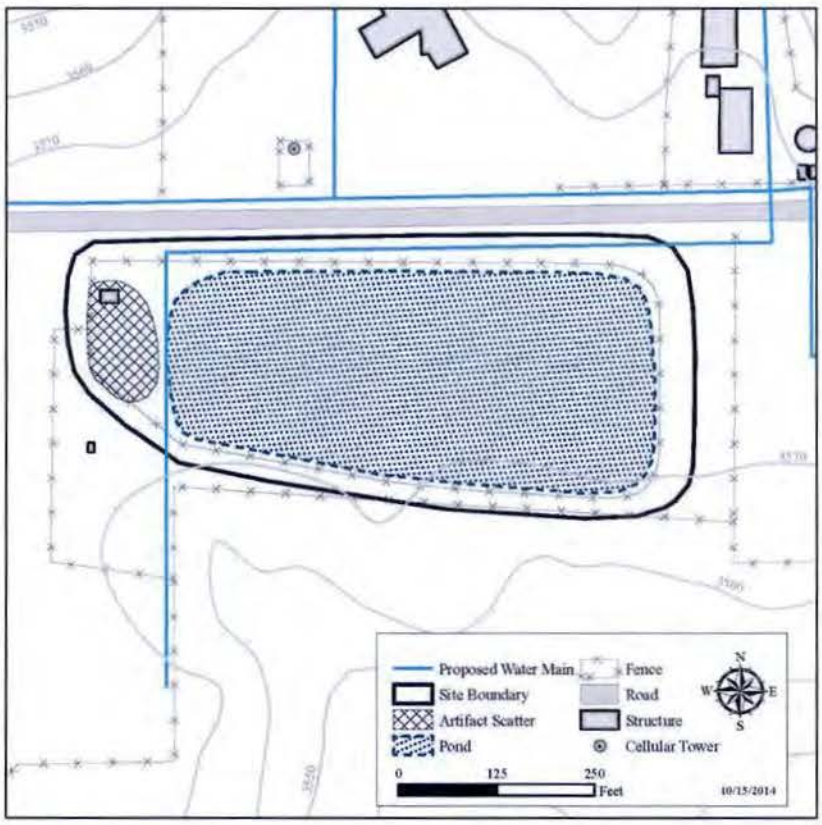

Figure 23. 39FA2579 Site Plan

Site Interpretation

This site is a modern water containment pond that appears to have been constructed within the last 30 years, but may be earlier.

National Register of Historic Places Eligibility

39FA2579 does not fit any of the eligibility requirements for inclusion on the National Register of Historic Places. While it is a part of the water system for the City of Edgemont, it does not appear to be an important part of it. It was constructed by the U.S. Army Corps of Engineers and is very similar to thousands of others built across the country, both with public and private funds. This earthwork will not provide important information about the development of the City of

Edgemont as it appears to be recent and does not appear to have been utilized. As such it is recommended as being ***not eligible*** for the NRHP.

Management Recommendations

No further work or protection recommended.

FA00000008 Edgemont Armory

Edgemont School District and the South Dakota National Guard co-sponsored a 115 by 77 foot Art Deco style poured concrete armory that was completed by the WPA in 1938 for $50,000.

Figure 24. View of Edgemont Armory facing southwest.
Project corridor passes along road in lower right corner of photo. M. Carpenter 10/10/2014.

It is located at 715 D Street. This structure had a full basement that not only contained the office, storage spaces and rifle range, but it also provided space for 18 trucks. The building was first occupied by Company A, 109th Quartermaster Regiment, who remained there until activated for World War II two years later. When the South Dakota Guard units returned home in 1947, several other units occupied the armory until it was turned over to the Edgemont School District in 1961. It is currently considered ***unevaluated*** for the NRHP.

The proposed corridor is located approximately 30 feet north of this building. If the water pipeline is kept within the current utility easement, **there will be no effect to this building.**

FA00000071 Edgemont Block

The Edgemont Block was a quarried sandstone commercial building constructed in 1895 to be the centerpiece of a large retail structure that covered the 600 block of 2nd Avenue. While the planned construction for the entire city block was not completed, the Edgemont Block was determined to be worthy of the NRHP in 1996. In 2002, it was removed from the NRHP after being razed. The October 2014 field visit to this structure revealed that the location is now a vacant lot. The proposed corridor is located approximately 100 feet east of the former location of this building, and **will not affect any structural remains or artifacts that may remain in the lot**.

Figure 25. View of the former Edgemont Block location facing northwest. Project corridor is on opposite side of the street in the right of photo. M. Carpenter 10/10/2014.

FA00000104 The Bartlett-Myers Building

The Bartlett-Myers Building was constructed in 1908 as a combination storefront, one side containing a hardware store, the other an apothecary.

It was placed on the National Register in 2006. The October 2014 field visit to this structure revealed that the building has significantly deteriorated, although its structural integrity remains intact. The proposed corridor is located approximately 100 feet east of the location of this building, and **will not affect it in any way**. Any change in visual effects at this location will be temporary and will only last until the pavement is replaced within the project corridor.

Figure 26. View of Bartlett-Meyers Building facing west.
Project corridor is left to right, where photographer is standing. M. Carpenter 10/10/2014.

FA00000360 Edgemont Water System Storage Shelter

This structure is a poured concrete and chicken wire storage shelter that is partially buried within an embankment.

Figure 27. View of FA00000360 facing southwest.
M. Carpenter 10/10/2014.

According to the Edgemont Water Service, it was reportedly built by U.S. Army Corps of Engineers when they constructed an adjacent earthen embankment for a water containment/storage pond (39PN2579, See Figure 23, southwest of pond area).

It has a one or two room interior with concrete walls built into an embankment. There is a combination wood and chicken wire partitioned portion on exterior which has a concrete floor. The concrete shows signs of weathering, and the plate door that covers one of the concrete doorways is completely rusted. All wooden portions of exterior are weather grayed and warping, while the fence portions completing the exterior enclosures have varying stages of rust.

It is not part of a historic event or associated with a historic person. It is very utilitarian in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. As such, it was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

The Edgemont Water System Reservoir Complex

This Complex consists of five buildings that currently comprise the reservoir portion of the Edgemont Water System. The project calls for these structures to be removed.

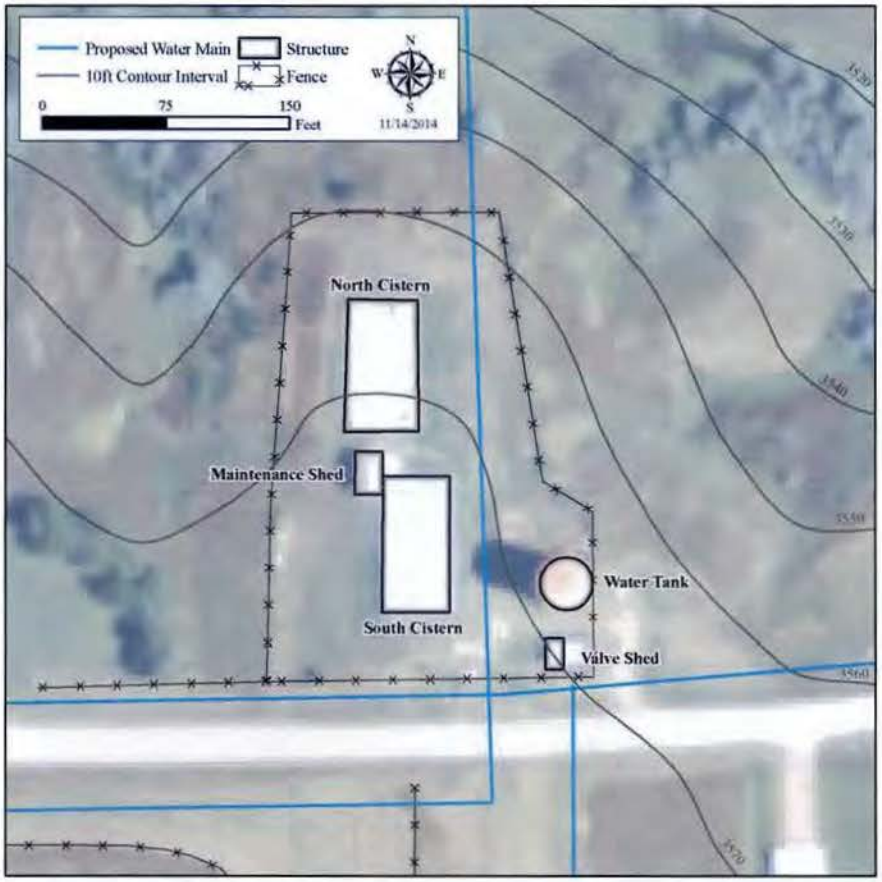

Figure 28. Plan map showing City of Edgemont Reservoir compound.

FA00000361 Edgemont Water System Maintenance Building

This is a single story front gable concrete block maintenance building/garage/filter house with wood facing under the gable, a plywood roof and rolled asphalt roofing material. Roll top front door on south side and single entry person door on east side. There are small windows, one each, on east and west sides. The roll top door is open and interior appears to have been exposed to the elements for an extended period of time. Its roof, exterior walls, and interior walls show paint loss, and staining due to weathering. Some locations, especially the interior walls and roof, show more weathering than others.

Figure 29. View of FA00000361 facing northeast.
M. Carpenter 10/10/2014.

This building has no apparent historic significance and was likely constructed in the 1960s or later. It is not part of a historic event or associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

FA00000362 Edgemont Water System North Cistern/Reservoir

FA00000362 is a 45 foot by 80 foot concrete box cistern with sloping sides and a four to six inch thick concrete slab roof. Four curved metal vent ducts extend vertically from the roof, and are almost all located in the corners of the structure (the northeast vent is offset toward center of north wall). Aerial photos indicate that sections of the concrete roof may have been replaced or patched. Exterior walls show signs of weather fading, staining and possible mildew growth. Mildew or staining may be result of weather induced cracking of concrete.

This generic concrete box cistern is estimated as having been built around the 1940s or later due to the combination of weathering damage and lack of marks in the concrete that would indicate milled lumber forms were used. This tank is used to store and cool water taken from local wells and a warm spring. While this is a core part of the water system that serves the city, it has been refurbished with a modern ventilation system. It is not associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history.

Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

Figure 30. View of FA00000362 facing west.
M. Carpenter 10/10/2014.

FA00000363 Edgemont Water System South Cistern/Reservoir

FA00000363 is also a 45 foot by 80 foot concrete box cistern, although metal extension walls and a metal roof have been added. The metal walls are approximately two feet tall and the roof is flat, although the metal sheets themselves are corrugated. Some of the concrete side walls show evidence of one-by-four or two-by-four lumber used to form them indicating an older time of construction than the northern cistern.

Milled lumber forms were in common use during the 1930s and earlier. Exterior walls show signs of weather fading, staining and possible mildew growth. Mildew or staining may be result of weather induced cracking of concrete which would allow water from the cistern to leak. In some areas mortar was used to seal some cracks and parts of the seam between the metal wall extensions and the concrete base.

This tank is used to store and cool water taken from local wells and a warm spring. While this is a core part of the water system that serves the city, it has been refurbished. It is not associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

Figure 31. View of FA00000363 facing west.
Pipes and small cabinet in center of photo represent a well location. M. Carpenter 10/10/2014.

FA00000364 Edgemont Water System Valve Shed/Pump House

Figure 32. View of FA00000364 facing west.
M. Carpenter 10/10/2014.

This is a metal panel sided shed with two vent pipes on ridge of the roof. There is a small concrete cistern with vented metal roof at eastern base. Structure is estimated to be a circa 1960s or 1970s metal sided shed, although it could be slightly more recent or slightly older.

As the style of this shed is ubiquitous from the 1950s onward, the age is estimated from use and weathering characteristics, such as dents, small rust spots, chipped paint and paint fading, which are readily evident throughout the structure. Building is a generic metal shed and cistern meant to house water system valves and a pump for use with a nearby water tank. It has no apparent historic significance and is not part of a historic event or associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history. This building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

FA00000365 Edgemont Water System Standpipe Water Tank

FA00000365 riveted steel standpipe water tank with dome top and concrete base.

Figure 33. View of FA00000365 facing west.
M. Carpenter 10/10/2014.

There is a float style water level indicator with weighted pendulum next to exterior ladder on outside of the tank. Features on the tank look similar to circa 1930s liquid or fuel storage tanks. Weathering has caused some erosion to the matrix of the concrete foundation, exposing the fine gravel clasts in the mix. There is also oxidation staining on the foundation. While the tank itself appears to have been recently repainted, some weather fading is also evident.

While a core part of the current water system, this tank is not a significant part of a historic event or associated with a historic person. It is very common in style and does not represent the work

of a master craftsman. It is not likely to yield information important to local, state or national history. Because of this, the building was recommended as ***not eligible*** for the NRHP during this project, and SHPO concurred on November 19, 2014.

Cheyenne-Deadwood Stagecoach Trail (SARC Miscellaneous Files)

From documentary sources, SARC has mapped the approximate location of the 1876 Cheyenne and Black Hills (i.e. Cheyenne-Deadwood) Stagecoach Line through the City of Edgemont. The locations where SARC has mapped the trail were examined during this project. However, if the trail was at the mapped location(s), it has been obliterated by urban construction.

Also, the terrain crossed by the mapped location appears to be much more rugged than the stagecoach line was likely to have used. The Cottonwood Creek floodplain, only ½ mile or less to the east of the mapped location south of the city, would have provided a much smoother trail. In fact, 39FA2003, the Chicago and Northwestern Railroad, currently occupies a corridor in the Cottonwood Creek valley that is very similar to the mapped location of the stagecoach trail. When the mapped trail and railroad line cross the Cheyenne River, U.S. Highway 18 begins to follow a similar route to the stagecoach road. Given that other transportation ventures typically follow established corridors, especially wagon roads and stagecoach lines, it is very likely that the railroad grade occupies the actual trail location, at least as far as the Cheyenne River crossing. From that point, it is likely that Highway 18 is on or adjacent to the stagecoach trail.

Conclusions and Recommendations

One new segment of previously recorded cultural resource 39FA2003 was located within the project area as was a newly recorded irrigation ditch, 39FA2330. An existing containment pond, 39FA2579, with an associated concrete storage building, FA00000360, were recorded as well. The five buildings to be torn down within the reservoir compound were also recorded. These include, a maintenance shed/filter house: FA00000361, two concrete cisterns: FA00000362 and FA00000363, a valve/pump house: FA00000364 and a riveted steel standpipe water tank: FA00000365.

The 39FA2003 segment is an active rail yard which is considered ***eligible*** for the National Register of Historic Places under the state railroad context. Irrigation ditch 39FA2330 is recommended ***unevaluated*** until further historical research can be conducted. Site 39FA2579 and the six structures recorded during this project are recommended ***not eligible*** for the National Register due to a lack of integrity and/or being extremely common. As 39FA2003 is an active railroad, this resource will be avoided by boring underneath or use of existing conduit, if present. It is recommended that 39FA2330 also be bored underneath. Site 39FA2579 and the six recorded newly structures are considered ***not eligible*** for the NRHP and the planned work in these areas will thus have **no effect** on them.

A project determination of "no adverse effect to historic properties" is recommended for the project.

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Email: info@qualityservices.us.com
Phone: 605-388-5309 Fax: 605-388-5319 Cell: 605-209-0265

SOUTH DAKOTA ARCHEOLOGICAL RESEARCH SITE FORM – UPDATE

Site No. 39FA2003

County: Fall River **Site Name:** Chicago & Northwestern Railroad

NR Status: *Eligible* **Other No:** DME0259-13/4160

Map Reference: Edgemont 1980 **Owner:** Private

Arch. Region: Black Hills **Topo pos:** Rolling Plain

Vegetation: Mixed Grass **Substrate:** Silt **Land Use:** Developed

UTM Centroid: Coord System: NAD 83 **Zone:** 13 **N/** 4794877 **E/** 595498

Surf. Visibility: 0% **Site Elevation:** 1,055 meters **Condition:** Extant

Site Dim: 747 m N-S, 70 m E-W **Area:** 5.23ha **Depth:** Enter text.

Nearest Water: Type: Permanent Lake **Name:** Unknown

Distance: 10 m **Elevation:** 1,055 m **Direction:** W **Bank:** R

LOCATIONS

Legal Locations	Section	Twp	Rg
W/NE/NE, E/SW/NE, NW/NW/SE/NE	01	09S	02E

COMPONENTS

Site Type	Time Period	Cultural Affiliation
Railroad	A.D. 1861-	Euro-American
Choose an item.	Choose an item.	Click here to enter text.
Choose an item.	Choose an item.	Click here to enter text.
Choose an item.	Choose an item.	Click here to enter text.
Choose an item.	Choose an item.	Click here to enter text.

COMMENTS

Environmental Description

This railroad segment is located in a developed urban area of the City of Edgemont. There is not significant vegetation in the footprint of the railroad. The area to the west is comprised of built up and landscaped urban lots with numerous structures, roads, sidewalks utilities and some landscaped lawns. In the southwestern portion is a man-made lake that serves as part of the city park. This lake has some small trees and shrubs on the surrounding bank. To the east is a small creek valley, more urban development and areas of open rolling plain with mixed grasses and some trees. Ground surface in the rail yard and immediate area surrounding it is comprised of gravel ballast and built up gravel road surface.

Site Description & Contents

The site is comprised of a portion of the modern configuration of a modern rail yard.

View of newly recorded portion of 39FA2003 looking north. M. Carpenter 10/10/2014.

This segment of railroad was constructed by the Fremont, Elkhorn and Missouri Valley Railroad circa 1889, and later became a part of the Chicago and Northwestern Railroad. It was later acquired by the Burlington Northern, then the Dakota, Minnesota and Eastern (DM&E) Railroad.

Currently the surrounding property is owned by the Northern Improvement Company and then BNSF Railroad. The yard originally had a roundhouse which was used for train repair. A spur once led from this rail yard to Deadwood. This spur is now the Mickelson Trail. Currently this is an active rail yard, which appears to be very busy as numerous trains were noted passing through during fieldwork.

View of newly recorded portion of 39FA2003 looking south. M. Carpenter 10/10/2014.

Evaluation/Collection Methods

As this is an active rail yard, no collections or subsurface testing took place. Due to current laws regarding railroads, the project area was observed from the adjacent road. Photos of the location were taken.

Site Interpretation

This is an active rail yard that is currently being utilized for train traffic and to store coal carrier cars for later use.

National Register of Historic Places Eligibility

This site, while representing the modern configuration of the railroad in the City of Edgemont, still provides a solid example of railroad construction and historic context. As railroads were very important to the settlement and development of this area, as well as the entire state, it should be considered ***eligible*** for the National Register of Historic Places (NRHP) under Criterion A.

As a public and commercial transportation route, it is highly possible that important historic figures were associated with this railroad at some point. However, it does not appear that it was a significant factor in their lives, so it does not appear that this railroad is eligible under Criterion B.

No significant features or railroad associated architecture are present within this section. The elements present are common to all modern railroads, so this segment is not significant under Criterion C.

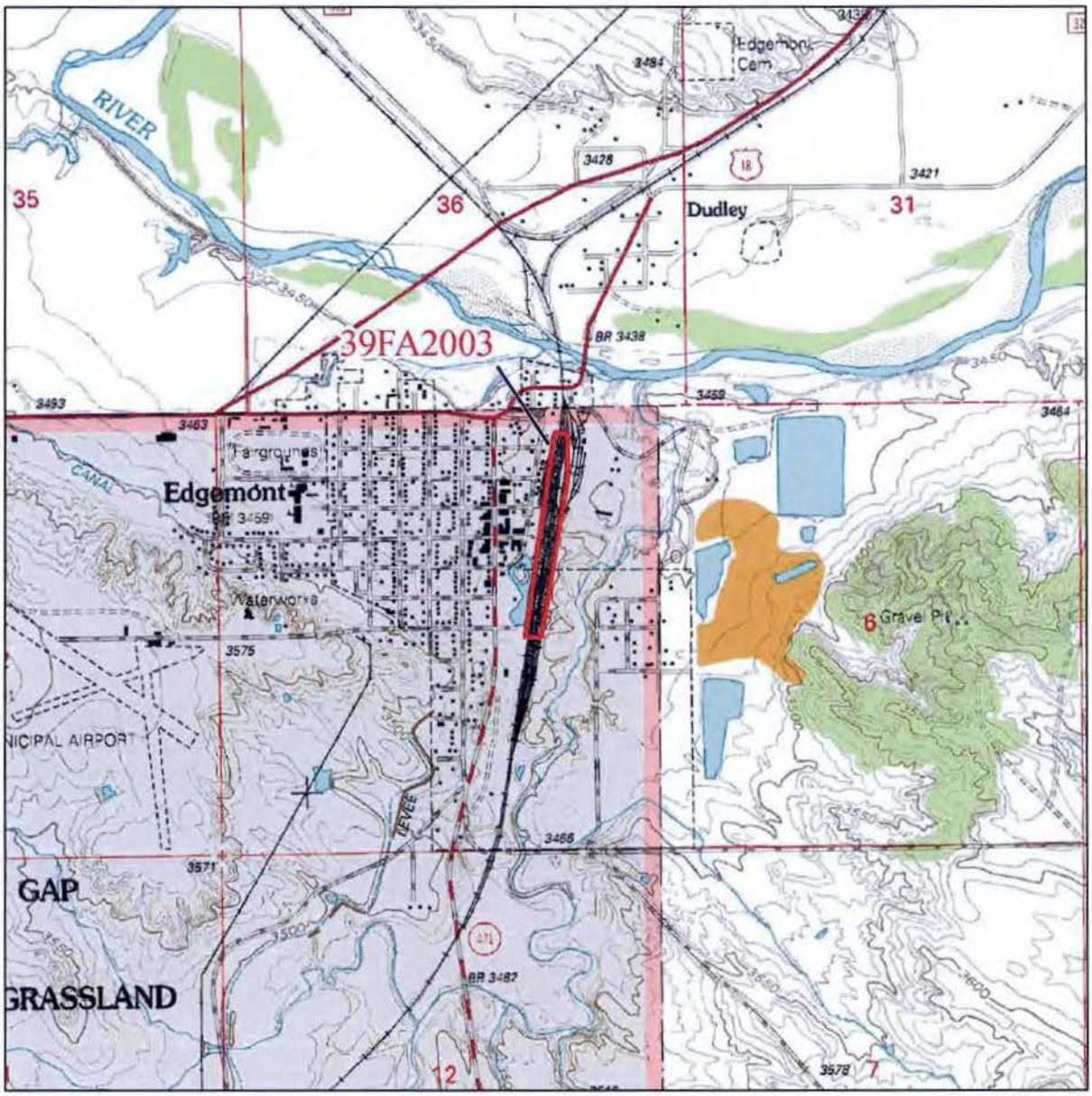
Also, whereas this railroad is part of a historic event in South Dakota, there is, however, no significant potential for learning further important information about this site. The construction present does not differ from standard railroads present across the country, and all known alignments are either previously mapped or obliterated by later construction. Therefore, this segment should be considered ***not eligible*** under Criterion D.

Management Recommendations

This is the modern configuration of an active railroad. Maintenance, and even reconstruction of this segment, would not destroy its historic integrity. Other, non-railroad associated, construction in this area should avoid damaging the rails and associated grade.

Owner Name: Northern Improvement Company and BNSF Railroad
Owner Address: Click here to enter text.
Form Prepared by: Mark Carpenter Date: 10/14/2014
Project Name: SD3914057 Edgemont Water Mains

ATTACHED MAPS



Site Location Map 1:24,000
Township 9 South, Range 2 East, Section 1
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

SOUTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

HISTORIC SITES SURVEY INTENSIVE FORM

SOUTH DAKOTA STATE HISTORICAL SOCIETY
Department of Tourism and State Development

SITE INFORMATION for Structure# FA00000361

***SURVEY DATE:**	October 10, 2014	***QUARTER 1:**	SW
***SURVEYOR:**	Mark Carpenter and Vicki Baldwin	***QUARTER 2:**	NW
Quality Services Inc. 1621 Sheridan Lake Road, Rapid City, SD 57702 Ph. 605-388-5309; email - info@qualityservices.us.com		***TOWNSHIP:**	9S
***PROPERTY ADDRESS:**	834 H Street	***RANGE:**	2E
***COUNTY**	Fall River	***SECTION:**	1
***CITY:**	Edgemont	**ACRES:**	0.01
		QUAD NAME:	Edgemont
LEGAL DESCRIPTION:	Reservoir Tract in S/SW/NW		
LOCATION DESCRIPTION:	Southwest edge of City of Edgemont approximately 900 feet east of airport entrance.		

OWNER CODE 1:	L	**OWNER NAME:**	City of Edgemont
OWNER CODE 2:	N/A	**OWNER ADDRESS:**	
OWNER CODE 3:	N/A	**OWNER CITY:**	Edgemont
		OWNER STATE:	South Dakota
		OWNER ZIP:	57735

HISTORIC SIGNIFICANCE

***DOE:**	Not Eligible	**REGISTER NAME:**	N/A
***DOE DATE:**	10/10/2014	**MULTIPLE PROPERTY NAME:**	N/A
REASON INELIGIBLE:	Outside Period of Significance		

NOMINATION STATUS:	Choose	**SIGNIFICANCE LEVEL 1:**	Choose
DATE LISTED:	N/A	**SIGNIFICANCE LEVEL 2:**	Choose
REFERENCE NUMBER:	N/A		
PERIOD:	N/A	**CRITERIA 1:**	A B C D N/A
CATEGORY:	Choose	**CRITERIA 2:**	A B C D N/A
		CRITERIA 3:	A B C D N/A
HISTORIC DISTRICT RATING:	**C or NC** Choose	**CRITERIA 4:**	A B C D N/A
SIGNIFICANCE NOTES:	Building is a generic cinder block maintenance shed with no apparent historic significance. It is not part of a historic event or associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history.		

* = REQUIRED FIELD

SOUTH DAKOTA STATE HISTORICAL SOCIETY
Department of Tourism and State Development

STRUCTURE DETAILS

***PROPERTY NAME:**	Edgemont Water System Maintenance Building		
OTHER NAME:	N/A		
CURRENT FUNCTION:	Government	**FOUNDATION:**	Concrete
CURRENT SUBFUNCTION:	Public Works	**ROOF MATERIAL:**	Asphalt
HISTORIC FUNCTION:	Government	**ROOF SHAPE:**	Gable
HISTORIC SUBFUNCTION:	Public Works	**STRUCTURAL SYSTEM:**	Other
		STYLE:	No Style
OCCUPIED:	N	**TYPE:**	Shed
ACCESSIBLE:	N	**WALLS:**	Other
STORIES:	1	**SIGNIFICANT PERSON:**	N/A
***DATE OF CONSTRUCTION:**	Circa 1960	**CULTURAL AFFILIATION:**	Euro-American
ALTERED/MOVED NOTES:	Has not been altered or moved		
INTERIOR NOTES:	Open bay		
OTHER NOTES:			
***PHYSICAL NOTES:**	This is a single story front gable concrete block maintenance building/garage with wood facing under the gable, a plywood roof and rolled asphalt roofing material. Roll top front door on south side and single entry person door on east side. Small windows, one each on east and west sides. Roll top door is open and interior appears to have been open to the elements for an extended period of time.		
***UTM ZONE:**	13	***RESTRICTED:**	N
***UTM EASTING:**	594492		
***UTM NORTHING:**	4794476		

ARCHITECTURAL EVALUATION

PORCH TYPE:	N/A
PORCH LOCATION:	N/A
PORCH HEIGHT (ft.):	N/A
PORCH ROOF:	N/A
BAYS/TOWERS TYPE:	N/A
BAYS/TOWERS LOCATION:	N/A
WINDOW TYPE:	Single pane fixed units in what appears to be wood casements
WINDOW LOCATIONS:	One each in east and west facade
CHIMNEY TYPE:	N/A
CHIMNEY LOCATION:	N/A
DORMERS TYPE:	N/A
DORMERS LOCATION:	N/A
DOOR TYPE:	Roll top vehicle entry door and single entry person door
DOOR LOCATIONS:	Roll top door in south façade, person door in east façade
INTERIOR:	Open bay
ARCHITECTURAL DETAILS:	Plain utilitarian structure with no significant architectural details.

E = EXCELLENT; F = FAIR; G = GOOD; P = POOR

OVERALL CONDITION:	G		**ROOF CONDITION:**	P	
FOUNDATION CONDITION	F		**PORCH CONDITION:**	N/A	
WALL CONDITION:	F		**INTERIOR CONDITION:**	P	
WINDOW CONDITION:	F				

HISTORY AND CONTEXT

DATE OF AREA SETTLEMENT:	1889		**DATE TOWN OR ADDITION PLATTED:**	1895

ORIGINAL OWNER:	City of Edgemont
OWNER ORIGINS:	N/A
OWNER INFO:	N/A
OTHER OWNERS:	None

SIGNIFICANT PERSON:	N/A
CULTURAL AFFILIATION:	Euro-American
BUILDER:	Unknown
STATE CONTEXT TOPIC:	N/A
HISTORY NOTES:	Structure appears to be a 1960s or later combination maintenance shed and garage.

PLANNING

PUBLIC SUPPORT:	Y		**HIGH RESEARCH VALUE:**	N	
VANDALISM:	N		**ALTERATIONS:**	N	
THREAT:	N		**DETERIORATION:**	Y	
SITE PROTECTED:	Y		**MAINTENANCE:**	Y	
			STABLE:	Y	

Structure is scheduled for eventual demolition.

ENVIRONMENTAL EFFECTS (weather, erosion, etc.):	Roof, exterior walls and interior walls show signs of weathering. Some locations, especially the interior walls and roof, show more weathering than others.

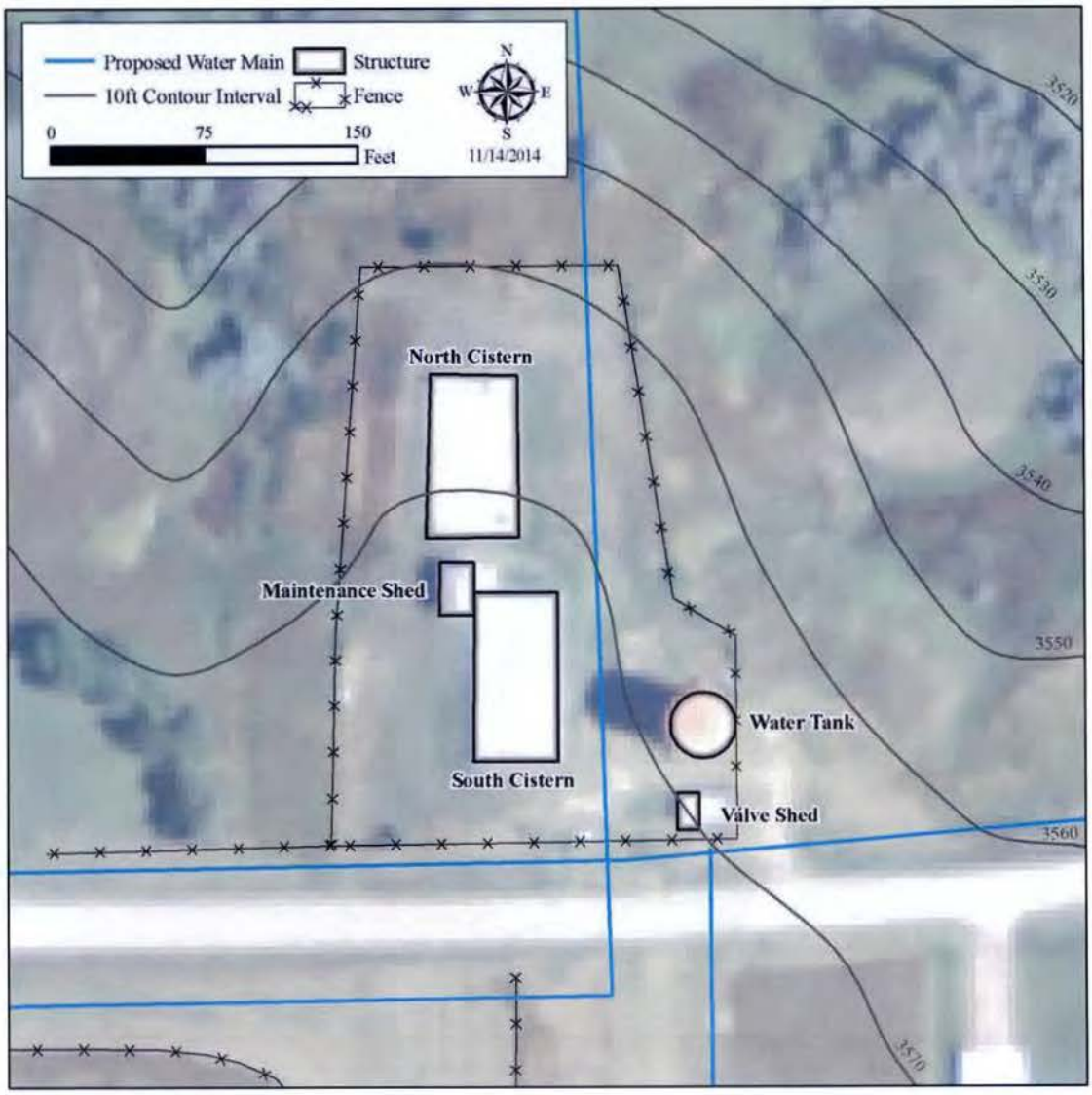
PHOTOGRAPHS

View of FA00000361 facing northeast.
M. Carpenter 10/10/2014.

Close-up View of FA00000361 facing northeast.
M. Carpenter 10/10/2014.

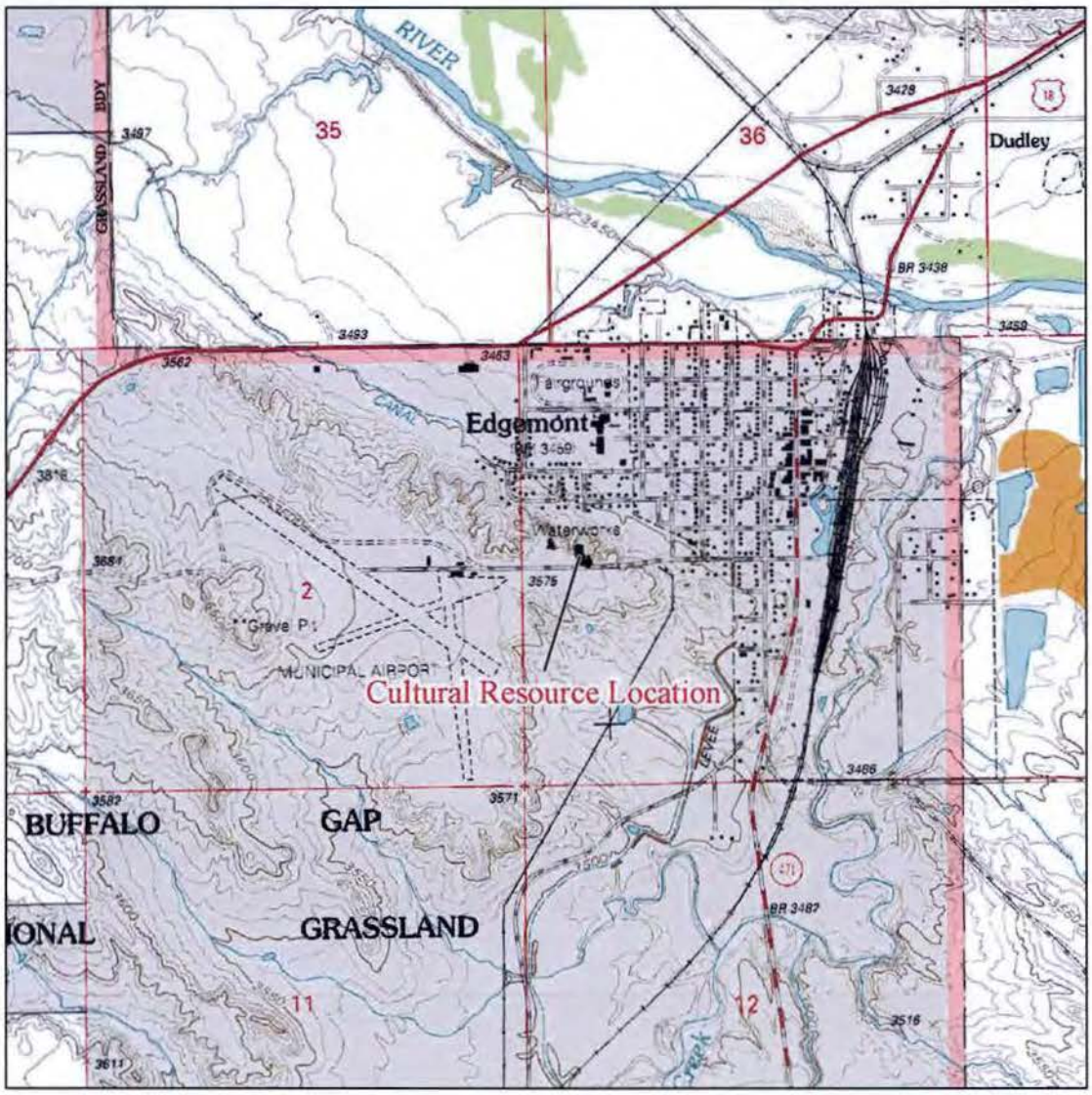
View of FA00000361 facing west.
M. Carpenter 10/10/2014.

Plan Map



Plan map showing location of Maintenance Shed within City of Edgemont Reservoir compound.

Topographic Location Map



City of Edgemont Water Service Maintenance Building 1:24,000
Township 9 South, Range 2 East, Section 1
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

SOUTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

HISTORIC SITES SURVEY INTENSIVE FORM

SOUTH DAKOTA STATE HISTORICAL SOCIETY
Department of Tourism and State Development

SITE INFORMATION for Structure# FA00000362

***SURVEY DATE:**	October 10, 2014	***QUARTER 1:**	SW
***SURVEYOR:**	Mark Carpenter and Vicki Baldwin	***QUARTER 2:**	NW
Quality Services Inc. 1621 Sheridan Lake Road, Rapid City, SD 57702 Ph. 605-388-5309; email - info@qualityservices.us.com		***TOWNSHIP:**	9S
***PROPERTY ADDRESS:**	834 H Street	***RANGE:**	2E
***COUNTY**	Fall River	***SECTION:**	1
***CITY:**	Edgemont	**ACRES:**	0.1
		QUAD NAME:	Edgemont

LEGAL DESCRIPTION:	Reservoir Tract in S/SW/NW
LOCATION DESCRIPTION:	Southwest edge of City of Edgemont approximately 960 feet east-northeast of airport entrance.

OWNER CODE 1:	L	**OWNER NAME:**	City of Edgemont
OWNER CODE 2:	N/A	**OWNER ADDRESS:**	
OWNER CODE 3:	N/A	**OWNER CITY:**	Edgemont
		OWNER STATE:	South Dakota
		OWNER ZIP:	57735

HISTORIC SIGNIFICANCE

***DOE:**	Not Eligible	**REGISTER NAME:**	N/A
***DOE DATE:**	10/10/2014	**MULTIPLE PROPERTY NAME:**	N/A
REASON INELIGIBLE:	Lack of Integrity		

NOMINATION STATUS:	Choose	**SIGNIFICANCE LEVEL 1:**	Choose
DATE LISTED:	N/A	**SIGNIFICANCE LEVEL 2:**	Choose
REFERENCE NUMBER:	N/A		
PERIOD:	N/A	**CRITERIA 1:**	A B C D N/A
CATEGORY:	Choose	**CRITERIA 2:**	A B C D N/A
		CRITERIA 3:	A B C D N/A
HISTORIC DISTRICT RATING:	**C or NC** Choose	**CRITERIA 4:**	A B C D N/A
SIGNIFICANCE NOTES:	Building is a generic concrete box cistern used to store and cool water taken from the local well/spring. While part of the water system that serves the city, it has been refurbished with a modern ventilation system. It is not associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history.		

STRUCTURE DETAILS

***PROPERTY NAME:**	Edgemont Water System North Cistern		
OTHER NAME:	N/A		
CURRENT FUNCTION:	Government	**FOUNDATION:**	Concrete
CURRENT SUBFUNCTION:	Public Works	**ROOF MATERIAL:**	Concrete
HISTORIC FUNCTION:	Government	**ROOF SHAPE:**	Flat
HISTORIC SUBFUNCTION:	Public Works	**STRUCTURAL SYSTEM:**	Concrete
		STYLE:	No Style
OCCUPIED:	N	**TYPE:**	Cistern
ACCESSIBLE:	N	**WALLS:**	Concrete
STORIES:	1	**SIGNIFICANT PERSON:**	N/A
***DATE OF CONSTRUCTION:**	Circa 1950	**CULTURAL AFFILIATION:**	Euro-American
ALTERED/MOVED NOTES:	Ventilation system replaced		
INTERIOR NOTES:	Unknown other than open tank cistern		
OTHER NOTES:	N/A		
***PHYSICAL NOTES:**	45 foot by 80 foot concrete box cistern with sloping sides and a four to six inch concrete slab roof. Four curved metal vent ducts extend from roof. Vents located approximately in the four corners of the structure (northeast vent offset toward center of north wall). Roof may have been replaced.		
***UTM ZONE:**	13	***RESTRICTED:**	N
***UTM EASTING:**	594494		
***UTM NORTHING:**	4794495		

ARCHITECTURAL EVALUATION

PORCH TYPE:	N/A
PORCH LOCATION:	N/A
PORCH HEIGHT (ft.):	N/A
PORCH ROOF:	N/A
BAYS/TOWERS TYPE:	N/A
BAYS/TOWERS LOCATION:	N/A
WINDOW TYPE:	N/A
WINDOW LOCATIONS:	N/A
CHIMNEY TYPE:	N/A
CHIMNEY LOCATION:	N/A
DORMERS TYPE:	N/A
DORMERS LOCATION:	N/A
DOOR TYPE:	Covered manhole
DOOR LOCATIONS:	Approximately 20 feet to south of tank
INTERIOR:	Open tank cistern
ARCHITECTURAL DETAILS:	N/A

E = EXCELLENT; F = FAIR; G = GOOD; P = POOR

OVERALL CONDITION:	F		**ROOF CONDITION:**	F	
FOUNDATION CONDITION	F		**PORCH CONDITION:**	N/A	
WALL CONDITION:	G		**INTERIOR CONDITION:**	N/A	
WINDOW CONDITION:	N/A				

HISTORY AND CONTEXT

DATE OF AREA SETTLEMENT:	1889		**DATE TOWN OR ADDITION PLATTED:**	1895

ORIGINAL OWNER:	City of Edgemont
OWNER ORIGINS:	N/A
OWNER INFO:	N/A
OTHER OWNERS:	None

SIGNIFICANT PERSON:	N/A
CULTURAL AFFILIATION:	Euro-American
BUILDER:	Unknown
STATE CONTEXT TOPIC:	N/A
HISTORY NOTES:	Structure appears to be a circa 1940s or 1950s or later cistern.

PLANNING

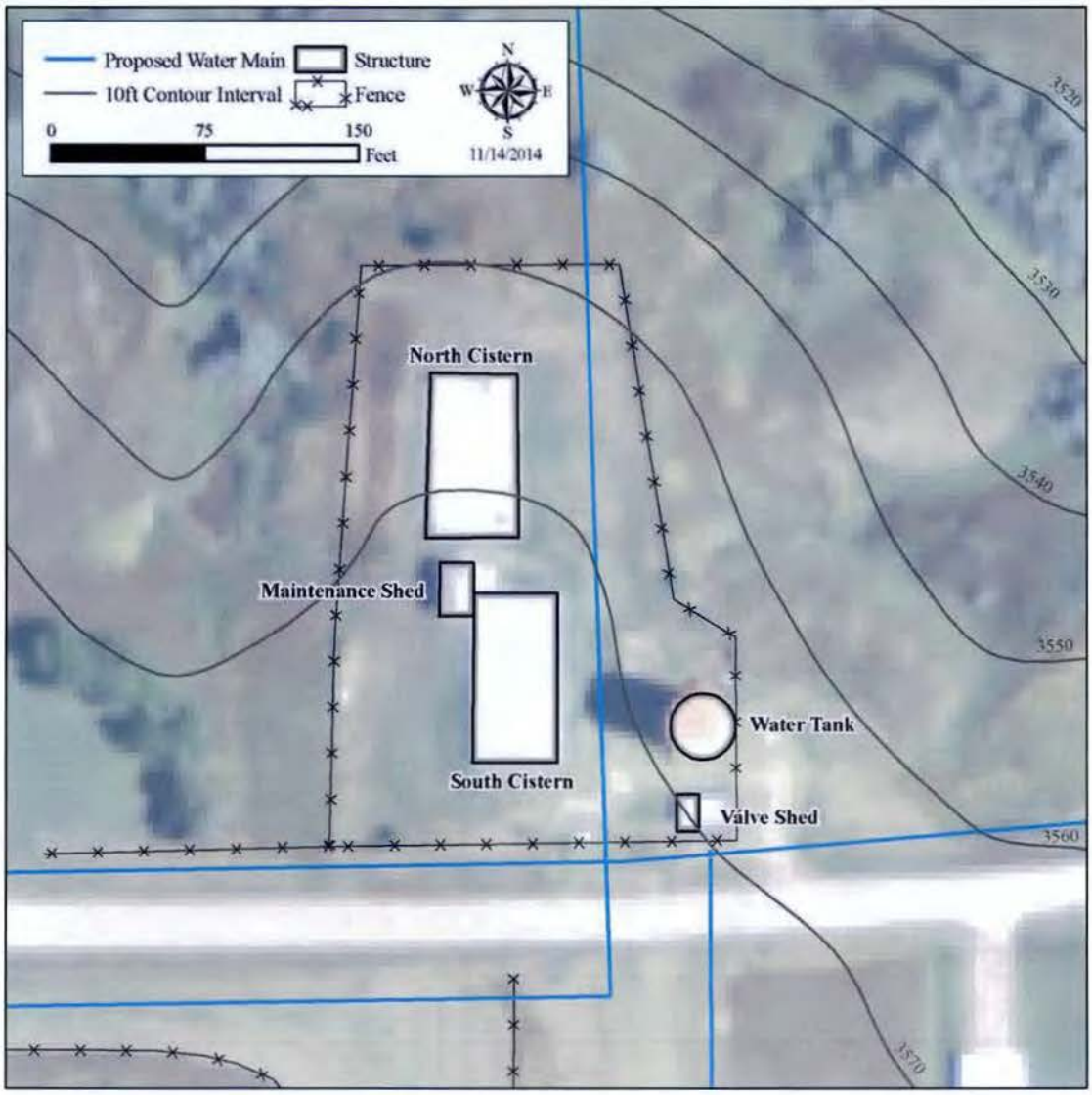
PUBLIC SUPPORT:	Y		**HIGH RESEARCH VALUE:**	N	
VANDALISM:	N		**ALTERATIONS:**	Y	
THREAT:	N		**DETERIORATION:**	Y	
SITE PROTECTED:	Y		**MAINTENANCE:**	Y	
			STABLE:	Y	

ENVIRONMENTAL EFFECTS (weather, erosion, etc.):	Exterior walls show signs of weather fading, staining and possible mildew growth. Mildew or staining may be result of weather induced cracking of concrete.

PHOTOGRAPHS

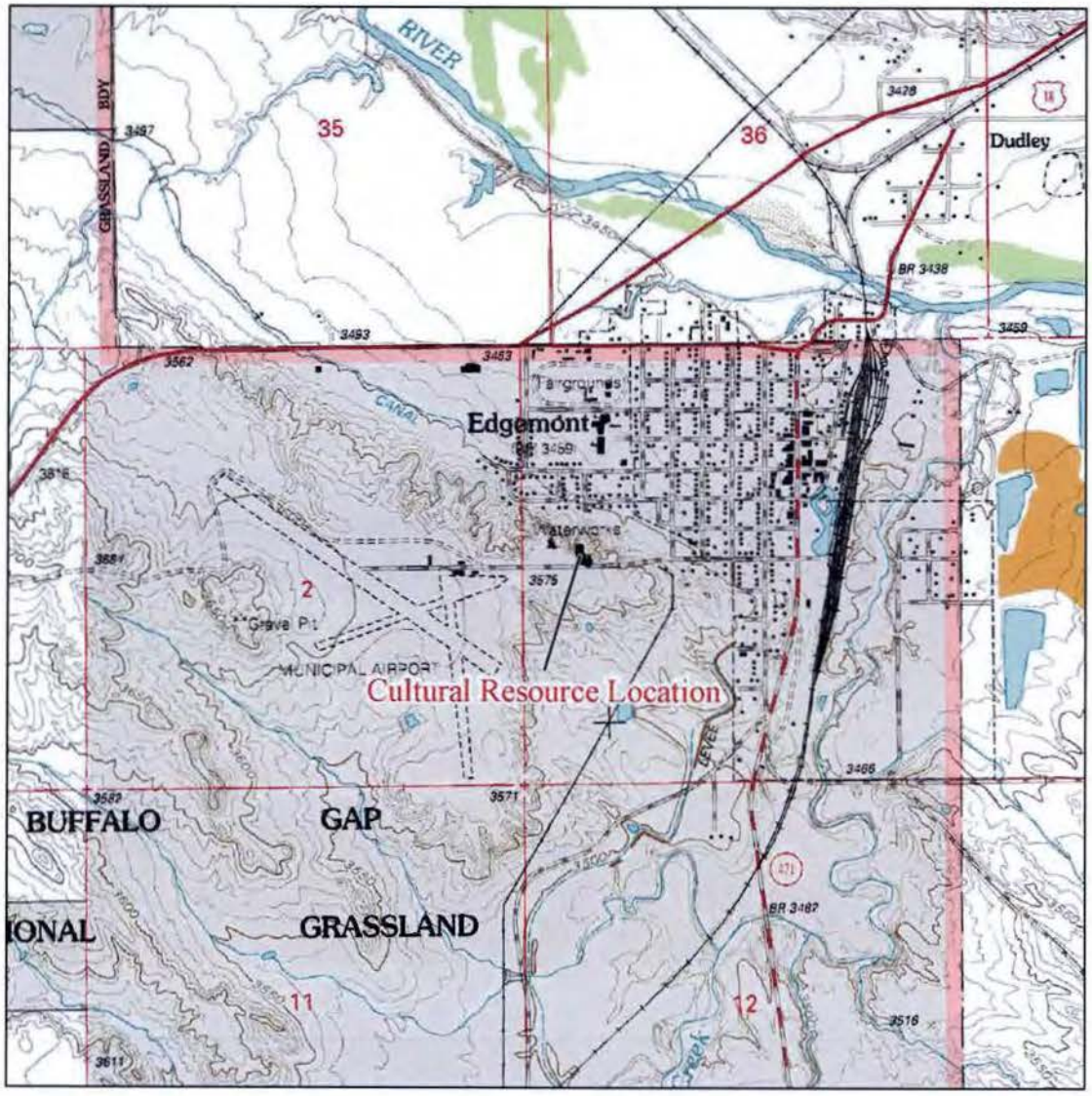
View of FA00000362 facing west.
M. Carpenter 10/10/2014.

Plan Map



Plan map showing location of North Cistern within City of Edgemont Reservoir compound.

Topographic Location Map



City of Edgemont Water Service North Cistern 1:24,000
Township 9 South, Range 2 East, Section 1
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

SOUTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

HISTORIC SITES SURVEY INTENSIVE FORM

SOUTH DAKOTA STATE HISTORICAL SOCIETY
Department of Tourism and State Development

SITE INFORMATION for Structure# FA00000363

***SURVEY DATE:**	October 10, 2014	***QUARTER 1:**	SW
***SURVEYOR:**	Mark Carpenter and Vicki Baldwin	***QUARTER 2:**	NW
Quality Services Inc. 1621 Sheridan Lake Road, Rapid City, SD 57702 Ph. 605-388-5309; email - info@qualityservices.us.com		***TOWNSHIP:**	9S
***PROPERTY ADDRESS:**	834 H Street	***RANGE:**	2E
***COUNTY**	Fall River	***SECTION:**	1
***CITY:**	Edgemont	**ACRES:**	0.1
		QUAD NAME:	Edgemont

LEGAL DESCRIPTION:	Reservoir Tract in S/SW/NW
LOCATION DESCRIPTION:	Southwest edge of City of Edgemont approximately 970 feet east of airport entrance.

OWNER CODE 1:	L	**OWNER NAME:**	City of Edgemont
OWNER CODE 2:	N/A	**OWNER ADDRESS:**	
OWNER CODE 3:	N/A	**OWNER CITY:**	Edgemont
		OWNER STATE:	South Dakota
		OWNER ZIP:	57735

HISTORIC SIGNIFICANCE

***DOE:**	Not Eligible	**REGISTER NAME:**	N/A
***DOE DATE:**	10/10/2014	**MULTIPLE PROPERTY NAME:**	N/A
REASON INELIGIBLE:	Lack of Integrity		

NOMINATION STATUS:	Choose	**SIGNIFICANCE LEVEL 1:**	Choose
DATE LISTED:	N/A	**SIGNIFICANCE LEVEL 2:**	Choose
REFERENCE NUMBER:	N/A		
PERIOD:	N/A	**CRITERIA 1:**	A B C D N/A
CATEGORY:	Choose	**CRITERIA 2:**	A B C D N/A
		CRITERIA 3:	A B C D N/A
HISTORIC DISTRICT RATING:	**C or NC** Choose	**CRITERIA 4:**	A B C D N/A
SIGNIFICANCE NOTES:	Building is a generic concrete box cistern used to store and cool water taken from the local well/spring. While part of the water system that serves the city, it has been refurbished with a modern metal roof. It is not associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history.		

* = REQUIRED FIELD

STRUCTURE DETAILS

***PROPERTY NAME:**	Edgemont Water System South Cistern		
OTHER NAME:	N/A		
CURRENT FUNCTION:	Government	**FOUNDATION:**	Concrete
CURRENT SUBFUNCTION:	Public Works	**ROOF MATERIAL:**	Metal
HISTORIC FUNCTION:	Government	**ROOF SHAPE:**	Flat
HISTORIC SUBFUNCTION:	Public Works	**STRUCTURAL SYSTEM:**	Concrete
		STYLE:	No Style
OCCUPIED:	N	**TYPE:**	Cistern
ACCESSIBLE:	N	**WALLS:**	Concrete
STORIES:	1	**SIGNIFICANT PERSON:**	N/A
***DATE OF CONSTRUCTION:**	Circa 1930	**CULTURAL AFFILIATION:**	Euro-American
ALTERED/MOVED NOTES:	Modern corrugated metal wall extension and roof added. Pipes on east side replaced with PVC.		
INTERIOR NOTES:	Unknown other than open tank cistern		
OTHER NOTES:	N/A		
***PHYSICAL NOTES:**	45 foot by 80 foot concrete box cistern with straight sides, approximately two foot tall corrugated metal wall extensions and a corrugated metal roof. Some of the concrete side walls show evidence of one by four or two by four lumber used as form.		
***UTM ZONE:**	13	***RESTRICTED:**	N
***UTM EASTING:**	594500		
***UTM NORTHING:**	4794463		

ARCHITECTURAL EVALUATION

PORCH TYPE:	N/A
PORCH LOCATION:	N/A
PORCH HEIGHT (ft.):	N/A
PORCH ROOF:	N/A
BAYS/TOWERS TYPE:	N/A
BAYS/TOWERS LOCATION:	N/A
WINDOW TYPE:	N/A
WINDOW LOCATIONS:	N/A
CHIMNEY TYPE:	N/A
CHIMNEY LOCATION:	N/A
DORMERS TYPE:	N/A
DORMERS LOCATION:	N/A
DOOR TYPE:	Covered manhole
DOOR LOCATIONS:	Approximately 10 feet to north of tank
INTERIOR:	Open tank cistern
ARCHITECTURAL DETAILS:	N/A

E = EXCELLENT; F = FAIR; G = GOOD; P = POOR

OVERALL CONDITION:	G		**ROOF CONDITION:**	F	
FOUNDATION CONDITION	P		**PORCH CONDITION:**	N/A	
WALL CONDITION:	P		**INTERIOR CONDITION:**	N/A	
WINDOW CONDITION:	N/A				

HISTORY AND CONTEXT

DATE OF AREA SETTLEMENT:	1889		**DATE TOWN OR ADDITION PLATTED:**	1895

ORIGINAL OWNER:	City of Edgemont
OWNER ORIGINS:	N/A
OWNER INFO:	N/A
OTHER OWNERS:	None

SIGNIFICANT PERSON:	N/A
CULTURAL AFFILIATION:	Euro-American
BUILDER:	Unknown
STATE CONTEXT TOPIC:	N/A
HISTORY NOTES:	Structure appears to be a circa 1920s or 1930s poured concrete cistern.

PLANNING

PUBLIC SUPPORT:	Y		**HIGH RESEARCH VALUE:**	N	
VANDALISM:	N		**ALTERATIONS:**	Y	
THREAT:	N		**DETERIORATION:**	Y	
SITE PROTECTED:	Y		**MAINTENANCE:**	Y	
			STABLE:	Y	

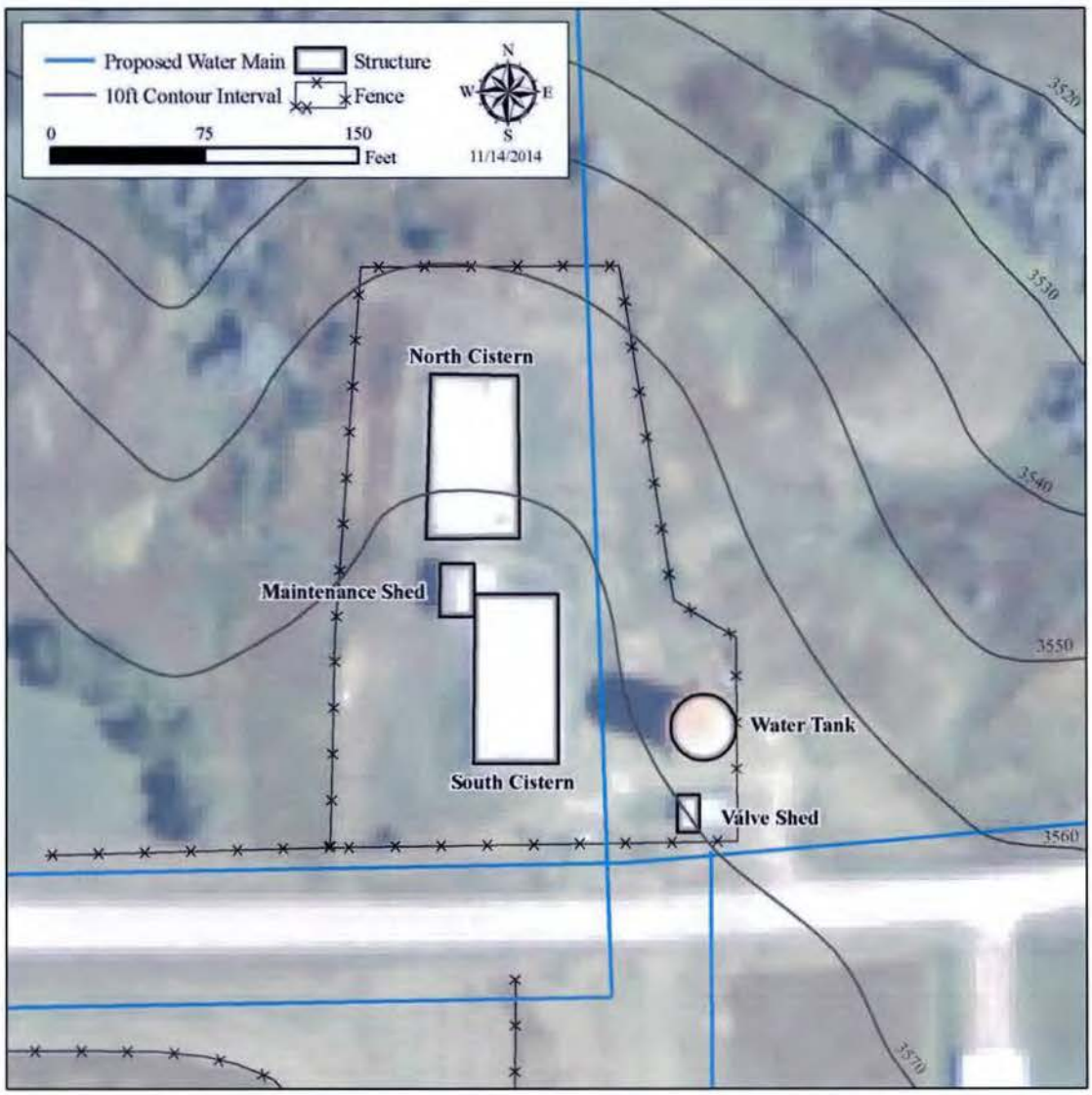
ENVIRONMENTAL EFFECTS (weather, erosion, etc.):	Exterior walls show signs of weather fading, staining and possible mildew growth. Mildew or staining may be result of weather induced cracking of concrete. Scaling of exterior mortar also present.

PHOTOGRAPHS

View of FA00000363 facing west.
M. Carpenter 10/10/2014.

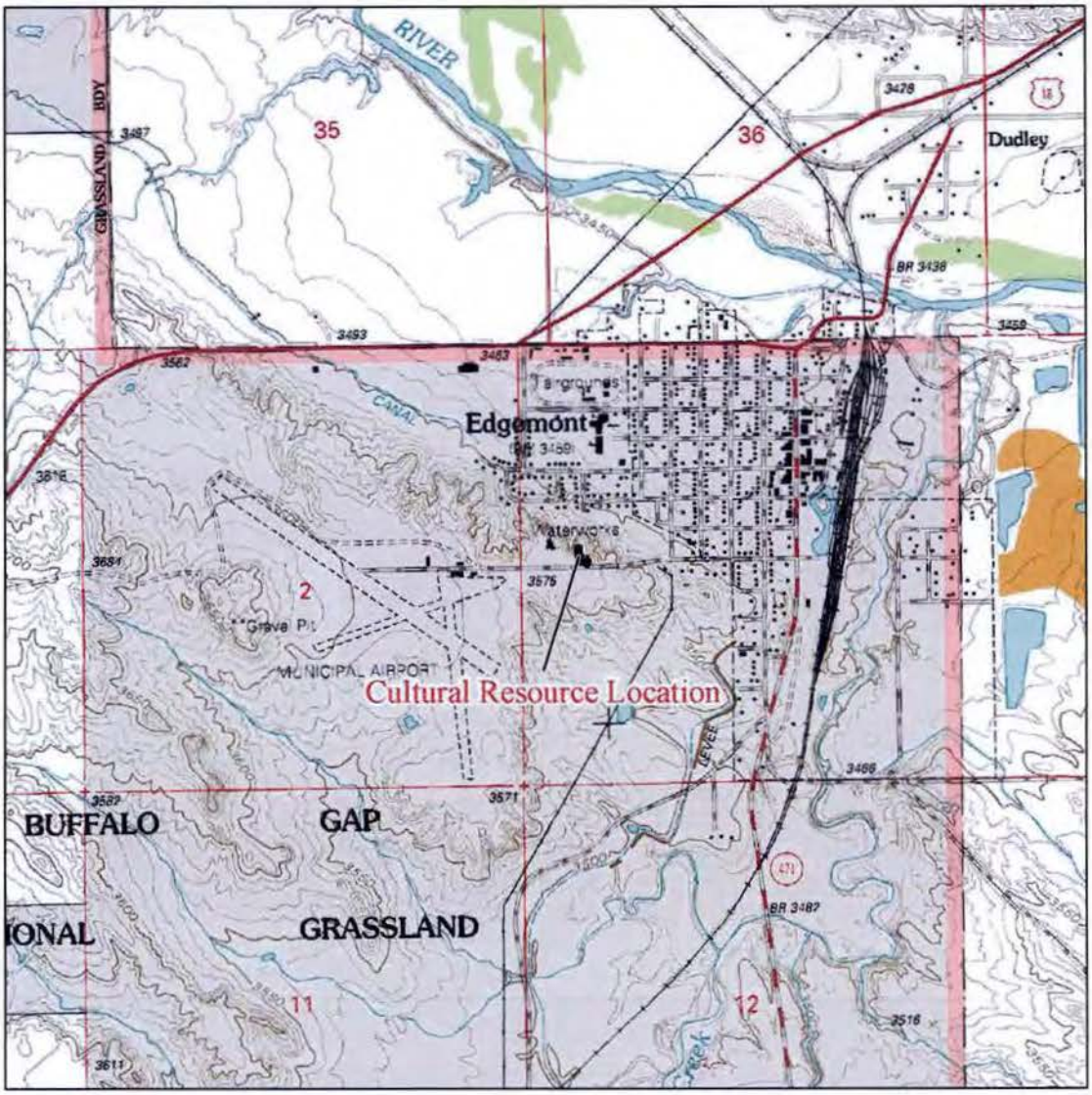
View of FA00000363 facing north.
M. Carpenter 10/10/2014.

Plan Map



Plan map showing location of South Cistern within City of Edgemont Reservoir compound.

Topographic Location Map



City of Edgemont Water Service South Cistern 1:24,000
Township 9 South, Range 2 East, Section 1
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

SOUTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

HISTORIC SITES SURVEY INTENSIVE FORM

SOUTH DAKOTA STATE HISTORICAL SOCIETY
Department of Tourism and State Development

SITE INFORMATION for Structure# FA00000364

***SURVEY DATE:**	October 10, 2014	***QUARTER 1:**	SW
***SURVEYOR:**	Mark Carpenter and Vicki Baldwin	***QUARTER 2:**	NW
Quality Services Inc. 1621 Sheridan Lake Road, Rapid City, SD 57702 Ph. 605-388-5309; email - info@qualityservices.us.com		***TOWNSHIP:**	9S
***PROPERTY ADDRESS:**	834 H Street	***RANGE:**	2E
***COUNTY**	Fall River	***SECTION:**	1
***CITY:**	Edgemont	**ACRES:**	0.001
		QUAD NAME:	Edgemont

LEGAL DESCRIPTION:	Reservoir Tract in S/SW/NW
LOCATION DESCRIPTION:	Southwest edge of City of Edgemont approximately 1,070 feet east of airport entrance.

OWNER CODE 1:	L	**OWNER NAME:**	City of Edgemont
OWNER CODE 2:	N/A	**OWNER ADDRESS:**	
OWNER CODE 3:	N/A	**OWNER CITY:**	Edgemont
		OWNER STATE:	South Dakota
		OWNER ZIP:	57735

HISTORIC SIGNIFICANCE

***DOE:**	Not Eligible	**REGISTER NAME:**	N/A
***DOE DATE:**	10/10/2014	**MULTIPLE PROPERTY NAME:**	N/A
REASON INELIGIBLE:	Less than 50 years old		

NOMINATION STATUS:	Choose	**SIGNIFICANCE LEVEL 1:**	Choose
DATE LISTED:	N/A	**SIGNIFICANCE LEVEL 2:**	Choose
REFERENCE NUMBER:	N/A		
PERIOD:	N/A	**CRITERIA 1:**	A B C D N/A
CATEGORY:	Choose	**CRITERIA 2:**	A B C D N/A
		CRITERIA 3:	A B C D N/A
HISTORIC DISTRICT RATING:	**C or NC** Choose	**CRITERIA 4:**	A B C D N/A

SIGNIFICANCE NOTES:	Building is a generic metal shed and cistern meant to house water system valves and has no historic significance. It is not part of a historic event or associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history.

* = REQUIRED FIELD

SOUTH DAKOTA STATE HISTORICAL SOCIETY
Department of Tourism and State Development

STRUCTURE DETAILS

***PROPERTY NAME:**	Edgemont Water System Valve Shed		
OTHER NAME:	N/A		
CURRENT FUNCTION:	Government	**FOUNDATION:**	Concrete
CURRENT SUBFUNCTION:	Public Works	**ROOF MATERIAL:**	Metal
HISTORIC FUNCTION:	Government	**ROOF SHAPE:**	Hip
HISTORIC SUBFUNCTION:	Public Works	**STRUCTURAL SYSTEM:**	Metal
		STYLE:	No Style
OCCUPIED:	N	**TYPE:**	Shed
ACCESSIBLE:	N	**WALLS:**	Metal
STORIES:	1	**SIGNIFICANT PERSON:**	N/A
***DATE OF CONSTRUCTION:**	Circa 1970	**CULTURAL AFFILIATION:**	Euro-American
ALTERED/MOVED NOTES:	Has not been altered or moved		
INTERIOR NOTES:	No Access		
OTHER NOTES:	N/A		
***PHYSICAL NOTES:**	Metal panel sided shed with two vent pipes on ride of roof. Connected small concrete cistern with vented metal roof at eastern base.		
***UTM ZONE:**	13	***RESTRICTED:**	N
***UTM EASTING:**	594526		
***UTM NORTHING:**	4794443		

ARCHITECTURAL EVALUATION

PORCH TYPE:	N/A
PORCH LOCATION:	N/A
PORCH HEIGHT (ft.):	N/A
PORCH ROOF:	N/A
BAYS/TOWERS TYPE:	N/A
BAYS/TOWERS LOCATION:	N/A
WINDOW TYPE:	N/A
WINDOW LOCATIONS:	N/A
CHIMNEY TYPE:	N/A
CHIMNEY LOCATION:	N/A
DORMERS TYPE:	N/A
DORMERS LOCATION:	N/A
DOOR TYPE:	N/A
DOOR LOCATIONS:	N/A
INTERIOR:	N/A
ARCHITECTURAL DETAILS:	N/A

E = EXCELLENT; F = FAIR; G = GOOD; P = POOR

OVERALL CONDITION:	G		**ROOF CONDITION:**	G	
FOUNDATION CONDITION	G		**PORCH CONDITION:**	N/A	
WALL CONDITION:	F		**INTERIOR CONDITION:**	N/A	
WINDOW CONDITION:	N/A				

HISTORY AND CONTEXT

DATE OF AREA SETTLEMENT:	1889		**DATE TOWN OR ADDITION PLATTED:**	1895

ORIGINAL OWNER:	City of Edgemont
OWNER ORIGINS:	N/A
OWNER INFO:	N/A
OTHER OWNERS:	None

SIGNIFICANT PERSON:	N/A
CULTURAL AFFILIATION:	Euro-American
BUILDER:	Unknown
STATE CONTEXT TOPIC:	N/A
HISTORY NOTES:	Structure is a circa 1960s or 1970s metal sided shed, with a small concrete cistern at its base.

PLANNING

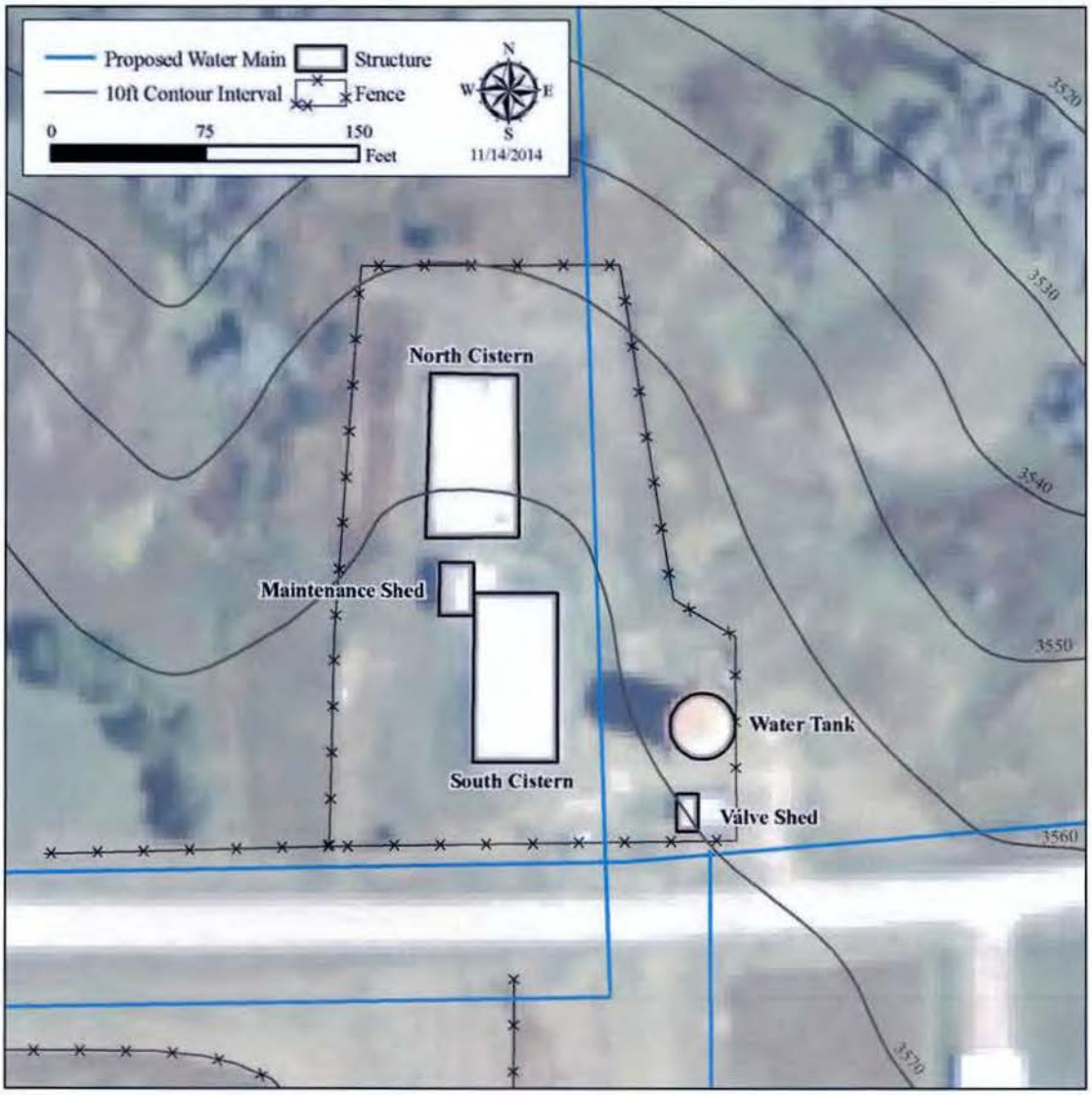
PUBLIC SUPPORT:	Y		**HIGH RESEARCH VALUE:**	N	
VANDALISM:	N		**ALTERATIONS:**	N	
THREAT:	N		**DETERIORATION:**	Y	
SITE PROTECTED:	Y		**MAINTENANCE:**	Y	
			STABLE:	Y	
ENVIRONMENTAL EFFECTS (weather, erosion, etc.):	Dents, small rust spots, chipped paint and paint fading evident on structure.				

PHOTOGRAPHS

View of FA00000364 facing west.
M. Carpenter 10/10/2014.

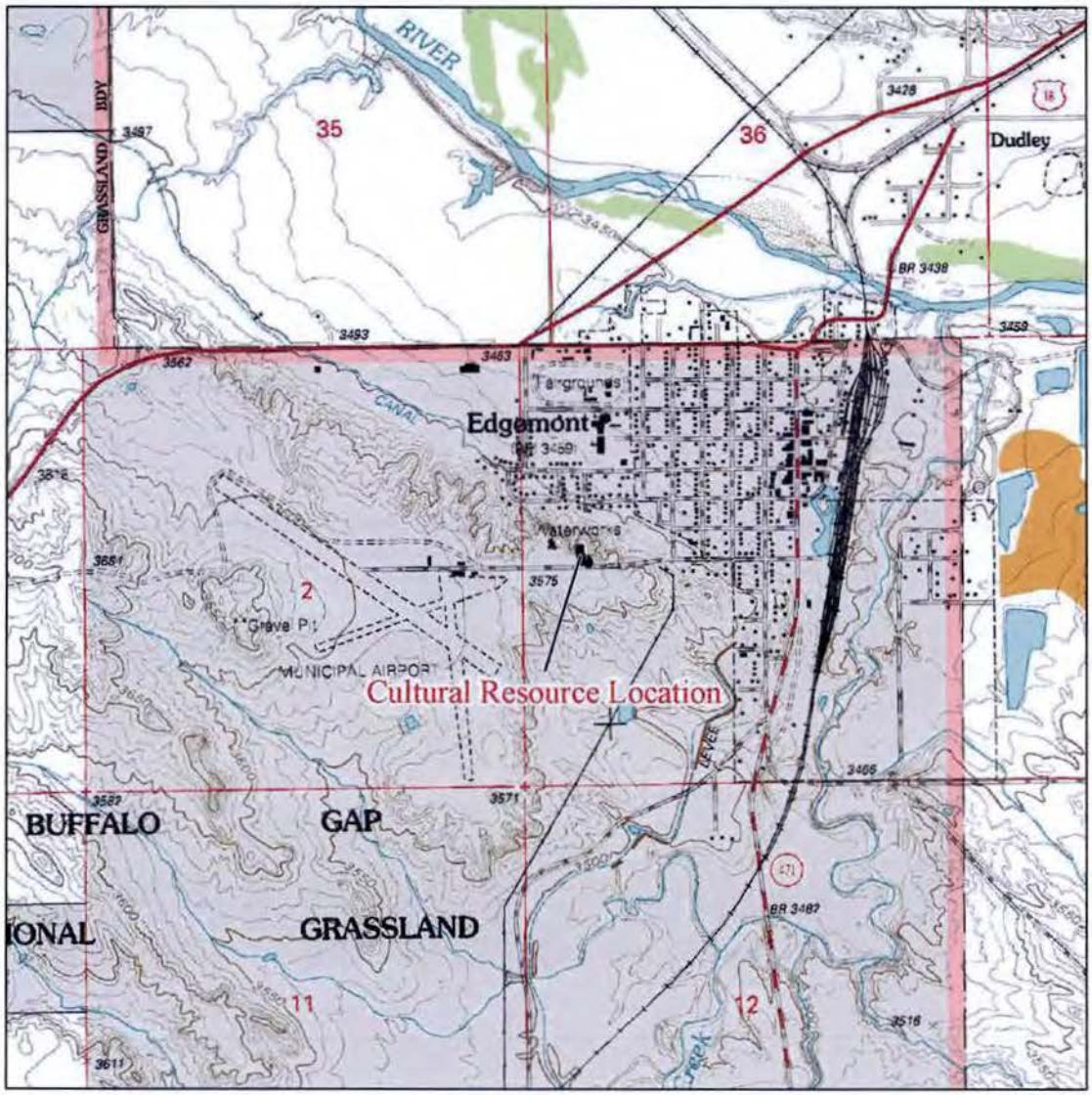
View of FA00000364 and reservoir compound facing west.
M. Carpenter 10/10/2014.

Plan Map



Plan map showing location of Valve Shed within City of Edgemont Reservoir compound.

Topographic Location Map



City of Edgemont Water Service Valve Shed 1:24,000
Township 9 South, Range 2 East, Section 1
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

SOUTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

HISTORIC SITES SURVEY INTENSIVE FORM

SOUTH DAKOTA STATE HISTORICAL SOCIETY
Department of Tourism and State Development

SITE INFORMATION for Structure# FA00000365

*SURVEY DATE:	October 10, 2014	*QUARTER 1:	SW
*SURVEYOR:	Mark Carpenter and Vicki Baldwin	*QUARTER 2:	NW
Quality Services Inc. 1621 Sheridan Lake Road, Rapid City, SD 57702 Ph. 605-388-5309; email - info@qualityservices.us.com		*TOWNSHIP:	9S
*PROPERTY ADDRESS:	834 H Street	*RANGE:	2E
*COUNTY	Fall River	*SECTION:	1
*CITY:	Edgemont	ACRES:	0.002
		QUAD NAME:	Edgemont
LEGAL DESCRIPTION:	Reservoir Tract in S/SW/NW		
LOCATION DESCRIPTION:	Southwest edge of City of Edgemont approximately 1,070 feet east of airport entrance.		

OWNER CODE 1:	L	OWNER NAME:	City of Edgemont
OWNER CODE 2:	N/A	OWNER ADDRESS:	
OWNER CODE 3:	N/A	OWNER CITY:	Edgemont
		OWNER STATE:	South Dakota
		OWNER ZIP:	57735

HISTORIC SIGNIFICANCE

*DOE:	Not Eligible	REGISTER NAME:	N/A
*DOE DATE:	10/10/2014	MULTIPLE PROPERTY NAME:	N/A
REASON INELIGIBLE:	Outside Period of Significance		
NOMINATION STATUS:	Choose	SIGNIFICANCE LEVEL 1:	Choose
DATE LISTED:	N/A	SIGNIFICANCE LEVEL 2:	Choose
REFERENCE NUMBER:	N/A		
PERIOD:	N/A	CRITERIA 1:	A B C D N/A
CATEGORY:	Choose	CRITERIA 2:	A B C D N/A
		CRITERIA 3:	A B C D N/A
HISTORIC DISTRICT RATING:	C or NC Choose	CRITERIA 4:	A B C D N/A
SIGNIFICANCE NOTES:	Building is a generic riveted steel water tank with no apparent historic significance. It is not part of a historic event or associated with a historic person. It is very common in style and does not represent the work of a master craftsman. It is not likely to yield information important to local, state or national history.		

* = REQUIRED FIELD

STRUCTURE DETAILS

***PROPERTY NAME:**	Edgemont Water System Water Tank		
OTHER NAME:	N/A		
CURRENT FUNCTION:	Government	**FOUNDATION:**	Concrete
CURRENT SUBFUNCTION:	Public Works	**ROOF MATERIAL:**	Metal
HISTORIC FUNCTION:	Government	**ROOF SHAPE:**	Dome
HISTORIC SUBFUNCTION:	Public Works	**STRUCTURAL SYSTEM:**	Metal
		STYLE:	No Style
OCCUPIED:	N	**TYPE:**	Water Tower
ACCESSIBLE:	N	**WALLS:**	Metal
STORIES:	N/A	**SIGNIFICANT PERSON:**	N/A
***DATE OF CONSTRUCTION:**	Circa 1930	**CULTURAL AFFILIATION:**	Euro-American
ALTERED/MOVED NOTES:	Has not been altered. And does not appear to have been moved once erected within this compound.		
INTERIOR NOTES:	No Access		
OTHER NOTES:	N/A		
***PHYSICAL NOTES:**	Riveted steel standpipe water tank with dome top and concrete base. Float style water level indicator with weighted pendulum indicator next to exterior ladder on outside of tank.		
***UTM ZONE:**	13	***RESTRICTED:**	N
***UTM EASTING:**	594526		
***UTM NORTHING:**	4794456		

ARCHITECTURAL EVALUATION

PORCH TYPE:	N/A
PORCH LOCATION:	N/A
PORCH HEIGHT (ft.):	N/A
PORCH ROOF:	N/A
BAYS/TOWERS TYPE:	N/A
BAYS/TOWERS LOCATION:	N/A
WINDOW TYPE:	N/A
WINDOW LOCATIONS:	N/A
CHIMNEY TYPE:	N/A
CHIMNEY LOCATION:	N/A
DORMERS TYPE:	N/A
DORMERS LOCATION:	N/A
DOOR TYPE:	N/A
DOOR LOCATIONS:	N/A
INTERIOR:	N/A
ARCHITECTURAL DETAILS:	N/A

E = EXCELLENT; F = FAIR; G = GOOD; P = POOR

OVERALL CONDITION:	F		**ROOF CONDITION:**	N/A	
FOUNDATION CONDITION	G		**PORCH CONDITION:**	N/A	
WALL CONDITION:	F		**INTERIOR CONDITION:**	N/A	
WINDOW CONDITION:	N/A				

HISTORY AND CONTEXT

DATE OF AREA SETTLEMENT:	1889		**DATE TOWN OR ADDITION PLATTED:**	1895

ORIGINAL OWNER:	City of Edgemont
OWNER ORIGINS:	N/A
OWNER INFO:	N/A
OTHER OWNERS:	None

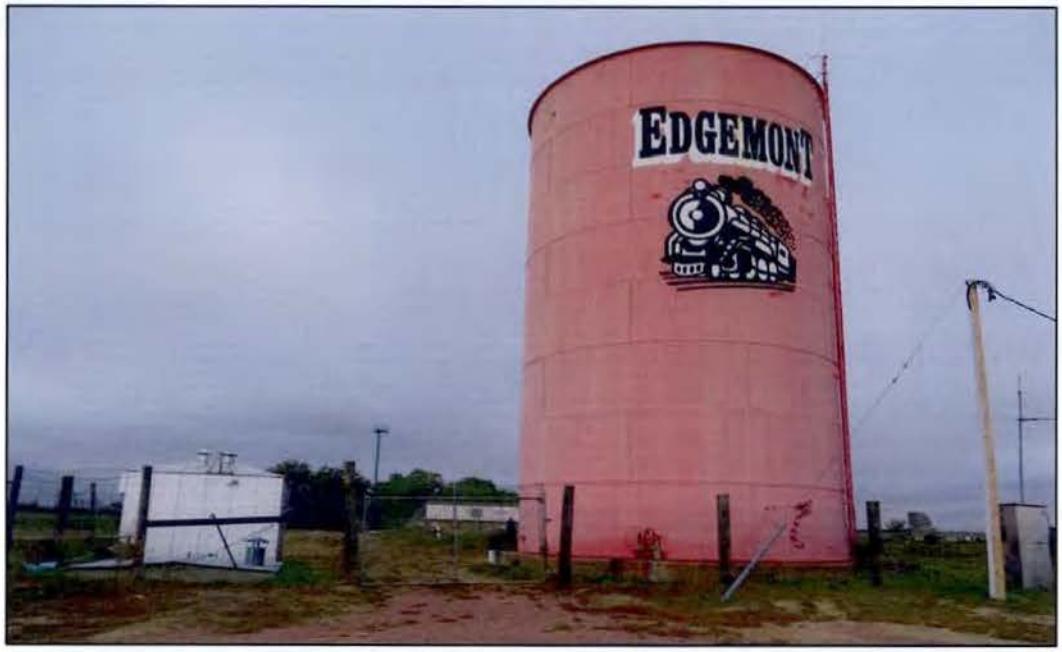
SIGNIFICANT PERSON:	N/A
CULTURAL AFFILIATION:	Euro-American
BUILDER:	Unknown
STATE CONTEXT TOPIC:	N/A
HISTORY NOTES:	Structure appears to be a 1930s or later riveted steel water tank.

PLANNING

PUBLIC SUPPORT:	Y		**HIGH RESEARCH VALUE:**	N	
VANDALISM:	N		**ALTERATIONS:**	N	
THREAT:	N		**DETERIORATION:**	Y	
SITE PROTECTED:	Y		**MAINTENANCE:**	Y	
			STABLE:	Y	

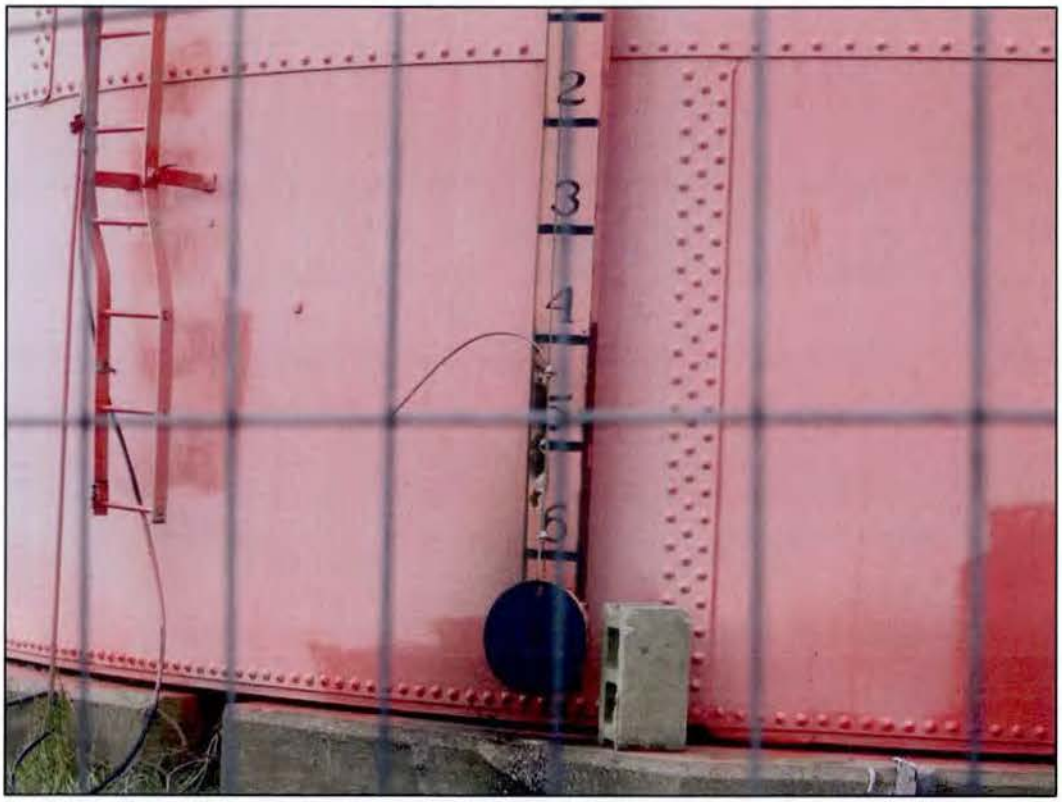
ENVIRONMENTAL EFFECTS (weather, erosion, etc.):	Weathering erosion, fading and staining to concrete foundation. Tank appears recently repainted.

PHOTOGRAPHS



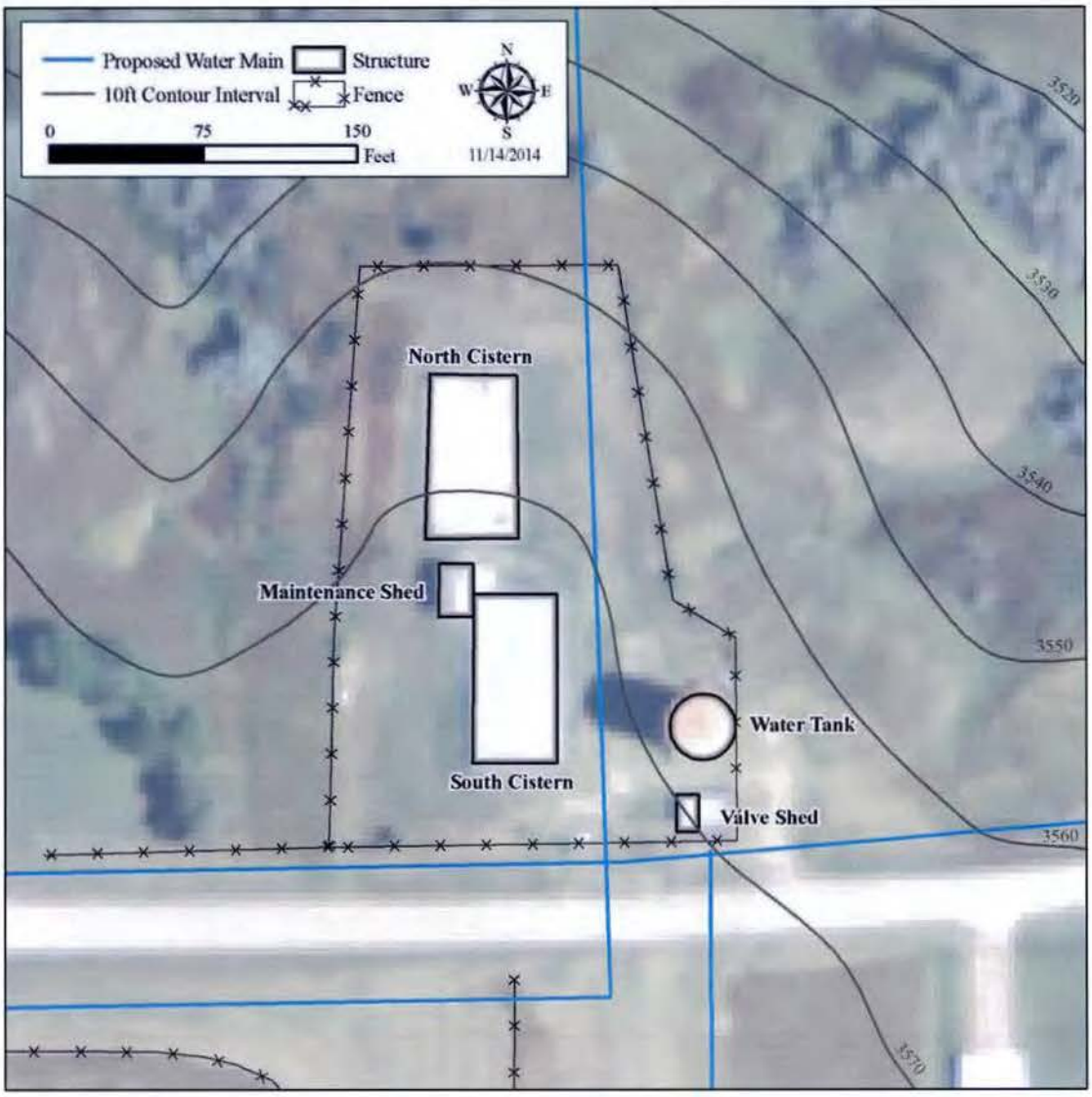
View of FA00000365 facing west.
M. Carpenter 10/10/2014.

View of riveted plating on FA00000365.
M. Carpenter 10/10/2014.



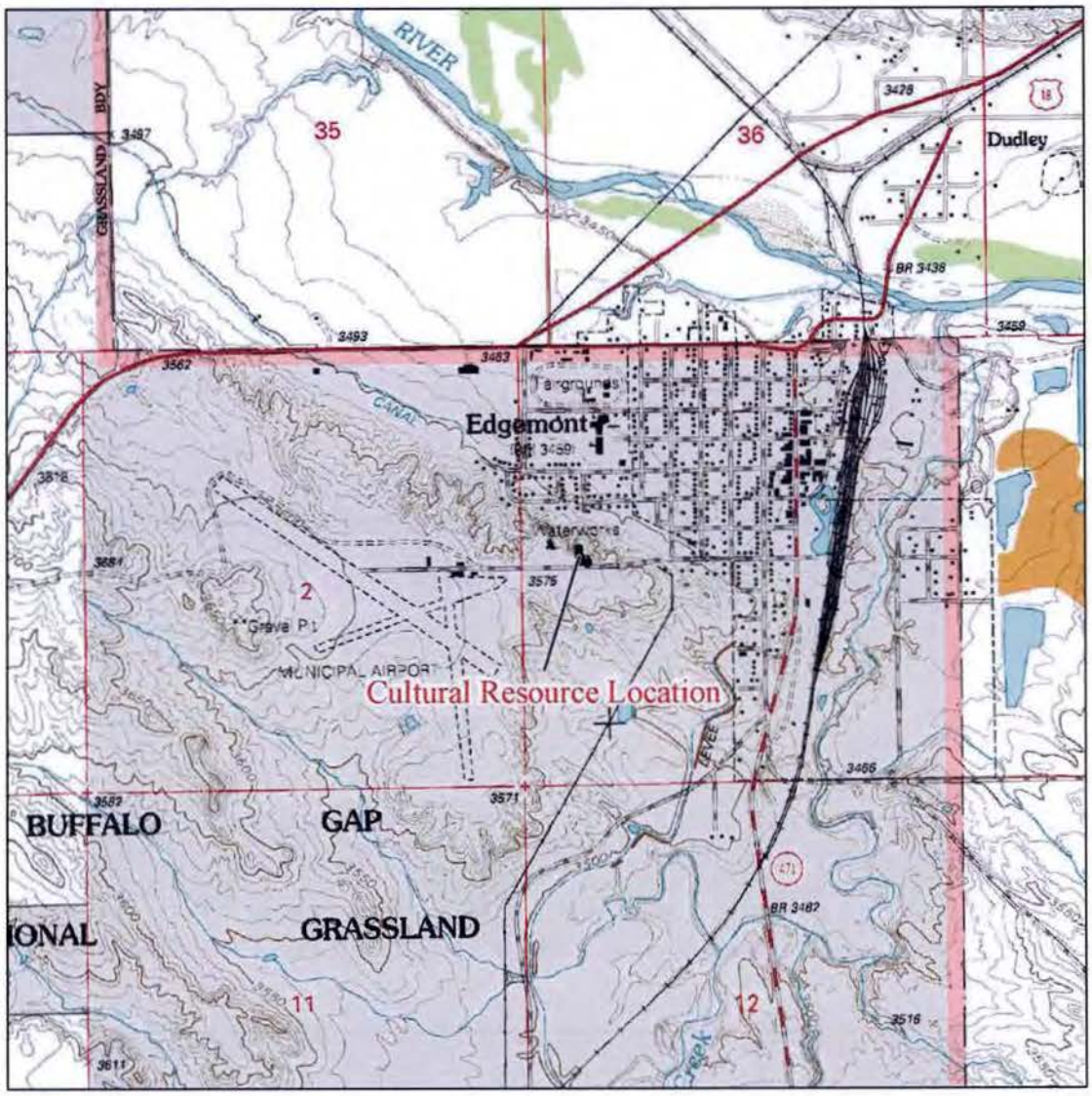
View of riveted plating and water level measuring device on FA00000365.
M. Carpenter 10/10/2014.

Plan Map



Plan map showing location of Water Tank within City of Edgemont Reservoir compound.

Topographic Location Map



City of Edgemont Water Service Water Tank 1:24,000
Township 9 South, Range 2 East, Section 1
USGS 7.5' Edgemont, South Dakota topographic quadrangle 1980

AE2S
www.ae2s.com

1560 Concourse Drive
Rapid City, SD 57703
Phone (605) 341-7800
Fax (605) 341-7864

Letter of Transmittal

DATE:	3/12/2015	JOB NO:	13134.00
ATTENTION:	Bill Lass		
RE:	**Water System Facilities Plan for**		
	City of Edgemont, SD		

TO: Black Hills Council of Local Governments
730 E. Watertown Street, Suite 102
Rapid City, SD 57701

WE ARE ☐ SENDING
☒ HAND DELIVERING

☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change Order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	3-10-2015		Water System Facilities Plan.

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Reviewed ☐ Revise and resubmit
☒ For your use ☐ Rejected ☐ Resubmit _____ copies for approval
☐ As requested ☐ Make corrections noted ☐ Return _____ corrected prints
☐ For review and comment
☐ Other _____

REMARKS:

COPY TO: _____

SIGNED: Greg Wierenga
Greg Wierenga, P.E.

WRAP Review Sheet
Drinking Water Facilities Funding Application
Applicant: TC&G Water Association

Project Title:	Water System Improvements
Funding Requested:	$2,100,000
Other Proposed Funding:	$0 - Local Cash $500,000 Community Development Block Grant awarded for this project after application was submitted
Total Project Cost:	$2,100,000
Project Description:	Replacement 140 water meters, a booster station and 94,000 feet of 2-to 5-inch PVC and 6 inch ductile iron pipe throughout the system with 6-inch PVC water main.
Alternatives Evaluated:	No Action Alternative: Was evaluated for both storage and distribution. This alternative was rejected due to the problems associated with aging infrastructure. Water Storage: One water storage alternative was evaluated which included the replacement of the 31,700-gallon standpipe. The storage system is considered adequate and the standpipe may come to the end of its useful life within the next 10 to 15 years. Water Distribution: Three additional water distribution alternatives were evaluated and recommended. This includes replacement of 140 water meters and installation of automatic meter reading system, replacement of the west end booster pump station and 94,000 feet of 2-to 5-inch PVC line and 6 inch ductile iron pipe with 6 inch PVC water main.
Implementation Schedule:	T.C. & G. Water Association anticipates bidding the project in October 2015 with a project completion date of October 2016.
Service Population:	220
Current Domestic Rate:	$93.00 per 7,000 gallons/usage
Proposed Domestic Rate at Project Completion:	$93.00 per 7,000 gallons/usage

Interest Rate: 2.25% Term: 30 years Security: Water Surcharge

DEBT SERVICE CAPACITY

Coverage at Maximum Loan Amount:	If all funding is provided as loan, TC&G would have to increase annual revenue approximately 45%. Current annual revenue is approximately $160,000. TC&G would need to increase annual revenue approximately $72,000. Based on 135 users, an increase of approximately $45/user/month would be needed.

30% Funding Subsidy:	$630,000,000 subsidy with a loan of $1,470,000.
Coverage at 25% Subsidy:	Based on a 30% subsidy and a loan of $1,470,000 TC&G would have to increase annual revenue approximately 41%. Current annual revenue is approximately $160,000. TC&G would need to increase annual revenue approximately $64,960. Based on 135 users, an increase of approximately $40/user/month would be needed.

60% Funding Subsidy:	$1,260,000 subsidy with a loan of $840,000.
Coverage at 60% Subsidy:	Based on a 60% subsidy and a loan of $840,000 TC&G would have to increase annual revenue approximately 21%. Current annual revenue is approximately $160,000. TC&G would need to increase annual revenue approximately $33,175. Based on 135 users, an increase of approximately $21/user/month would be needed.

90% Funding Subsidy:	$1,890,000 subsidy with a loan of $210,000.
Coverage at 90% Subsidy:	Based on a 90% subsidy and a loan of $210,000 TC&G would have to increase annual revenue approximately 1%. Current annual revenue is approximately $160,000. TC&G would need to increase annual revenue approximately $1,600. Based on 135 users, an increase of approximately $1/user/month would be needed

ENGINEERING REVIEW COMPLETED BY: CLAIRE PESCHONG

FINANCIAL REVIEW COMPLETED BY: DAVID RUHNKE

RECEIVED

APR - 1 2015

Division of Financial
& Technical Assistance

SD EForm - 2126LD V2

Drinking Water Facilities Funding Application

Consolidated Water Facilities Construction Program (CWFCP)
Drinking Water State Revolving Fund Program (DWSRF)

Applicant	Proposed Funding Package	
TC&G Water Association, Inc.	CWFCP / DWSRF	$2,100,000
Address	Local Cash	
13485 258 Ave Glencross, SD 57630	Other	
	Other	
Subapplicant	Other	
N/A		
DUNS Number	Dewey County is applying for a CDBG which may lessen the amount needed from SDDENR. **TOTAL**	$2,100,000

Project Title: T.C.&G Water Association, Inc. Water System Improvements Project

Description:

The T.C.&G Water Association proposes to replace approximately 140 meters, replace a booster station, upgrade approximately 94,000 feet of pipeline to 6" pipe, plus the necessary appurtenances involved with the project.

The T. C. & G Water Association, Inc. is currently experiencing a 28.4% water loss and the inability to meet water demands of its users on the east end of the system largely due to pipe size, water loss, and pressure capacity. The water demand by its users has increased 67% over the last few years. In fact, users on the east end of the system have been without water due to the demands of users on the west end. The storage facility on the east end can go dry within 12 hours and it takes up to 38 hours to refill the facility. A major loss of water is coming from its 20+ year old meter system. Studies have shown worn meters generally under-read actual flow. Therefore, it can be easily concluded that some of the system's water loss is due to old, worn meters that no longer accurately meter water flow. Thus, the Association proposes to replace approximately140 meters, plus necessary appurtenances for Automated Reading System. The Association proposes to replace the booster pump located on the west end of the system as it is beyond repair. In addition approximately 94,000 feet of pipeline will be upgraded to 6" pipe as the current pipe is undersized. Also involved will be all necessary appurtenances for the project. Currently residential water rates are $93/7000 gallons/month, and pasture taps are $65/year plus $4.00 for each 1000 gallons used. The system currently serves 138 users. A facility plan with costs was prepared by Brosz Engineering, Inc. and is on file with SDDENR.

The Applicant Certifies That:

I declare and affirm under the penalties of perjury that this application has been examined by me and, to the best of my knowledge and belief, is in all things true and correct.

Don Hollenbeck, Board President/Chairman		3/30/2015
Name & Title of Authorized Signatory (Typed)	Signature	Date

Professional Consultants

Application Prepared By: Central South Dakota Enhancement District

Contact Person: Marlene Knutson

Mailing Address: 3431 Airport Road, Suite 3 or PO Box 220

City, State, and Zip: Pierre, South Dakota 57501

Telephone Number: 605-773-2782 or 773-2780 Fax: 605-773-2784

Email address: mknutson@csded.org

Consulting Engineering Firm: Brosz Engineering, Inc.

Contact Person: Chancey Shrake

Mailing Address: 3030 Airport Road, Suite A

City, State, and Zip: Pierre, South Dakota 57501

Telephone Number: 605-224-1123 Fax: 605-224-0659

Email address: chanceys@broszengineering.com

Legal Counsel's Firm: Aberle and Aberle Attorneys

Legal Counsel: Steve Aberle

Mailing Address: PO Box 236

City, State, and Zip: Timber Lake, South Dakota 57656

Telephone Number: 605-865-3528 Fax: 605-865-3808

Email address: steveaberle2001@yahoo.com

This section applies only to political subdivisions THIS SECTION IS NOT APPLICABLE!

Bond Counsel's Firm:

Bond Counsel:

Mailing Address:

City, State, and Zip:

Telephone Number: Fax:

Email address:

BUDGET SHEET

Cost Classification	A CWFCP / DWSRF	B	C	D	E	Total Funds
1. Administrative Expenses						
A. Personal Services						
B. Travel						
C. Legal including Bond Counsel	$12,000.00					$12,000.00
D. Other (publications, audits, admin. assist. etc.)	$10,000.00					$10,000.00
2. Land, Structure, Right-of-Way	$7,000.00					$7,000.00
3. Engineering						
A. Bidding and Design Fees	$125,000.00					$125,000.00
B. Project Inspection Fees	$125,000.00					$125,000.00
C. Other						
4. Construction and Project Improvement	$1,600,000.00					$1,600,000.00
5. Equipment						
6. Contractual Services						
7. Other						
8. Other						
9. Subtotal (Lines 1-8)	$1,879,000.00					$1,879,000.00
10. Contingencies	$221,000.00					$221,000.00
11. Total (Lines 9 and 10)	$2,100,000.00					$2,100,000.00
12. Total %	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%

Columns A - E: Identify each funding source and enter the amounts budgeted by cost category.

Comments:Dewey County is applying for a $515,000 CDBG on behalf of this project with $500,000 to be utilized for construction and the rest for administration which is not shown above. As these funds are uncertain, they have not been included in the budget.

Method of Financing

Source Header	Secured Funds	Unsecured Funds (Date Anticipated)
Local Cash (Identify Source)		
Other (Explain) CWFC/SWSRF		$2,100,000.00 7/2015
Other (Explain)		
Other (Explain)		
Other (Explain)		
Other (Explain)		
TOTAL		$2,100,000.00

Comments:
The system is requesting grant and or loan subsidy as part of the financing package as without it a loan at 2.25% for 30 years will result in a monthly water rate of approximately $158.50/month for a residential household for 7000 gallons.

7.3.1 Repayment Information

Interest rate and term you are applying for: 2.25 %, 30 years.

What security is being pledged toward the repayment of this loan?
(Political Subdivisions Only) NOT APPLICABLE!

- ☐ 1. General Obligation bond (requires bond election)
- ☐ 2. Water Revenue bond
- ☐ 3. Project Surcharge Revenue bond
- ☐ 4. Sales Tax Revenue bond

7.3.2 Documents That Must Be Submitted With The Application

Financial Documents

1. Most recent audit or unaudited financial statement to include specific accounting of pledged funds. Unaudited financial statements are attached.
2. Current year's budget. -- see attached!

Planning and Legal Documents

1. Governing user charge ordinance or resolution and its effective date.
2. Resolution of authorized signatory for submission of the Drinking Water SRF application and signing of payment requests. This resolution must also include the maximum loan amount requested, interest rate and term being applied for, description of proposed project, and security pledged towards repayment of the loan.
3. Facilities Plan (8.3.18). - at SDDENR
4. Capacity Assessment Worksheets (section 8.3.16).

Items 5-7 apply to Nonprofit Entities only

5. By-laws -- See attached
6. Articles of Incorporation -- See attached
7. Certificate of Good Standing from Secretary of State

7.3.3 General Information

The month and day your fiscal year begins: November 1

Population Served estimated

Current 220 2000 _____ 1990 _____

Top Five Employers Within 30 Miles	Number of Employees	Type of Business
Mobridge Hospital and Clinic	188	Health Care
Grand River Casino	170	Entertainment
Mobridge-Pollock School District	150	Education
One World Distribution	100	Warehouse/Distribution Center
Golden Living Center	100	Elderly Housing/Health Care

Please indicate employers within boundary of issuing entity with an asterisk (*).

7.3.4 Drinking Water Utility Information

Current Water Utility Debt

Year	2014	1979	1976	2003			
Purpose	Repair of Pipeline and wells	Tank, booster pump etc	wells	well & lines			
Security Pledged	User Fees	User Fee	User Fee	User Fees			
Amount	$50,000.00	$56,800.00	$25,000.00	$106,000.00			
Maturity Date (mo/yr)	9/2024	1/2019	6/2016	9/2043			
Debt Holder	Moreau-Grand Elect	Berkadia	Berkadia	USDA Rural Dev			
Debt Coverage Requirement	n/a	0	0	10%			
Avg. Annual Required Payment	$5,275.00	$3,339.00	$1,470.00	$5,640.00			
Outstanding Balance	$52,750.00	$13,866.58	$1,668.82	$91,527.33			

Use additional sheets if more room is required to list all current water utility debt.

Drinking Water Utility Cash Flow

	Prior Year	Prior Year	Current Year	Future Year #
Fiscal Year	2013	2014	2015 Budget	2017
OPERATING CASH FLOW				
Water Sales	$127,042	$143,618.62	$150,000.00	$283,000.00
Surcharge Fee				
Other (Explain) Memberships, late fees,	$2,310	$1,295.00	$1,200.00	$1,500.00
etc.				
OPERATING PAYMENTS				
Personal Services	($20,925)	($46,035.64)	($50,500.00)	($60,000.00)
Chemical, Material & Supplies	($32,191)	($66,812.39)	($85,000.00)	($48,000.00)
Electric & Other Utilities	($27,433)	($25,312.19)	($30,000.00)	($31,000.00)
Other (Explain) Insurance, taxes, testing,	($8,018)	($12,452.28)	($19,500.00)	($22,000.00)
etc.				
NET CASH FROM OPERATIONS	$40,785	($5,698.88)	($33,800.00)	$123,500.00
NONOPERATING CASH FLOW				
Interest Income	$45.00	$30.89	$30.00	$45.00
Other Revenue (Explain) Loan from		$50,000.00		
Moreau Grand				
Transfers In (Explain)				
Fixed Asset Sale (Explain)				
Transfers Out (Explain)				
Fixed Asset Purchases (Explain) Pickup			($30,000.00)	
Purchase				
Debt Payment (Principal Only)	($18,524.91)	($9,979.00)	($10,640.00)	($58,945.89)
Debt Payment (Interest Only)			($4,840.00)	($51,885.05)
Other Expenses (Explain)				
NET CASH FROM NONOPERATING	($18,480)	$40,051.89	($45,450.00)	($110,785.94)
Net Increase (Decrease) in Cash	$22,305	$34,353.01	($79,250.00)	$12,714.06
Beginning Cash Balance	$67,375	$89,680.00	$124,033.01	$44,783.01
Ending Cash Balance	$89,680	$124,033.01	$44,783.01	$57,497.07
RESTRICTED BALANCE	$20,000	$68,085.00	$11,280.00	$15,285.22
UNRESTRICTED BALANCE	$69,680	$55,948.01	$33,503.01	$42,211.85

Future Year: First full year after project completion.

2017 IS BASED ON ALL $2,100,000 BEING LOAN. Note: One Berkadia note is not included as is due in 2016, however, TC&G anticipates paying off both Berkadia notes in June of 2015.

Restricted Funds Breakdown:

Amount	Anticipated Expense	Method Used to Encumber
$68,085.00	Loan Reserve and $50,000 of	Notes in minutes
	repairs to system payable in 2015	

Water Fees:

Attach current and proposed rate ordinances or resolutions and rate schedules.

Municipal or Sanitary District - monthly rates at 5,000 gallons (670 cubic feet)

Other Community Water System - monthly rates at 7,000 gallons (935 cubic feet)

Check one: ____ Incorporated Municipality or Sanitary District

or

✓ Other Community Water System

* average usage may seem high but some places have a main house, 2nd house and then livestock all read under one meter.

Monthly:	Current Rate	Proposed Rate**	# of Accounts	Average use gallons/cubic feet
Domestic	$65/mo + $4/1000 gal	Existing + $65.50/mo	69	22200/gal/mo/user *
Business	$65/year + $4/1000 gal	Existing + $785.91/year	4	50 gal/mo/user
Other: Pasture Taps	$65/year + $4/1000 gal	Existing + $785.91/year	53	41,000 gal/yr/tap

2nd household or meter is $65/month (gallonage is paid by a 1st household as on same meter)--7; 2 guest houses are charged $65/year

Are fees based on usage or flat rate? usage

** When is proposed fee scheduled to take effect? actual rate will be determined upon funding package completion

When did the current fee take effect? February 1, 2014

What was the fee prior to the current rate? $48/month + $3/1000 residential

$48/year + $3/1000 for pastures taps and businesses; 2nd house were $45/month; 2 guest houses were $48/ year

Attach current and proposed rate ordinances or resolutions and rate schedules.

Five Largest Customers	Type of Business	% of System Revenues
Leo Aberle	Farm/Ranch	.05%
Larry Fischer	Farm/Ranch	.05%
Alan Johnson	Farm/Ranch	.035%
Faron Schweitzer	Farm/Ranch	.034%
Jerry Leibel	Farm/Ranch	.031%

7.3.5 Property Tax Information THIS SECTION IS NOT APPLICABLE!

(Complete only if General Obligation bond is pledged to repay your loan.)

Three year valuation trend:

Year	_____	_____	_____
Assessed Valuation	_____	_____	_____
Full & True Valuation	_____	_____	_____

Three year levies and collection trend:

Year	_____	_____	_____
Amount Levied	_____	_____	_____
Collected	_____	_____	_____
Penalties/Interest	_____	_____	_____
Late Payments	_____	_____	_____

Five Largest Taxpayers	Description	Assessed Valuation
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Comments:

List all current debt secured by General Obligation bond:

Year					
Purpose					
Security Pledged					
Amount					
Maturity Date (mo/yr)					
Debt Holder					
Debt Coverage Requirement					
Avg. Annual Required Payment					
Outstanding Balance					

Use additional sheets if more room is required to list all current G.O. debt.

Comments:

7.3.6 Sales Tax Information NOT APPLICABLE!

(Complete only if sales tax is pledged to repay your loan.)

Sales tax revenue history for the most current fifteen months:

Month/Year	Amount Collected

Comments:

List all current debt secured by sales tax:

Year Issued					
Purpose					
Amount					
Maturity Date (mo/yr)					
Debt Holder					
Debt Coverage Requirement					
Avg. Annual Required Payment					
Outstanding Balance					

Use additional sheets if more room is required to list all current sales tax debt.

Comments:

7.3.7 Facilities Plan Checklist.

Before submitting the application, please take a few moments to complete the following checklist. Addressing these items prior to submitting the application will expedite the review process

Checklist of SRF Facilities Plan Requirements

Have the following items been addressed?

♦ Submission of a Facilities Plan to the department that addresses those items found in section 8.3.18.	×
♦ A public hearing held discussing the project and the use of an SRF loan to finance the project. (See section 8.3.15)	×
♦ Minutes of the public hearing prepared and submitted to the department for inclusion into the final Facilities Plan.	×
♦ The affidavit of publication of the public hearing received and submitted to the department for inclusion into the final Facilities Plan. (See section 8.3.15)	×
♦ The four review agencies contacted and responses received for inclusion into the final Facilities Plan. (See section 8.3.18)	×
♦ The Cultural Resources Effects Assessment Summary and supporting documentation, such as an archaeological survey or Historic Register database search. (See section 8.3.20)	Not completed at this time.

7.3.8 Certification of Drinking Water Needs Categories

Identify the loan amount associated with the needs category or categories described below. If the loan addresses needs in more than one category, please break down the total amount into estimated amounts for each category.

Definition	Loan Amount
Transmission/Distribution	$2,100,000.00
Treatment	
Storage	
Source	
System Purchase	
Restructuring	
1452(k) Loan Activities	
1. To acquire land or a conservation easement for source water protection.	
2. To implement voluntary, incentive-based source water quality protection measures.	
TOTAL	$2,100,000.00

T.C.&G. Water Association

Name of Applicant

Don Holland Chairman

Signature of Authorized Representative

3/30/2015

Date

7.3.9 Preaward Compliance Review

FORM Approved By OMB: No. 2030-0020 Expires 12-31-2011

United States Environmental Protection Agency
Washington, DC 20460

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note : Read instructions on other side before completing form.

I. Applicant/Recipient (Name, Address, State, Zip Code).	DUNS No.
T.C.&G. Water Association, Inc. 134850 258th St Glenncross, SD 57630	

II. Is the applicant currently receiving EPA assistance? No

III. List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) None

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective action taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) None

V. List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3)). N/A

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below. Yes

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable bypersons with disabilities, explain how a regulatory exception (40 C.F.R. § 7.70) applies. T.C.&G. provides water to all users regardless of disability status.

VII.* Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex,age, or disability in its programs or activities? (40 C.F.R. § 5.140 and § 7.95) Yes

a. Do the methods of notice accommodate those with impaired vision or hearing? Yes b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communication? Yes c. Does the notice identify a designated civil rights coordinator? Yes

VIII.* Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. § 7.85(a)) Yes

IX.* Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166) Yes

X.* If the applicant/recipient is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator. N/A--less than 15 employees

XI* If the applicant/recipient is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet address for, or a copy of, the procedures. N/A–less than 15 employees

For the Applicant/Recipient I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official	B. Title of Authorized Official	C. Date
Don Hill	Board President/Chairman	3/30/2015

For the U.S. Environmental Protection Agency I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preawardcompliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisionsof 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized EPA Official See ** note on reverse side.	B. Title of Authorized EPA Official	C. Date

EPA Form 4700-4 (Rev. 03/2008). Previous editions are obsolete.

7.3.10 Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) Have not within a three year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Don Hollenbeck, Board Chairman/President

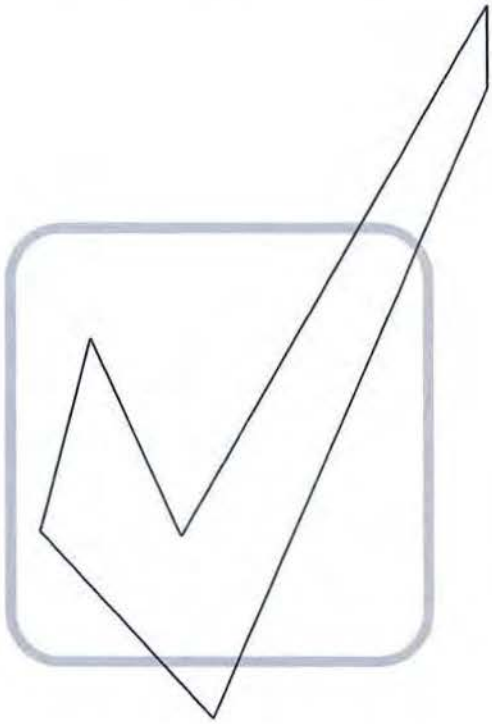
Name & Title of Authorized Representative

3/30/2015

Signature of Authorized Representative Date

____ I am unable to certify to the above statements. Attached is my explanation

8.3.16 Capacity Assessment Worksheets for Public Water Systems



Department of Environment and Natural Resources

Revised January 2007

Introduction

Because you are in the process of applying for a Drinking Water State Revolving Fund (DWSRF) loan, it is necessary for you to complete the following worksheets. The Safe Drinking Water Act requires that a system applying for a DWSRF loan must demonstrate that it has financial, managerial, and technical capacity. What exactly does that mean?

- ***Technical capacity*** - the physical infrastructure of the water system, including but not limited to the source water adequacy, infrastructure adequacy, and technical knowledge. In other words, does your treatment system work the way it is supposed to? Are you providing the safest and cleanest water possible and required by law to your customers right now, and will you be able to in the future?

- ***Managerial capacity*** - the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages. In simpler terms, do you have a capable and trained staff? Do you have an effective management structure?

- ***Financial capacity*** - the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness, and fiscal controls. Basically, does your system have a budget and enough revenue coming in to cover costs, repairs, and replacements?

If it is determined that your system does NOT have the required capacity, you may still qualify for a DWSRF loan if it is going to be used to ensure that your system will have the necessary capacity. If you have questions while completing the following worksheets, please call our office at **(605) 773-3754** , and we will be happy to help.

After DENR receives these worksheets, we will study them and other information located in our files to make a determination whether or not your public water system has the technical, financial, and managerial capacity to be eligible to apply for a DWSRF loan. A final report will be available upon completion of the analysis.

Applicant: T.C.&G. Water Association, Inc.

Prepared by: Karen Salzer, Office Manager
Jason Voegele, Water Operator/Manager
Kelly Landis, Board Member

Phone #: Kelly Landis 845-2591; Karen Salzer 850-1612

Date: 3-30-2015

Marlene Knutson, CSDED Director; 773-2782

Glossary of Terms

Contaminant: Any physical, chemical, biological, or radiological substance or matter in water;

Disinfectant: Any oxidant, including chlorine, chlorine dioxide, chloramine, and ozone, that is added to water in any part of the treatment or distribution process and that is intended to kill or inactivate pathogenic microorganisms;

Disinfectant contact time: The time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration is measured;

Filtration: A process for removing particulate matter from the water by passing the water through porous media;

Ground Water: The supply of fresh water found beneath the surface of the ground, usually in aquifers, which is often used for supplying wells and springs;

Ground Water Under the Direct Influence of Surface Water: Any water beneath the surface of the ground with a significant occurrence of insects, macroorganisms, algae, or large-diameter pathogens such a *Giardia lamblia* ; or any water with significant and relatively rapid shifts in water quality characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions;

Maximum Contaminant Level (MCLs): The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards;

mg/L: milligrams per liter - equivalent to parts per million;

µg/L: micrograms per liter - equivalent to parts per billion;

NTU: nephelometric turbidity unit;

psi: pounds per square inch

Surface Water: All water that is open to the atmosphere and subject to surface runoff;

Turbidity: A cloudy condition in water due to suspended silt or organic matter; and

Waiver: A process used by the Department of Environment and Natural Resources that allows a public water system to reduce or eliminate monitoring for a particular chemical.

The Technical Portion of your System

Your Water Supply

Please check the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section or question does not apply to your system, please check NA for not applicable.***

Water Supply and Existing Demands	**Yes**	**No**	**Unknown**	**NA**
Do you know how much water you pump on an average day? ***Amount:*** 1,700,000 gl/month or 57,000 gallons per day	☑	☐	☐	☐
Do you know how much water you pump on a peak day? ***Amount:*** 3,000,000 gallons/month = 100,000 per day	☑	☐	☐	☐
Do you know the maximum amount of water you can pump from your source? ***Amount:*** unlimited supply	☑	☐	☐	☐
Is your source capacity higher than your peak day demand? ***Percentage higher or lower:*** higher	☑	☐	☐	☐
Can you meet peak demand without pumping at peak capacity for extended periods? ***Longest time pumping at peak demand:*** 28-72 hours to fill stora ge tank	☐	☑	☐	☐
Have you been able to provide adequate volumes of water during drought cycles? Have had periods of little to NO water for some parts due to pressure	☑	☐	☐	☐
Have you had to restrict usage at any time for any reason? ***Please specify:*** No garden or lawn watering	☑	☐	☐	☐
Does your system have an emergency or supplemental water supply? ***Please specify:***	☐	☑	☐	☐
Do you have an Emergency Response Plan that will allow you to meet system demand during a drought or shortage, such as the loss of the largest source? ***If yes, please attach.***	☐	☑	☐	☐
Water Demand	**Yes**	**No**	**Unknown**	**NA**
Do you know whether your system demands will be growing, declining, or remain stable over the next ten years? ***Please check:*** ☑ ***growing,*** ☐ ***declining, or*** ☐ ***stable.***	☑	☐	☐	☐
Does your source have additional water available for appropriation?	☑	☐	☐	☐
Do you have a water right? ***Water right permit number(s):*** 972-1; 1530-1; 1805-1	☑	☐	☐	☐
If you have large commercial, industrial, or irrigation users, do you know their long-term plans and understand their needs?	☐	☑	☐	☐
Purchased Water TC&G does not purchase water.	**Yes**	**No**	**Unknown**	**NA**
If you purchase water from another system or a wholesaler, do you know their long-term plans?	☐	☐	☐	☑
Do you have a contract to purchase water? ***If yes, with whom?***	☐	☑	☐	☐
Are you currently staying within your contract?	☐	☐	☐	☑
Are you knowledgeable about other demands being placed on the same water source that you are using?	☑	☐	☐	☐

Alternative Sources	Yes	No	Unknown	NA
Are alternative water sources possibly available to you? Only new wells in same aquifer	☐	☑	☐	☐
Are you knowledgeable of the characteristics and costs of using alternative sources?	☐	☐	☐	☑
Water Source	**Yes**	**No**	**Unknown**	**NA**
Do you know the depth of your well? ***Depth*** 65 to 75 for existing wells	☑	☐	☐	☐
Do you know the geologic name of the aquifer system from which your water is drawn? ***If yes, geologic name:*** Fox Hills Formation	☑	☐	☐	☐
Are all abandoned water sources properly managed and disconnected to prevent accidental contamination or problems with current water system facilities?	☑	☐	☐	☐

Treatment - Microbiological Contamination

Is your system using surface water or ground water under the influence of surface water? ☐ **yes** ☑ **no**

(If you checked "no", skip to the next section - Ground Water Systems – unless your water system requires treatment other than just disinfection.)

Surface Water Systems Not Applicable!

Filtration Plant Condition	Yes	No	Unknown	NA
Is your filter plant in good physical condition (free from spalling concrete, peeling paint)?	☐	☐	☐	☐
If constructed more than 20 years ago, have treatment processes been upgraded to meet current standards?	☐	☐	☐	☐
Are repair parts available?	☐	☐	☐	☐
Do you have redundancy (back-ups/automatic switch-overs) for all major mechanical units? ***If no, list units you do NOT have redundancy for:***	☐	☐	☐	☐
Can your plant achieve a filtered water turbidity of 0.3 NTU?	☐	☐	☐	☐
Do you have on-line continuous turbidimeters on each filter?	☐	☐	☐	☐
Have you adopted a turbidity goal lower than the standard? ***If yes, list goal:*** every 48 hours inspection & rea	☐	☐	☐	☐
Do you have the capability to add coagulant before the filter?	☐	☐	☐	☐

Ground Water Systems

Ground Water Under the Influence of Surface Water	Yes	No	Unknown	NA
Is your water free from variations in turbidity and temperature after storm events?	☑	☐	☐	☐
Well Construction and Protection				

Do you know when your well was constructed? ***List year:*** Last well was 2003	☑	☐	☐	☐
Is your well(s) constructed according to current South Dakota regulations?	☐	☑	☐	☐
Do you have a source water protection plan?	☐	☐	☑	☐
Is your wellhead finished with a pitless adapter that will prevent contamination from surface water?	☑	☐	☐	☐

Disinfection

Do you disinfect? ☑ **yes** ☐ **no** ***(If "no", skip to the Infrastructure - Pumping section)***

Disinfection	**Yes**	**No**	**Unknown**	**NA**
Do you regularly inspect and maintain your disinfection / chlorination equipment? (Peristaltic Pump) ***Type of Equipment:*** Pulsating chamical pump/manufactured by Stenner ***How often?*** every 48 hours inspection & reading taken ***Disinfectant used:*** sodium hypochlorite	☑	☐	☐	☐
Do you have back-up equipment? ***Type:*** Same as above	☑	☐	☐	☐
Do you have adequate contact time following disinfection and before the first user in the distribution system (30 minutes for ground water systems)? ***Contact time:*** 40 minutes	☑	☐	☐	☐
Can you detect a chlorine residual at taps at the ends of the distribution system? ***Free Chlorine Residual:*** .3 ***Total Chlorine Residual:*** .6 (if using chloramines)	☑	☐	☐	☐

Disinfection By-Products Not Applicable!

Treatment for the Control of Disinfection By-Products	**Yes**	**No**	**Unknown**	**NA**
If you treat surface water, are you already practicing or could you adopt "enhanced coagulation" in your current plant?	☐	☐	☐	☑
If you treat surface water, could you still meet current contact-time requirements if disinfection were not allowed before sedimentation?	☐	☐	☐	☑

Treatment - Security

Treatment Security	**Yes**	**No**	**Unknown**	**NA**
Has the system implemented procedures to improve security of its facilities? (i.e. limiting access to sensitive sites, protecting computer and control equipment etc.)	☑	☐	☐	☐
Are chemicals used for treatment properly stored and secure?	☑	☐	☐	☐
Does the water system track chemical usage? (i.e. a sudden	☑	☐	☐	☐

increase in usage may signal potential contamination or tampering.

Infrastructure - Pumping

Condition of Pumping Equipment	Yes	No	Unknown	NA
Do you routinely inspect for signs of pump or pump motor problems? ***How often:*** Quarterly Basis	☑	☐	☐	☐
Once diagnosed, are problems corrected in a timely enough manner to avoid crisis financing, costly repairs, and unscheduled downtime?	☑	☐	☐	☐
Do you hire a qualified pump contractor to perform an inspection of all pumping equipment, identify potential problems, and perform maintenance, on an annual basis?	☐	☑	☐	☐
Standby/Emergency Power Equipment	**Yes**	**No**	**Unknown**	**NA**
Is there sufficient standby/emergency power capacity to supply 100% of the average daily demand of the system (excluding fire demand)?	☑	☐	☐	☐
Are any existing standby/emergency power equipment, controls and switches tested or exercised routinely under load conditions, for at least 30 minutes at a time?	☑	☐	☐	☐
Has the local electric utility been made aware of the standby/emergency power provisions made by the water system, so that they can reinforce and safeguard the electrical facilities serving the water operations?	☑	☐	☐	☐

Infrastructure - Storage

Storage Capacity	Yes	No	Unknown	NA
Does the system have sufficient gravity-flow (non-pumped) or emergency generator-supported pumping capability to ensure adequate distribution storage to provide safe and adequate service for up to 24 hours without power? ***If no, how long:*** _____	☑	☐	☐	☐
Is there reserve capacity in the tank for fire protection support? ***Amount:*** 20,000 gallons	☑	☐	☐	☐
Security Measures	**Yes**	**No**	**Unknown**	**NA**
Are any openings, such as vent pipes, screened to protect against the entrance of small animals, birds, and small insects?	☑	☐	☐	☐
Are access hatches locked?	☑	☐	☐	☐
Is the tank and the immediate surrounding area fenced?	☐	☑	☐	☐
Control Systems				
Is there a high and low water level signal system to control the pumps?	☑	☐	☐	☐

Is there a drain valve or hydrant to allow for draining of the tank?	☑	☐	☐	☐
Tank Maintenance				
Is the tank inspected at least every three years by a qualified tank contractor for evidence of corrosion or pitting, leakage, and structural weakness?	☐	☑	☐	☐
Is the tank contractor capable of analyzing the coating of paint on the interior and exterior surfaces of the tank to determine if it contains lead or other hazardous materials?	☐	☐	☑	☐

Infrastructure - Distribution

System Maintenance	**Yes**	**No**	**Unknown**	**NA**
Do you have an accurate map of your distribution system that indicates main sizes and valve locations?	☑	☐	☐	☐
Does the operator routinely flush, test, and maintain the hydrants in the system? ***How often:*** Annually	☑	☐	☐	☐
Are the locations of valves in the mains and curb stops on the service lines precisely known?	☑	☐	☐	☐
Does the system keep a log of distribution system breaks to identify weak areas in the system?	☑	☐	☐	☐
Are histories, locations, size, and type of mains and service lines detailed on records in a secure area?	☑	☐	☐	☐
Are all valves exercised and lubricated periodically?	☑	☐	☐	☐
Is the system free of severe "water hammer" problems?	☑	☐	☐	☐
Are meter pits, pressure regulating valves, altitude valves, blow-offs, and other appurtenances maintained on a regular basis?	☑	☐	☐	☐
Unaccounted-for Water	**Yes**	**No**	**Unknown**	**NA**
Is unaccounted-for water in the water system monitored and analyzed each month?	☑	☐	☐	☐
Is the unaccounted-for water less than 15 percent of the total water delivered to the mains? ***List percentage of unaccounted for water:*** 33 %	☐	☑	☐	☐
	Yes	**No**	**Unknown**	**NA**
Are the normal operating pressures in the distribution system between 25 psi and 125 psi? ***Normal operating pressure:*** 100 psi	☑	☐	☐	☐
Do you have a routine leak detection and repair program?	☑	☐	☐	☐
Are all sources of supply and customers metered?	☑	☐	☐	☐
Are the meters calibrated and tested routinely to ensure their accuracy and reliability? existing meters are 44 years old-parts unavailable	☐	☑	☐	☐
Water Quality in Distribution System	**Yes**	**No**	**Unknown**	**NA**
Does your system have an active cross-connection control program?	☑	☐	☐	☐

Are any inspections for cross-connections performed?	☑	☐	☐	☐
Is there a program for installing and testing backflow prevention devices where potential contamination is present?	☐	☑	☐	☐
Is there a program to eliminate "dead-ends" in the mains, where feasible?	☐	☑	☐	☐
Construction Standards	**Yes**	**No**	**Unknown**	**NA**
Are the majority of your mains 6 inches in diameter or larger? ***List percentage:*** 0% -- None are larger, majority are smaller	☐	☑	☐	☐
Is there a program to gradually replace sub-standard sized mains?	☑	☐	☐	☐
Are there suitable rights-of-way and easements provided to the water system for expansion, maintenance, and replacement of mains and services?	☑	☐	☐	☐
Is there sufficient earth cover (six feet) to protect the mains from frost damage or heavy loads, if driven over?	☑	☐	☐	☐
Are materials of mains designed and selected to resist corrosion, electrolysis, and deterioration?	☑	☐	☐	☐
Distribution System Problems	**Yes**	**No**	**Unknown**	**NA**
Do you receive any complaints regarding water quality (taste, odor, color, etc.)? ***List number of complaints/year:*** two ***Most common complaint:*** rusty colored water	☑	☐	☐	☐
Can you maintain adequate pressure in the distribution system under all conditions of flow?	☐	☑	☐	☐

The Management Portion of your System

Please mark the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Operation & Maintenance

Operations Staff	**Yes**	**No**	**Unknown**	**NA**
Does the person operating your system have current water treatment plant and water distribution operator certification credentials from DENR? ***If yes, list classification(s):*** Class II water distribution; Class II water treatment	☑	☐	☐	☐
Does your operator receive additional training on an ongoing basis to keep current on new developments in the field?	☑	☐	☐	☐
Future Operational Demands	**Yes**	**No**	**Unknown**	**NA**
Does your water system obtain any regular or occasional technical assistance from outside sources, such as DENR, your engineer, other utilities or organizations specifically dedicated to providing technical assistance? ***If yes, who*** South Dakota Rural Water Association	☑	☐	☐	☐

Management & Administration

Who's in Charge?	**Yes**	**No**	**Unknown**	**NA**
Is there a clear plan of organization and control among the people responsible for management and operation of the system?	☑	☐	☐	☐
Does your system have written personnel policies and job descriptions signed by the employees?	☐	☑	☐	☐
Are the limits of the operator's authority clearly known?	☑	☐	☐	☐
Does everyone involved in operations know who is responsible for each area?	☑	☐	☐	☐
Is someone responsible for scheduling work?	☑	☐	☐	☐
Security	**Yes**	**No**	**Unknown**	**NA**
Does the system have procedures for handling new and terminated employees (i.e. collecting keys, changing locks and computer passwords)?	☑	☐	☐	☐
Rules and Standards	**Yes**	**No**	**Unknown**	**NA**
Do you have explicit rules and standards for system modifications?	☐	☐	☑	☐
Do you have rules governing new hook-ups?	☑	☐	☐	☐
Do you have a water main extension policy?	☑	☐	☐	☐
Do you have standard construction specifications to be followed?	☑	☐	☐	☐

	Yes	No	Unknown	NA
Do you have measures to assure cross-connection control and backflow prevention?	☑	☐	☐	☐
Do you have policies or rules describing customer rights and responsibilities?	☑	☐	☐	☐
Regulatory Compliance Program	**Yes**	**No**	**Unknown**	**NA**
Do you fully understand monitoring requirements and have a scheduling mechanism to assure compliance?	☑	☐	☐	☐
Do you know how to obtain clarification or explanation of requirements?	☑	☐	☐	☐
Do you have a mechanism to obtain the most recent information on regulatory requirements?	☑	☐	☐	☐
Do you maintain adequate records to document compliance? ***If yes, for how long?*** for the past 20 years	☑	☐	☐	☐
Did your system have any violations of the primary drinking water standards in the last year?	☐	☑	☐	☐
Did your system have any monitoring or reporting violations in the last year?	☑	☐	☐	☐
Do you know what to do in the event of a violation?	☑	☐	☐	☐
Emergencies	**Yes**	**No**	**Unknown**	**NA**
Do you have an Emergency Response Plan?	☑	☐	☐	☐
Is there a contingency for making emergency interconnections to neighboring systems, and do you know they will work if needed?	☐	☑	☐	☐
Does everyone involved in operations know what they are to do in the event of contamination from a toxic hazardous waste spill in your source water or a main break or a tank failure?	☑	☐	☐	☐
Do you have a clear chain-of-command protocol for emergency action?	☑	☐	☐	☐
Is someone responsible for emergency operations, for communications with state regulators, for customer relations, for media relations? ***If yes, who (title):*** Jason Voegele, Maintenance Supervisor	☑	☐	☐	☐
Safety	**Yes**	**No**	**Unknown**	**NA**
Do you have a safety program defining measures to be taken if someone is injured?	☐	☑	☐	☐
Has the entire staff been properly trained in the location and use of safety equipment?	☐	☑	☐	☐
Does everyone understand the risks and safety measures involved in handling water treatment chemicals?	☑	☐	☐	☐
Do you have written operating procedures for both routine and emergency system operations?	☑	☐	☐	☐
Are you fully aware of Occupational Safety and Health Administration (OSHA) confined space (such as trenches/manholes) regulations?	☑	☐	☐	☐
Does the system work with customers to promote their awareness of security?	☑	☐	☐	☐
Does the system have a communication plan to alert customers of a natural or intentional threat to public health?	☑	☐	☐	☐

Maintenance	Yes	No	Unknown	NA
Do you have a planned maintenance management system -- a system for scheduling routine preventive maintenance (line flushing, pumps, meters, storage tanks, etc.)?	☑	☐	☐	☐
Do you have a system for assuring adequate inventory of essential spare parts and back-up equipment?	☑	☐	☐	☐
Do you have relationships with contractors and equipment vendors to assure prompt priority service?	☑	☐	☐	☐
Do you have records and data management systems for system operating and maintenance data, for regulatory compliance data, and for system management and administration?	☑	☐	☐	☐
Management Capability	**Yes**	**No**	**Unknown**	**NA**
Are you getting the outside services and technical assistance you need? Do you have adequate legal counsel, insurance, engineering advice, technical/operations assistance, rate case preparation, and financial advice?	☑	☐	☐	☐

The Financial Portion of your System

Please mark the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Financial Planning Mechanisms	**Yes**	**No**	**Unknown**	**NA**
Does your system develop and follow an annual budget that is approved by the governing body? Trying to establish a budget	☐	☑	☐	☐
Does the governing body review a monthly summary of revenues and expenses of the utility system?	☑	☐	☐	☐
Do you have within the annual budget separate reserve accounts for equipment replacement, capital improvement, depreciation or security upgrades? ***If so, list accounts:*** Reserve Account	☐	☑	☐	☐
Does the system have reserve funds available in the event of an emergency?	☑	☐	☐	☐
Do you have a capital budget or capital improvement plan that projects future capital investment needs some distance (at least five years) into the future? Just starting to look at planning--facility plan completed in 2015	☐	☑	☐	☐
Do you have a process for scheduling and committing to capital projects?	☐	☑	☐	☐
Does your planning process take account of all the potential capital needs suggested by your answers to the technical questions in these worksheets?	☐	☐	☑	☐
Does your long-term planning incorporate analysis of alternative strategies that might offer cost saving to customers, such as consolidation with other nearby systems or sharing of operations and management expenses with other nearby systems?	☐	☑	☐	☐
Rates/Billing - Are they Adequate?	**Yes**	**No**	**Unknown**	**NA**
Do you regularly review your rates? ***How often?*** Annually	☑	☐	☐	☐
Do you have a plan in place for periodic increases in rates?	☐	☑	☐	☐
Is the rate structure based on metered watered use? ***List rates per 1000 gallons:*** $65 minimum plus $4.000/1000 gallons (i.e. $22 minimum plus $2.50/1000 gallons)	☑	☐	☐	☐
Does the rate per 1000 gallons change as consumption increases? ***If so, please describe***:	☐	☑	☐	☐
Does the rate structure assure proportionality among users?	☑	☐	☐	☐
Do you have procedures for billing and collection?	☑	☐	☐	☐
Is your billing collection rate greater than 95%?	☐	☑	☐	☐
Do you have collection procedures specifically for delinquent accounts?	☑	☐	☐	☐

Financial Planning Mechanisms - Are they Adequate?	Yes	No	Unknown	NA
Does your system have audited financial statements prepared by a certified public accountant (CPA)?	☐	☑	☐	☐
Does your water system income exceed operating expenses (including debt service)?	☑	☐	☐	☐
Does your water utility support other enterprise funds or the general fund?	☐	☐	☐	☑
Does your system require revenues from other enterprise funds or the general fund for normal operations?	☐	☐	☐	☑
Do you employ standardized accounting and tracking systems?	☑	☐	☐	☐
Do you track budget performance?	☐	☑	☐	☐
Do you keep records to substantiate depreciation of fixed assets and accounting for reserve funds?	☐	☑	☐	☐
Are financial management recordkeeping systems organized?	☑	☐	☐	☐
Are controls exercised over expenditures?	☑	☐	☐	☐
Are controls exercised to keep from exceeding your budget? Have no formal budget, but don't spend money that we don't have.	☑	☐	☐	☐
Are there purchasing procedures?	☑	☐	☐	☐
Did your system's governing body review this assessment before returning it to the South Dakota Department of Environment and Natural Resources?	☑	☐	☐	☐

Financial Spreadsheet

Applicant: T.C.&G. Water
Completed by: Karen Salzer and Marlene Knutson
Date: 3/30 &3/31/2015 Updated 5/27/2015

4 Year Projections	Last Year Actual 2014	Current Year Budget Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected
Enter Year:	2014	2015	2016	2017	2018
1. Beginning Cash on Hand	$89,680	$124,033	$44,783	$44,783	$57,497
2. Cash Receipts:					
a. Unmetered Water Revenue					
b. Metered Water Revenue	$143,619	$150,000	$153,129	$283,000	$285,000
c. Other Water Revenue	$1,295	$1,200	$1,200	$1,500	$3,000
d. Total Water Revenues (2a through 2c)	$144,914	$151,200	$154,329	$284,500	$288,000
e. Connection Fees					
f. Interest and Dividend Income	$31	$30	$30	$45	$45
g. Other Income					
h. Total Cash Revenues (2d through 2g)	$144,945	$151,230	$154,359	$284,545	$288,045
i. Transfers in/Additional Rev Needed					
j. Loans, Grants or other Cash					
Please specify					
MoreauGrandElectricLoan	$50,000				
-SDDENR			$2,100,000		
3. Total Cash Receipts (2h through 2j)	$194,945	$151,230	$2,254,359	$284,545	$288,045
4. Total Cash Available (1+3)	$284,625	$275,263	$2,299,142	$329,328	$345,542
5. Operating Expenses					
a. Salaries and wages	$36,403	$50,500	$55,000	$60,000	$61,000
b. Employee Pensions and Benefits					
c. Purchased Water					
d. Purchased Power	$25,312	$30,000	$31,000	$31,000	$33,000
e. Fuel for Power Production					
f. Chemicals	$20,319	$14,000	$15,000	$18,600	$20,000
g. Materials and Supplies	$10,570	$9,000	$9,500	$15,000	$10,000
h. Engineering Services	$9,633	$3,428			
i. Contractual Services – Other	$35,924	$7,000	$3,000	$5,000	$3,000
j. Equip. Rent/Real Property		$1,200	$1,600	$1,600	$1,600
k. Transportation Expenses	$500	$700	$1,800	$2,800	$3,000
l. Laboratory	$1,371	$5,000	$6,000	$6,000	$6,000
m. Insurance	$9,785	$13,000	$15,000	$16,000	$16,000
n. Regulatory Commission Expenses					
o. Advertising					
p. Miscellaneous	$796	$1,172	$1,030	$5,000	$3,000
q. Total Cash O&M Expenses (5a through 5p)	$150,612	$135,000	$138,930	$161,000	$156,600
r. Replacement Expenditures		$50,000	$2,100,000		
s. Total OM&R Expenditures (5q+5r)	$150,612	$185,000	$2,238,930	$161,000	$156,600
t. Loan Principal/Capital Lease Payments	$9,979	$10,640	$10,809	$58,946	$60,075
u. Loan Interest Payments		$4,840	$4,620	$51,885	$50,706
v. Transfers Out					
w. Capital Purchases (specify):					
Pick-up		$30,000			
x. Other					
6. Total Cash Paid Out (5s through 5x)	$160,591	$230,480	$2,254,359	$271,831	$267,381
7. Ending Cash Position (4 - 6)	$124,033	$44,783	$44,783	$57,497	$78,161

Financial Spreadsheet

Applicant: TC&G Water Association, Inc.
Completed by: Karen Salzer and Marlene Knutson
Date: 3/30 and 3/31/2015 updated 5/27/2015

4 Year Projections	Last Year Actual	Current Year Budget Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected
8. Number of Customer Accounts	135	135	135	135	140
9. Avg Annual User Charge Account (2d/8)	$1,073	$1,120	$1,143	$2,107	$2,057
10. Coverage Ratio (2b-5a)/(5t+5a)	(0.6)	(2.2)	(135.1)	1.1	1.2
11. Operating Ratio (2d/5a)	1.0	0.6	0.1	1.8	1.8
12. Additions to Reserve Funds for the Year:					
a. Debt Service Reserve	$11,280	$11,280	$11,280	$15,285	$15,285
b. Bond Retirement Reserve	$6,805				
c. Capital Improvement Reserve					
d. Replacement Reserve	$50,000				
e. Other					
13. Total Reserves (12a through 12e)	$68,085	$11,280	$11,280	$15,285	$15,285
14. Year End Operating Cash (7 – 13)	$55,948	$33,503	$33,503	$42,212	$62,876

This assumes the $2,100,000 project is all loan.

TC& G Water Association – Proposed 2015 Budget

11-1-2014 to 10-31-2015

Income	Estimated $
Water Metered	150,000.00
Other-Late Fees, etc	1,200.00
Interest	30.00
TOTAL	**151,230.00**

Expenses	Estimated $
Salaries and Wages, Including Director Fees	50,500.00
Utilities	30,000.00
Chemicals	14,000.00
Materials & Supplies	9,000.00
Engineering Services	3,428.00
Contract Maintenance	7,000.00
Equip/Office Rental	1,200.00
Fuel	700.00
Testing/Lab Fees	5.000.00
Insurance/Taxes	13,000.00
Miscellaneous	1,172.00
Replacement/repairs—line and wells	50,000.00
Pick-up Purchase	30,000.00
Loan Payments	$15,480
TOTAL	**230,480.00**

Beginning cash is $124,033 which includes a $50,000 loan received in FY 2014, thus, an additional $29,250 will need to come from beginning cash which will leave approximately $44,783.

T. C. G. Water Association
Financial Report for
Annual Meeting 2014

INCOME:

From Novenber 1, 2013 to October 31, 2014	
Water Sold (farm & town)	128,708.51
Late Charges	1,260.00
Pasture	14,910.11
Memberships	
Miscellaneous	35
Total Income	144,913.62

EXPENSES:

From Novenber 1, 2013 to October 31, 2014	
Utilities	25,312.19
Supplies & Repairs	2,848.70
Wages	31,602.54
Supplies & Fuel	4,024.27
Office Supplies	3,696.60
Insurance & Taxes	9,784.98
Contract Maintenance	35,924.05
Professional Fees	9,633.10
Chemicals	20,318.77
Dept. Of Health-Water Tests	1,371.22
Directors Fees	4,800.00
Miscellaneous	1,296.08
Total Expenses	150,612.50

Bank Financial Statement Totals

From Novenber 1, 2013 to October 31, 2014	
Deposits	144,913.62
Bank Balance 10/31/2013	32,569.50
Total	177,483.12
Loan from Moreau-Grand	50,000.00
Expenses for the year from Regular checking account	150,612.50
Transfer to Savings	0
Balance Regular Checking Acct.	76,870.62

Savings

Balance in Savings 10/31/13	21,135.53
Interest Earned	30.89
To Savings from Checking	0
Total	21,166.42
U.S.D.A. Payments	5,170.00
Berkadia Mortgage	4,809.00
Balance in Savings 10/31/2014	11,187.42

Total Gallons Produced For Fiscal Year
26,787,400

Average Gallons Produced per Month
2,232,283

Total Gallons Sold For Fiscal Year
20,588,800

Average Gallons Sold per Month
1,715,733

Total Hookups	138
Total in Operation	138
Total Membership	79

Town Members	17
Farm Members	65
Pasture Hookups	56
Inactive Meters	2

Approximate Accounts Receivables:	1,880.00

T. C. G. WATER ASSOCIATION
REPORT FOR ANNUAL MEETING

INCOME

From November 1, 2012 to October 31, 2013

Water Sold:	104,412.36
Late Charges:	1,600.00
Pasture:	22,629.38
Memberships:	650.00
Miscellaneous:	60.00
Total Water Income:	129,351.74

EXPENSES

Utilities	27,432.96
Supplies & Repairs	1,918.69
Wages	16,846.01
Supples & Fuel Exp.	2,974.09
Office Supplies	467.80
Insurance & Taxes	7,076.42
Contract Maintenance	6,922.24
Professional Fees	638.50
Chemicals	19,908.67
Dept. of Health Water Tests	597.00
Directors fees	3,440.00
Miscellaneous	344.22
Total	88,566.60

INCOME FOR YEAR 11/1/2012 TO 10/31/2013

Deposits	129,351.74
Bank Balance 10/31/2012	6,774.36
Total	136,126.10

Expences for the year from regular Checking Acct	88,556.60
Transfer to Savings	15,000.00
Balance Regular Checking	32,569.50

SAVINGS

Balance in Savings 10/31/2012	24,615.55
Interest Earned	44.89
To Savings from Checking	15,000.00
Total	39,660.44
U.S.D.A. Payments	5,640.00
Berkadia Mortgage	12,884.91
Balance in Savings 10/31/2013	21,135.53

Total Gallons Produced from 11/1/2012 to 10/31/2013
32,320,900
Average Gallons Produced per Month
2,693,409

Total Gallons Sold from 11/1/2012 to 10/31/2013
26,792,176
Average Gallons Sold per Month
2,232,681

Total Hookups	141
Total in Operation	137
Total Members	84

Town Members	19
Farm Members	65
Pasture Hookups	57
Inactive Meters	4

Approximate Accounts Receivables: 231.38

Marlene Knutson

From: BMVoller@aol.com
Sent: Monday, March 30, 2015 5:12 PM
To: mknutson@csded.org
Subject: Re: FW: 2014 Annual Report
Attachments: 2659_001-signed.pdf

2014 Financial

Marlene:

I am attaching an electronically signed version of the pdf document that you forwarded to me. I have signed my letter to the directors. I cannot sign any of the other pages of the document as those must be signed by persons authorized by the board of directors.

Please let me know if you need any further information.

Regards,
Brenda M. Voller
bmvoller@aol.com
605-230-0248

In a message dated 3/30/2015 3:57:52 P.M. Central Daylight Time, mknutson@csded.org writes:

Brenda,

Thank you for visiting with me. Can you please scan and e-mail me a pdf signed version of the 2014 annual report. I can just run it off for the application.

Karen, you will have to tell Brenda if OK for me to get this. Thank you both.

Marlene Knutson

Executive Director

Central South Dakota Enhancement District

*PO Box 220 * 3431 Airport Road, Suite 3*

Pierre, South Dakota 57501

mknutson@csded.org

773-2782 Phone

773-2784 Fax

TC&G WATER ASSOCIATION, INC.

ANNUAL REPORT
FISCAL YEAR 2014

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BRENDA M. VOLLER
25505 422ND AVENUE
ALEXANDRIA SD 57311

Board of Directors
TC&G Water Association, Inc.
PO Box 95
Glencross SD 57620

Dear Directors:

The following statement of financial condition of TC&G Water Association, Inc. has been compiled as of October 31, 2014, along with the related statement of budget, income, and equity for the year then ended.

The compilation was limited to preparing in the format requested by USDA information that is the representation of the organization whose financial statements are presented. I have not audited or reviewed the financial statements that were presented to me and, accordingly, do not express an opinion or any other form of assurance on it.

These financial statements are presented in accordance with the requirements of USDA which differ from generally accepted accounting principles. Accordingly, this financial statement is not designed for those who are not informed about such differences.

Sincerely,

Brenda M. Voller

Brenda M. Voller

FORM APPROVED
OMB No. 0575-0015
OMB No. 0572-0137

Form RD 442-3
(Rev. 3-97)

BALANCE SHEET

Name TC&G Water Association, Inc.

Address Po Box 95
Glencross SD 57620

	10-31-2014 Month Day Year *Current Year*	10-31-2013 Month Day Year *Prior Year*
ASSETS		
CURRENT ASSETS		
1. Cash on hand in Banks	$76,871.00	$32,569.00
2. Time deposits and short-term investments	$11,187.00	$39,660.00
3. Accounts receivable	$1,880.00	$231.00
4. Less: Allowance for doubtful accounts	( )	( )
5. Inventories		
6. Prepayments		
7. Grants Receivable		$15,328.00
8. Loan from Moreau Grand	$50,000.00	
9. Total Current Assets *(Add 1 through 8)*	$139,938.00	$87,788.00
FIXED ASSETS		
10. Land	$19,993.00	$19,993.00
11. Buildings		
12. Furniture and equipment	$776,456.00	$776,456.00
13.		
14. Less: Accumulated depreciation	($601,582.00)	($588,089.00)
15. Net Total Fixed Assets *(Add 10 through 14)*	$194,867.00	$208,360.00
OTHER ASSETS		
16.		
17.		
18. Total Assets (Add 9, 15, 16 and 17)	$334,805.00	$296,148.00
LIABILITIES AND EQUITIES		
CURRENT LIABILITIES		
19. Accounts payable		
20. Notes payable		
21. Current portion of USDA note		
22. Customer deposits		
23. Taxes payable		
24. Interest payable		
25.		
26.		
27. Total Current Liabilities *(Add 19 through 26)*	$0.00	$0.00
LONG-TERM LIABILITIES		
28. Notes payable USDA	$92,691.00	$85,764.00
29. Berkadia Commercial Mortgage	$15,535.00	$17,588.00
30. Moreau Grand	$50,000.00	
31. Total Long-Term Liabilities *(Add 28 through 30)*	$158,226.00	$103,352.00
32. Total Liabilities *(Add 27 and 31)*	$158,226.00	$103,352.00
EQUITY		
33. Retained earnings	$155,179.00	$171,396.00
34. Memberships	$21,400.00	$21,400.00
35. Total Equity (Add *lines* 33 *and* 34)	$176,579.00	$192,796.00
36. Total Liabilities and Equity *(Add lines 32 and 35)*	$334,805.00	$296,148.00

CERTIFIED CORRECT | Date | Appropriate Official *(Signature)*

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0570-0015 and 0572-0137. The time required to complete this information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Form RD 442-2
(Rev. 9-97)

Position 3

FORM APPROVED
OMB NO. 0575-0015
OMB NO. 0572-0137

UNITED STATES DEPARTMENT OF AGRICULTURE

STATEMENT OF BUDGET, INCOME AND EQUITY

Schedule 1

Name TC&G Water Association, Inc.

Address PO Box 95 Glencross SD 57620

(1) OPERATING INCOME	PRIOR YEAR Actual (2)	ANNUAL BUDGET BEG ____ END ____ (3)	For the ____ Months Ended ____ CURRENT YEAR Actual Data: Current Quarter (4)	Year To Date (5)	Actual YTD (Over) Under Budget Col. 3 - 5 = 6 (6)
1. Metered Water	128,709	140,000			140,000
2. Pasture/Membersh	14,910	15,000			15,000
3. Late Charges	1,260	500			500
4.					0
5. Miscellaneous	35	50			50
6. Less: Allowances and Deductions					0
7. Total Operating Income (Add lines 1 through 6)	144,914	155,550	0	0	155,550
OPERATING EXPENSES					
8. Utilities	25,312	25,000			25,000
9. Labor/Fees/Wages	81,960	60,000			60,000
10. Chemicals/Testin	21,690	20,000			20,000
11. Office Supplies	3,697	3,500			3,500
12. Insurance & Taxe	9,785	10,000			10,000
13. Supplies/Repairs	6,873	7,000			7,000
14. Misc	1,296	1,000			1,000
15. Interest	9,979	8,500			8,500
16. Depreciation	13,493	13,493			13,493
17. Total Operating Expense (Add Lines 8 through 16)	174,085	148,493	0	0	148,493
18. NET OPERATING INCOME (LOSS) (Line 7 less 17)	-29,171	7,057	0	0	7,057
NONOPERATING INCOME					
19. Interest on Save	31	30			30
20.					0
21. Total Nonoperating Income (Add 19 and 20)	31	30	0	0	30
22. NET INCOME (LOSS) (Add lines 18 and 21)	-29,140	7,087	0	0	7,087
23. Equity Beginning of Period	192,796	155,179			155,179
24. Adj for Prin	-8,477				0
25.					0
26. Equity End of Period (Add lines 22 through 25)	155,179	162,266	0	0	162,266

Budget and Annual Report Approved by Governing Body

Secretary _____ Date _____

Quarterly Reports Certified Correct

Appropriate Official _____ Date _____

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0575-0015 and 0572-0137. The time required to complete this information collection is estimated to average 2-1/2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

SUPPLEMENTAL DATA

The Following Data Should Be Supplied Where Applicable

Circle One

1. ALL BORROWERS
   a. Are deposited funds in institutions insured by the Federal Government? Yes No
   b. Are you exempt from Federal Income Tax? Yes No
   c. Are Local, State and Federal Taxes paid current? Yes No
   d. Is corporate status in good standing with State? Yes No
   e. List kinds and amounts of insurance and fidelity bond: Complete Only when submitting annual budget information:

Insurance Coverage and Policy Number	Insurance Company and Address	Amount of Coverage	Expiration Date of Policy
Property Insurance Policy # OB5-70-5108	Key Insurance - Mobridge SD	246,340	09-19-2015
Liability Policy # OD5-70-5108	Key Insurance - Mobridge SD	1,000,000	09-19-2015
Fidelity Policy # OH5-70-5108	Key Insurance - Mobridge SD	100,000	09-19-2015

2. RECREATION AND GRAZING ASSOCIATION BORROWERS ONLY

	Current Quarter	Year to Date
a. Number of Members		

3. WATER AND/OR SEWER UTILITY BORROWERS ONLY

a. Water purchased or produced (CU FT - GAL)	gal.	26,787,40 gal.
b. Water sold (CU FT - GAL)	gal.	gal.
c. Treated waste (CU FT - GAL)	gal.	gal.
d. Number of users - water		138
e. Number of users - sewer		

4. OTHER UTILITIES

a. Number of users		
b. Product purchased		
c. Product sold		

5. HEALTH CARE BORROWERS ONLY

a. Number of beds		
b. Patient days of care		
c. Percentage of occupancy	%	%
d. Number of outpatient visits		

6. DISTRIBUTION OF ALL CASH AND INVESTMENTS*

Indicate balances in the following accounts:

	Construction	Revenue	Debt Service	Operation & Maintenance	Reserve	All Others	Grand Total
Cash	$	$	$	$ 76,871	$	$	$ 76,871
Savings and Investments	$	$	$	$	$ 11,187	$	$ 11,187
Total	$0	$0	$0	$76,871	$11,187	$0	$88,058

7. AGE ACCOUNTS RECEIVABLE AS FOLLOWS:

	Days 0-30	31-60	61-90	91 and Older	*Total
Dollar Values	$ 1,128	$ 752	$	$	$ 1,880
Number of Accounts	3	2			5

*Totals must agree with those on Balance Sheet.

SD-RDO-212
(Rev. 2/98)

WATER SYSTEM YEAR-END INFORMATION SHEET

(Answer ALL questions; if not applicable use N/A. Submit one copy to the State Office.)

Fiscal Year End 10 / 31/ 14

1. Name of Borrower: TC&G Water Association, Inc.

BOARD MEMBERS:	NAME	TERM EXPIRES	ADDRESS	PHONE
President or Mayor	Don Hollenbeck	2015	HC 77 Box 167 Trail City SD	605-845-2563
Vice President	James Keller	2014	26660 SD Hwy 20 Trail City SD	605-845-2504
Treasurer	Ted Schweitzer	2014	HC 77 Box 96 Glencross SD	605-865-3302
Director/Trustee	Leon Voegele	2015	HC 77 Box 144 Trail City SD	605-845-3023
Director/Trustee	Steve Keller	2014	26298 SD Hwy 20 Trail City SD	605-865-3538
Director/Trustee	Bill Hahne	2016		
	Kelly Landis	2016		

EMPLOYEES	NAME	ADDRESS	PHONE
Finance Officer	Margaret Salzer	HC 77 Box 95 Glencross SD	605-865-3366
Clerk			
Maintenance	Jason Voegele	HC 77 Box 144 Glencross, SD	605-865-3361

PROFESSIONAL	NAME	ADDRESS	PHONE
Attorney	Aberle & Aberle	Box 323 Timber Lake, SD	605-865-3528
Engineer	Dan Brosz	Box 357 Bowman, ND	701-523-3340
Accountant	Brenda M. Voller	25505 422nd Avenue Alexandria SD	605-230-0248
Other			

2. Type of Users: Residential Size — Lgr. Than Res. Size — Identify Lgr. Users:
Number 17 — 65 — 56 Pasture Taps

3. Attach a copy of your current rate schedule.

4. (a) Are all residents on the system? Yes
(b) If not, why?
(c) How are they being served? With water service

5. Any residents on the system and not paying? No
If yes, what are you doing to collect these accounts?

Do you have a rules and regulations ordinance in effect? Yes
If yes, please send Rural Development a copy.
If no, when will you have one in force?

Are you enforcing the ordinance? Yes
If not, what is the problem?

PLEASE FILL OUT THE REVERSE OF THIS FORM IF THERE IS AN "X" IN THE BOX BELOW

[X]

6. Is a master meter used? Yes At the well? Yes At the tower? _____
Are individual meters used? Yes If no, why? _____
Were meters originally used? Yes Are the meters all working? Yes

How often are the meters checked? Monthly Semiannually Annually Biannually
Patrons read own meters. Water Association checks meters very seldom. (circle one)
How many meters do you replace each year? Less than 10
What is the average cost per meter replacement including installations? $ $125

Do you utilize the self billing system? Yes How often are customers billed? Monthly

Do you treat you water? Yes What type of treatment is used? Chlorine X
Iron _____ Manganese _____ Fluoride _____ Other In accordance with all applicable regulations

What condition are your water mains? Getting old
What condition are your hydrants? Good
What condition are your curbstops and valves? Good
What type of line replacement program do you have? Line replacement program being developed. Rates are being rasied after the first of the year to provide funding for line replacement.

Total gallons pumped 26,787,400 Total gallons sold 20,588,800
(estimate if not available)

Gallons of water not sold or accounted for 6,198,600
Gallons of water loss attributable to flushing line Lines flushed rarely
Gallons of water loss attributable to non meter purpose (watering park, fire trucks, faulty meters, etc. _____
Gallons of water loss attributable to line loss _____

Number of wells 5	Age of wells	33	33	8	8
	Capacity of wells	25	25	30	30

Size of pumps (hsp) 2 1/2 to 10 HP Age of pumps _____ _____ _____
Pump capacity (gal/min) 25 to 50 GPM _____

Gallons of underground or tower storage available in gallons? 120,000
On-ground storage available? _____

Do you have a tower maintenance contract in effect? No
If you have a tower maintenance contract, what is the cost per year? $_____
What does the cost include? _____

How often have you had major repair done on your tower? Once every ten years
When was the last time? 2008 What was its cost? $ $3500

Comments:

_____

_____

_____

_____

_____
Borrower's Signature

Additional Information Required Due to Procedural Changes

- Number of connections/users

138

- An average monthly cost

$58.39

- A current rate schedule

See Attached Rate Schedule (Appendix A)

- Type of water rate

See Attached Rate Schedule (Appendix A)

- Document water loss rate and is it in an acceptable range

Water loss rate is currently less than 12% and is in an acceptable range based on facilities and services available.

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Rules and Regulations Ordinance

BRENDA M. VOLLER
25505 422ND AVENUE
ALEXANDRIA SD 57311

Board of Directors
TC&G Water Association, Inc.
PO Box 95
Glencross SD 57620

Dear Directors:

The following statement of financial condition of TC&G Water Association, Inc. has been compiled as of October 31, 2013, along with the related statement of budget, income, and equity for the year then ended.

The compilation was limited to preparing in the format requested by USDA information that is the representation of the organization whose financial statements are presented. I have not audited or reviewed the financial statements that were presented to me and, accordingly, do not express an opinion or any other form of assurance on it.

These financial statements are presented in accordance with the requirements of USDA which differ from generally accepted accounting principles. Accordingly, this financial statement is not designed for those who are not informed about such differences.

Sincerely,

Brenda M. Voller

Brenda M. Voller

FORM APPROVED
OMB No. 0575-0015

Form RD 442-3
(Rev. 3-97)

BALANCE SHEET

Name
TC&G Water Association, Inc.

Address PO Box 95
Glencross SD 57620

	10 31 2013 Month Day Year Current Year	10 31 2012 Month Day Year Prior Year
ASSETS		
CURRENT ASSETS		
1. Cash on hand in Banks	32,569	31,393
2. Time deposits and short-term investments	39,660	36,011
3. Accounts receiveable	231	3,700
4. Less: Allowance for doubtful accounts	( )	( )
5. Inventories		
6. Prepayments		
7. Grants Receivable	15,328	15,328
8.		
9. Total Current Assets *(Add 1 through 8)*	87,788	86,432
FIXED ASSETS		
10. Land	19,993	19,993
11. Buildings		
12. Furniture and equipment	776,456	776,456
13.		
14. Less: Accumulated depreciation	(588,089)	(574,596)
15. Net Total Fixed Assets *(Add 10 through 14)*	208,360	221,853
OTHER ASSETS		
16.		
17.		
18. Total Assets (Add 9, 15, 16 and 17)	**296,148**	**308,285**
LIABILITIES AND EQUITIES		
CURRENT LIABILITIES		
19. Accounts payable		
20. Notes payable		
21. Current portion of USDA note		
22. Customer deposits		
23. Taxes payable		
24. Interest payable		
25.		
26.		
27. Total Current Liabilities *(Add 19 through 26)*		
LONG-TERM LIABILITIES		
28. Notes payable USDA	85,764	91,404
29. Berkadia	17,588	30,473
30.		
31. Total Long-Term Liabilities *(Add 28 through 30)*	103,352	121,877
32. Total Liabilities *(Add 27 and 31)*	**103,352.**	**121,877**
EQUITY		
33. Retained earnings	171,396	164,265
34. Memberships	21,400	21,400
35. Total Equity (Add *lines* 33 *and* 34)	**192,796**	**186,408**
36. Total Liabilities and Equity *(Add lines 32 and 35)*	**296,148**	**308,285**

CERTIFIED CORRECT | Date | Appropriate Official *(Signature)*

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0570-0015. The time required to complete this information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Form RD 442-2
(Rev. 9-97)

Position 3

FORM APPROVED
OMB NO. 0575-0015

UNITED STATES DEPARTMENT OF AGRICULTURE

STATEMENT OF BUDGET, INCOME AND EQUITY

Schedule 1

Name **TC&G Water Association, Inc.**

Address PO Box 95
Glencross SD 57620

(1)	PRIOR YEAR Actual	ANNUAL BUDGET BEG ____ END ____	For the ____ Months Ended ____ CURRENT YEAR Actual Data: Current Quarter	Year To Date	Actual YTD (Over) Under Budget Col. 3 - 5 = 6
	(2)	(3)	(4)	(5)	(6)
OPERATING INCOME					
1. Metered Water	104,412	115,252			
2. Pasture/Memberships	23,279	11,112			
3. Late Charges	1,600	1,130			
4.					
5. Miscellaneous	60	904			
6. Less: Allowances and Deductions					
7. Total Operating Income (Add lines 1 through 6)	**129,351**	**128,398**			
OPERATING EXPENSES					
8. Utilities	27,433	25,307			
9. Labor/Fees/Wages	20,924	29,719			
10. Chemicals/Testing	20,506	24,568			
11. Office Supplies	468	419			
12. Insurance & Taxes	7076	7,796			
13. Supplies/Repairs	11,815	18,224			
14. Misc.	15,672	483			
15. Interest	5,621	2,761			
16. Depreciation					
17. Total Operating Expense (Add Lines 8 through 16)	13,493	13,493			
18. NET OPERATING INCOME (LOSS) (Line 7 less 17)	**123,008**	**122,770**			
NONOPERATING INCOME	**6,343**	**5,628**			
19. Interest on Savings	45	315			
20.					
21. Total Nonoperating Income (Add 19 and 20)					
22. NET INCOME (LOSS) (Add lines 18 and 21)	45	315			
23. Equity Beginning of Period	**6,388**	**5,943**			
	186,408	**186,408**			
24.					
25.					
26. Equity End of Period (Add lines 22 through 25)	**192,796**	**192,351**			

Budget and Annual Report Approved by Governing Body

Quarterly Reports Certified Correct

Secretary Date

Appropriate Official Date

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number., The valid OMB control number for this information collection is 0575-0015. The time required to complete this information collection is estimated to average 2-1/2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

SD-RDO-212
(Rev. 2/98)

WATER SYSTEM YEAR-END INFORMATION SHEET

(Answer ALL questions; if not applicable use N/A. Submit one copy to the State Office.)

Fiscal Year End 10 / 31/ 13

1. Name of Borrower: TC&G Water Association, Inc.

BOARD MEMBERS:	NAME	TERM EXPIRES	ADDRESS	PHONE
President or Mayor	Don Hollenbeck	2015	HC 77 Box 167 Trail City SD	605-845-2563
Vice President	James Keller	2014	26660 SD Hwy 20 Trail City SD	605-845-2504
Treasurer	Ted Schweitzer	2014	HC 77 Box 96 Glencross SD	605-865-3302
Director/Trustee	Leon Voegele	2015	HC 77 Box 144 Trail City SD	605-845-3023
Director/Trustee	Steve Keller	2014	26298 SD Hwy 20 Trail City SD	605-865-3538
Director/Trustee	Bill Hahne	2016		
	Kelly Landis	2016		

EMPLOYEES	NAME	ADDRESS	PHONE
Finance Officer	Margaret Salzer	HC 77 Box 95 Glencross SD	605-865-3366
Clerk			
Maintenance	Rodney Senger	HC 77 Box 105 Glencross, SD	605-865-3361

PROFESSIONAL	NAME	ADDRESS	PHONE
Attorney	Aberle & Aberle	Box 323 Timber Lake, SD	605-865-3528
Engineer	Dan Brosz	Box 357 Bowman, ND	701-523-3340
Accountant	Brenda M. Voller	25505 422nd Avenue Alexandria SD	605-230-0248
Other			

2. Type of Users: Residential Size — Lgr. Than Res. Size — Identify Lgr. Users:
   Number 19 — 65 — 57 Pasture Taps

3. Attach a copy of your current rate schedule.

4. (a) Are all residents on the system? Yes
   (b) If not, why? _____
   (c) How are they being served? With water service

5. Any residents on the system and not paying? No
   If yes, what are you doing to collect these accounts? _____

Do you have a rules and regulations ordinance in effect? Yes
If yes, please send Rural Development a copy.
If no, when will you have one in force? _____

Are you enforcing the ordinance? Yes
If not, what is the problem? _____

PLEASE FILL OUT THE REVERSE OF THIS FORM IF THERE IS AN "X" IN THE BOX BELOW

[X]

6. Is a master meter used? Yes At the well? Yes At the tower? _____
Are individual meters used? Yes If no, why? _____
Were meters originally used? Yes Are the meters all working? Yes

How often are the meters checked? Monthly Semiannually Annually Biannually
Patrons read own meters. Water Association checks meters very seldom. (circle one)

How many meters do you replace each year? Less than 10
What is the average cost per meter replacement including installations? $ $125

Do you utilize the self billing system? Yes How often are customers billed? Monthly

Do you treat you water? Yes What type of treatment is used? Chlorine X
Iron _____ Manganese _____ Fluoride _____ Other In accordance with all applicable regulations

What condition are your water mains? Getting old
What condition are your hydrants? Good
What condition are your curbstops and valves? Good
What type of line replacement program do you have? Line replacement program being developed. Rates are being rasied after the first of the year to provide funding for line replacement.

Total gallons pumped 32,320,900 Total gallons sold 26,792,176
(estimate if not available)

Gallons of water not sold or accounted for 5,528,724
Gallons of water loss attributable to flushing line Lines flushed rarely
Gallons of water loss attributable to non meter purpose (watering park, fire trucks, faulty meters, etc. _____
Gallons of water loss attributable to line loss _____

Number of wells 5	Age of wells	33	33	8	8
	Capacity of wells	25	25	30	30

Size of pumps (hsp) 2 1/2 to 10 HP Age of pumps _____ _____ _____
Pump capacity (gal/min) 25 to 50 GPM _____

Gallons of underground or tower storage available in gallons? 120,000
On-ground storage available? _____

Do you have a tower maintenance contract in effect? No
If you have a tower maintenance contract, what is the cost per year? $_____
What does the cost include? _____

How often have you had major repair done on your tower? Once every ten years
When was the last time? 2008 What was its cost? $ $3500

Comments:

_____

_____

_____

_____

_____
Borrower's Signature

SUPPLEMENTAL DATA

The Following Data Should Be Supplied Where Applicable

Circle One

1. ALL BORROWERS
   a. Are deposited funds in institutions insured by the Federal Government? (Yes) No
   b. Are you exempt from Federal Income Tax? (Yes) No
   c. Are Local, State and Federal Taxes paid current? (Yes) No
   d. Is corporate status in good standing with State? (Yes) No
   e. List kinds and amounts of insurance and fidelity bond: Complete Only when submitting annual budget information.

Insurance Coverage and Policy Number	Insurance Company and Address	Amount of Coverage	Expiration Date of Policy
Property Insurance Policy # OB5-70-5108	Key Insurance - Mobridge SD	$246,340	09-19-2014
Liability Policy # OD5-70-5108	Key Insurance - Mobridge SD	$1,000,000	09-19-2014
Fidelity Policy # OH5-70-5108	Key Insurance - Mobridge SD	$100,000	09-19-2014

2. RECREATION AND GRAZING ASSOCIATION BORROWERS ONLY	Current Quarter	Year to Date
a. Number of Members		

3. WATER AND/OR SEWER UTILITY BORROWERS ONLY		
a. Water purchased or produced (CU FT - GAL)		32,320,900 (GAL)
b. Water sold (CU FT - GAL)		26,792,176
c. Treated waste (CU FT - GAL)		
d. Number of users - water		137
e. Number of users - sewer		

4. OTHER UTILITIES		
a. Number of users		
b. Product purchased		
c. Product sold		

5. HEALTH CARE BORROWERS ONLY		
a. Number of beds		
b. Patient days of care		
c. Percentage of occupancy	%	%
d. Number of outpatient visits		

6. DISTRIBUTION OF ALL CASH AND INVESTMENTS*

Indicate balances in the following accounts:

	Construction	Revenue	Debt Service	Operation & Maintenance	Reserve	All Others	Grand Total
Cash Savings and Investments	$	$	$	$ 32,569	$	$	$ 32,569
	$	$	$	$	$ 39,660	$	$ 39,660
Total	$	$	$	$ 32,569	$ 39,660	$	$ 72,229

7. AGE ACCOUNTS RECEIVABLE AS FOLLOWS:

	Days 0-30	31-60	61-90	91 and Older	*Total
Dollar Values	$ 3,681	$ 2,454	$	$	$ 6,135
Number of Accounts	3	3			6

*Totals must agree with those on Balance Sheet.

Additional Information Required Due to Procedural Changes

- Number of connections/users

137

- An average monthly cost

$58.39

- A current rate schedule

See Attached Rate Schedule (Appendix A)

- Type of water rate

See Attached Rate Schedule (Appendix A)

- Document water loss rate and is it in an acceptable range

Water loss rate is currently less than 12% and is in an acceptable range based on facilities and services available.

NEW RATE CHART JUNE 1, 2008

Late fees will be charged as this, $5.00 for first month, $25.00 for second month, third month, will be water shut off and a new membership will be charged and paid, before water will be turned back on. ($125.00 for town, $275.00 for country). Late fees for town are charged if reading of meter isn't mailed by the 8th. of the month, for country they have to be mailed by the 18th. of the month. These late fees will be inforced and charged to you. Your monthly bill will be $32.50 for town, $48.00 for country plus what ever gallonage you use at $2.50 per thousand. Effective June 1, 2008

100=.25
200=.50
300=.75
400=1.00
500=1.25
600=1.50
700=1.75
800=2.00
900=2.25
1000=2.50
1100=2.75
1200=3.00
1300=3.25
1400=3.50
1500=3.75
1600=4.00
1700=4.25
1800=4.50
1900=4.75
2000=5.00
2100=5.25
2200=5.50
2300=5.75
2400=6.00
2500=6.25
2600=6.50
2700=6.75
2800=7.00
2900=7.25
3000=7.50
3100=7.75
3200=8.00
3300=8.25
3400=8.50
3500=8.75
3600=9.00
3700=9.25
3800=9.50
3900=9.75
4000=10.00
4100=10.25
4200=10.50
4300=10.75
4400=11.00
4500=11.25

4600=11.50
4700=11.75
4800=12.00
490012.25
5000=12.50
5100=12.75
5200=13.00
5300=13.25
5400=13.50
5500=13.75
5600=14.00
5700=14.25
5800=14.50
5900=14.75
6000=15.00
6100=15.25
6200=15.50
6300=15.75
6400=16.00
6500=16.25
6600=16.50
6700=16.75
6800=17.00
6900=17.25
7000=17.50
7100=17.75
7200=18.00
7300=18.25
7400=18.50
7500=18.75

7600=19.00
7700=19.25
7800=19.50
7900=19.75
8000=20.00
8100=20.25
8200=20.50
8300=20.75
8400=21.00
8500=21.25
8600=21.50
8700=21.75
8800=22.00
8900=22.25
9000=22.50

9400=23.50
9500=23.75
9600=24.00
9700=24.25
9800=24.50
9900=24.75
10000=25.00
10100=25.25
10200=25.50
10300=25.75
10400=26.00
10500=26.25
10600=26.50
10700=26.75
10800=27.00
10900=27.25
11000=27.50
11100=27.75
11200=28.00
11300=28.25
11400=28.50
11500=28.75
11600=29.00
11700=29.25
11800=29.50
11900=29.75
12000=30.00
12100=30.25
12200=30.50
12300=30.75
12400=31.00
12500=31.25

12600=31.50
12700=31.75
12800-32.00
12900=32.25
13000=32.50
13100=32.75
13200=33.00
13300=33.25
13400=33.50
13500=33.75
13600=34.00
13700=34.25
13800=34.50
13900=34.75
14000=35.00
14100=35.25
14200=35.50
14300=35.75
14400=36.00
14500=36.25
14600=36.50
14700=36.75
14800=37.00
14900=37.25
15000=37.50
15100=37.75
15200=38.00
15300=38.25
15400=38.50
15500=38.75
15600=39.00
15700=39.25
15800=39.50
15900=39.75
16000=40.00
16100=40.25
16200=40.50
16300=40.75
16400=41.00
16500=41.25
16600=41.50
16700=41.75
16800=42.00
16900=42.25
17000=42.50
17100=42.75

ORDINANCE NO. 1

AN ORDINANCE REGULATING THE OPERATION
OF THE WATER SYSTEM AND PRESCRIBING
RATE AND CHARGES FOR WATER SERVICE
AND FOR THE COLLECTION THEREOF

BE IT ORDAINED BY THE T.C. & G. WATER ASSOCIATION, INC. :

Section 1. List of Users. The Water Superintendent shall prepare a list of water users, giving their name and whether residential or commercial service. Such list shall be prima facie evidence of the liability of the named owner for the water charge. The Secretary of the Association shall be the Water Superintende until a Water Superintendent is appointed and in the event of resignation, dismissal or other reason for vacancy of the office of Water Superintendent, the secretary of the Association shall act as Water Superintendent.

Section 2. Discontinuance of Service. Any user desiring discontinuance of water service shall notify the Water Superintendent prior to the first day of any month and shall continue liable for payment of the water charge until such notice.

Section 3. Application for First Service Connections. Any party desiring water service from the water system of the Association for premises not theretofore connected with the system shall apply for a connection on a form provided by the superintendent. Such application shall contain an exact description of the premises to be served and state the uses, residential or commercial, to which the water is to be put and the extimated amount of water to be used per monthly period. Such application shall be filed with the superintender and the applicant shall thereupon pay, as and for an initial user charge, the sum of $275.00 for country or $100.00 for town.

Section 4. Subsequent Application for Service. Any new occupant of premises who desires water service for premises where a connection has be made shall make written application therefor as described in Section 3, hereof an payment of $25.00 connection fee.

Section 5. Premises to Have Separate Connection. Unless Special premission is granted by the Water Superintendent, each premise shall have a separate service connection and where premission is granted for branch service systems, each system must have its own separate curb cock.

A. Hookup Procedure: The T. C. &. G. Water Assocaition shall bring the water delivery pipeline to within twenty (20 ft) feet of the building or pit where meter shall be installed. The Ass'n. shall furnish the meter and pressure control valve when needed. The water user shall be responsible for installation of pipe line, pressure control, valve and meter.

B. Material Specifications. The following specifications shall be used in materials needed to finish water pipline from end of Ass'n. pipe to water meter. The consumer shall use semi-ridgid PVC pipe which meets or betters the following minimum specifications.

Pipe Size	Withstand the following pressures per sq. inch
2" inch	160# per sq. in.
1½ inch	200# per sq. in.
1 inch	315# per sq. in.

The pipe shall be stamped "National Safety Foundation Approved."

C. Connection Procedure. There shall be a physical disconnection between any other water delivery system owned or used by the consumer from the T. C. & G. Water Ass'n. delivery system. Such physical disconnection shall be the absence of pipe line between the two systems.

Section 6. Cost of Installation Borne by Consumer. The cost of original installation of all plumbing between the point of metering and any service devices maintained by the consumer, all extensions made to such plumbi and services shall at all reasonable times by subject to inspection by duly author representatives of the Association. Any repairs found to be necessary shall be made promptly.

A. Connection Costs. The consumer shall bear the cost of materials and labor (excluding purchase cost of meter and pressure control valve) of installing pipe, meter and pressure control valve from T. C. & G. Water Ass'n. delivery pipe line.

Section 7. A. Use of Water without Authority. It shall be unlawful for any person to use water from any premises without the consent of the owner, or to use water from the water system of the Association without a permit from the Water Superintendent. No person except an authorized representative of the Assoc. shall turn on or off or tamper with any curb cock.

B. Non-use of Water. All parties becoming members of the T.C.& G. Water Ass'n. shall use water at each outlet. When water becomes available at the designated user site the user shall have four months to make his connection and use metered water. The member shall be billed the minimum rate for the fifth and subsquent months water. Failure to hookup to the system in alloted time and pay minimum bill shall enact Section 10.

Section 8. Defective Service. All claims for defective service shall be made in writing and filed with the Secretary or Water Superintendent on or before the tenth day of the month next succeeding such defective service, or shal be deemed waived by the claimant. If any such claim is so filed, the Water Superindentent shall investigate the facts alledged in such claim and determine the amount, if any, which should be refunded to such claimant by reason of defective service and report such determination to the Association Board. If approved by the Board, such amount shall be allowed as a credit on the following bill or paid as other claims. No claim shall be made against the Assocaition by reason of any fire or any injuries to the person or porperty of any consumber of wafer under the provisions hereof.

Section 9. Consent to Regulations. Every person applying for water service from the water system and every owner of property for which such application is made, shall be deemed by such application to consent to all the rules, regulations and rates contained in the ordinances of the Association and to all modifications thereof and to all new rules, regulations or rates duly adopted.

Section 10. Discontinuance of Service. The Association reserves the right to discontinue service to any or all consumers of the water system without notice when necessary for repairs or on account of nonpayment of any bill or disregard of rules and regulations regarding water service. When service has been discontinued on account of nonpayment of any bill or disregard of rules and regulations, it shall not beresumed except upon payment of the bill, together with penalty and interest theron at the rate of eight percent per annum, full compliance with the regulations and payment to the Association of a fee of $ 25.00 for reestablishing service.

Section 11. Water Connections. In installing water service, all connections shall be approved by the Water Superintendent of the Water Association.

Section 12. Water Service Pipes. All service pipes connected to the water system shall be plastic pipe approved by the water Superintenden and shall be layed minimum of six feet below grade level.

Section 13. Curb, Stop and Waste Cocks. Curb cocks shall be easily accessi to the Water Superintendent and supplied "T" handles, and shall be enclosed in a substantial ~~iron~~ case covered with a tight fitting iron lid.

Section 14. Water System Check Valves. A double check valve shall be placed immediatley behind the meter. Check valves are required on al water connections to steam boilers or any other connection deemed by the water Superindentent to require one. Safety and relief valves shall be placed on all boilers or other steam appartus connections with the water system where the ste

Section15. Meter Location. The meter shall be placed in a location that shall be frost free, unobstructed and accessible at all times. If a service meter pit is used it shall be a minimum of 42 inches inside diameter and shall be at lest six foot six inches in the ground based on normal grade line. The meter should be placed off center. It shall have a 6 inches of gravel in the bottom and shall have a tight fitting removable lid. It is suggested that the meter pit or box be constructed of pre-cast concrete or clay tile; the cover well insulated and be equipped with a heat tape.

There shall be no hydrant installed in the meter pit.

Section 16. Rates for Regular water Service. 65.00 per month plus $4.00 per thousand

~~First 1000~~ gallon or
~~lesser~~ amount per month ..... $8.00 per 1000 gallon
Minimum monthly bill

Next 2000 gallon ..... 2.00 per 1000 gallon

Next 2000 gallon ..... 1.50 per 1000 gallon

Next 3000 gallon ..... 1.00 per 1000 gallon

Next 4000 gallon ..... .75 per 1000 gallon

All over 12,000 gallon ..... .50 per 1000 gallon

Town users will have a minimum charge of $8.00 per month

~~Country users will have a minimum charge of $15.00 per month.~~

A. Pasture Hookup. Each consumer who has a regular water Service shall be eligible to have pasture Hookups. The user shall stand charges for any pipe and installations The user shall also pay for installations of frost-free meter structure and meter installation.

Charges shall be $275.00 for user and initial connect fees. Annual charges shall be a minimum of ~~$96.00~~ per year payable in advance for each pasture hookup. The meter shall be read every 3 months or at the pleasure of the Ass'n.

B. Semi-Peramanent Hookup. Users residing only part-time at a water outlet shall be regarded as Semi-permanent users. Such consumers

shall pay a minimum of $15.00 per month for six months or $90.00 payable in advance plus the $25.00 connect fee. The meter shall be read every month and water use reported. Any amounts of water used in excess of 5,000 gals shall be paid for each month at the regular rate.

Section 17. Billing and Payment. All accounts shall be carried in the name of the property owner or occupant who, personally or by his authorized agent, shall apply for such service.

Each user shall be furnished a self-billing book by the Water Superintendent of the Ass'n. The book shall carry the rate schedule of payments. This rate schedule shall carry an automatic ~~penalty of $1.00 if not paid~~ on time each month. The book shall also carry an application for disconnect and reconnect to the system.

Each town user shall read his meter on the 1st day of each month. His bill shall be considered delinquent if payment is not made or post-marked, if sent via U S mail, by the 8th day of the month.

Each country user shall read his meter on the 10th day of each month. His bill shall be considered delinquent if payment is not made or post-marked, if sent via U.S. mail, by the 18th day of the month.

Section 18. Discontinuance of Service for Failure to Pay. If any statement is not paid within thirty days after it shall be due, wafer service may be discontinued. A reconnection charge of $25.00 shall be collected in advance before the water is reconnected.

Section 19. Water Fund. There is hereby created a special fund to be knows as the Water Fund, to be kept and maintained by the Water Superintendent. Into said fund shall be paid all collections of water charges as provided in Section 16 hereof, and such other moneys as may from time to time be

RESOLUTION NO. 101

RESOLUTION AUTHORIZING AN APPLICATION FOR FINANCIAL ASSISTANCE, AUTHORIZING THE EXECUTION AND SUBMITTAL OF THE APPLICATION, AND DESIGNATING AN AUTHORIZED REPRESENTATIVE TO CERTIFY AND SIGN PAYMENT REQUESTS.

WHEREAS, the T.C.&G Water Association, Inc. , a nonprofit corporation organized and existing under the laws of the State of South Dakota (the "Corporation"), has determined it is necessary to proceed with improvements to its Water System, including but not limited to the replacement of meters, a booster pump station, distribution pipe, plus necessary appurtenances.

WHEREAS, the Corporation has determined that financial assistance will be necessary to undertake the Project and an application for financial assistance to the South Dakota Board of Water and Natural Resources (the "Board") will be prepared; and

WHEREAS, it is necessary to designate an authorized representative to execute and submit the Application on behalf of the Corporation and to certify and sign payment requests in the event financial assistance is awarded for the Project.

NOW THEREFORE BE IT RESOLVED by the Corporation as follows:

1. The District hereby approves the submission of an Application for financial assistance in an amount not to exceed $2,100,000 to the South Dakota Board of Water and Natural Resources for the Project.

2. The Board Chairman and/or Kelly Landis, Board Member is hereby authorized to execute the Application and submit it to the South Dakota Board of Water and Natural Resources, and to execute and deliver such other documents and perform all acts necessary to effectuate the Application for financial assistance.

3. The Board Chairman and/or Kelly Landis, Board Member is hereby designated as the authorized representative of the Corporation to do all things on its behalf to certify and sign payment requests in the event financial assistance is awarded for the Project.

Adopted at T.C.&G Board Meeting, held at Timber Lake, South Dakota, this 23rd day of March, 2015.

This resolution is effective upon passage.

APPROVED: _____
President, T.C.&G Water Association, Inc

(Seal)

Attest: _____ Sec.
T.C.&G Water Association, Inc

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA
COUNTY OF DEWEY

Kathy Nelson, being duly
That the **Timber Lake Topic** is, and during all the times
mentioned was a weekly legal newspaper as defined in
through 17-2-2.4 inclusive, as amended, published at T
Dewey County, South Dakota; that affiant is and during all
was, the publisher of such newspaper and has personal kno
facts stated in this affidavit; that the notice, order or adverti
entitled Notice of Public Hearings
Dewey County + TC + G
a printed copy of which is attached, was published in said ne
issues, bearing the following dates:
March 12, 2015

NOTICE OF PUBLIC HEARING(S)
for DEWEY COUNTY and the
TC&G WATER ASSOCIATION, INC
for the TC&G WATER IMPROVEMENTS PROJECT

The TC&G Water Association, Inc. is seeking up to $2,100,000 of funding from the Board of Water and Natural Resources in order to undertake water distribution system improvements—including meters, booster pump station, and pipeline. The funds could be either a grant from the state Consolidated Water Facilities Construction Program or a loan from the Drinking Water State Revolving Fund (DWSRF) Program. The expected Drinking Water SRF loan terms are 2.25% for 30 years, and the Board of Water and Natural Resources may forgive all or a portion of the loan principal. The amount and source of all funds will be determined by the Board of Water and Natural Resources when the applications are presented at a scheduled board meeting. The purpose of the public hearing is to discuss the proposed project, the proposed financing, and the source of repayment for the loan. The public is invited to attend and comment on the project.

Dewey County may also submit an application to the State of South Dakota for a Community Development Block Grant in order to assist with the financing of the TC &G water system improvement project. The county expects to apply for up to $515,000 from the CDBG Community Projects Account to be used for the proposed projects which will cost approximately $2,100,000. The purpose of the hearing is to receive comments regarding the application from members of the county and to assess the community development needs of the county, prioritize them, and identify the activities to be undertaken to meet the needs. The meeting is open to the public and interested persons are encouraged to attend. Disabled individuals wishing assistance should contact the Dewey County Auditor for information and/or special assistance the request should be made 24 hours in advance of the meeting.

The public hearing will be held at the Dewey County Courthouse, in Timber Lake, SD, on March 23, 2015 at 1 p.m. MT.

That the full amount of the fee charged for publishing the same, to-wi, the sum of $ 60.50 inures solely to the benefit of the publisher of said newspaper, that no agreement or understanding for the division of the fee has been made with any person, and that no part of the fee has been agreed to be paid to any other person.

Kathy Nelson

Subscribed and sworn to before me this 30th day of March A.D.

Jennifer Bollinger
Notary Public
County of Dewey, SD

JENNIFER BOLLINGER NOTARY SEAL PUBLIC STATE OF SOUTH DAKOTA

My commission expires
12/11/19

Affidavit of Publication

Notice of Public Hearing for Dewey County

NOTICE OF PUBLIC HEARING(S)
for DEWEY COUNTY and the
TC&G WATER ASSOCIATION, INC
for the TC&G WATER
IMPROVEMENTS PROJECT

The TC&G Water Association, Inc. is seeking up to $2,100,000 of funding from the Board of Water and Natural Resources in order to undertake water distribution system improvements—including meters, booster pump station, and pipeline. The funds could be either a grant from the state Consolidated Water Facilities Construction Program or a loan from the Drinking Water State Revolving Fund (DWSRF) Program. The expected Drinking Water SRF loan terms are 2.25% for 30 years, and the Board of Water and Natural Resources may forgive all or a portion of the loan principal. The amount and source of all funds will be determined by the Board of Water and Natural Resources when the applications are presented at a scheduled board meeting. The purpose of the public hearing is to discuss the proposed project, the proposed financing, and the source of repayment for the loan. The public is invited to attend and comment on the project.

Dewey County may also submit an application to the State of South Dakota for a Community Development Block Grant in order to assist with the financing of the TC &G water system improvement project. The county expects to apply for up to $515,000 from the CDBG Community Projects Account to be used for the proposed projects which will cost approximately $2,100,000. The purpose of the hearing is to receive comments regarding the application from members of the county and to assess the community development needs of the county, prioritize them, and identify the activities to be undertaken to meet the needs. The meeting is open to the public and interested persons are encouraged to attend. Disabled individuals wishing assistance should contact the Dewey County Auditor for information and/or special assistance the request should be made 24 hours in advance of the meeting.

The public hearing will be held at the Dewey County Courthouse, in Timber Lake, SD, on March 23, 2015 at 1 p.m. MT.

Published once at the total approximate cost of $23.28.
-031215

STATE OF SOUTH DAKOTA,
COUNTY OF DEWEY, ss.

I, Franklin Gross, being first duly sworn, on oath says, that he is the bookkeeper of the WEST RIVER EAGLE, a weekly newspaper published in Eagle Butte, County of Dewey, and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has a bona fide circulation of at least two hundred copies weekly, and has been published within said county for fifty-two successive weeks next prior to the publication of the notice herein mentioned; that the

Notice of Public Hearing for Dewey County

Dewey County Auditor

a printed copy of which, taken from the paper in which same was published, is attached to this sheet, and is made a part of this Affidavit, was published in said newspaper at least once each week for one successive weeks, on the day of each week on which said newspaper was regularly published to-wit:

March 12th, 2015

That the full amount of the fees for the publication of the annexed notice is $23.28

Subscribed and sworn to before me this 30th

day of March, 2015

Kelsey Majeske, Notary Public
State of South Dakota
My commission expires September 17th, 2018

KELSEY MAJESKE
NOTARY PUBLIC
SOUTH DAKOTA
SEAL SEAL

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA
COUNTY OF DEWEY

I, ROBERT L. SLOCUM, being first duty sworn under oath say: The ISABEL DAKOTAN is a weekly newspaper of general circulation as required by South Dakota Code of Nineteen Hundred Thirty-nine, and any acts amendatory thereto, printed and published by ROBERT L. SLOCUM in Isabel, in said county and state, and has been such legal, newspaper during the time as an employee or officer of said newspaper I have had personal knowledge of the facts stated in this affidavit: that the advertisement headed:

Notice of Public Hearing

A printed copy of which is hereto attached was printed and published in said newspaper for 1 successive weeks upon the following dates, to-wit:

3/12/15

That the full amount of fees charged for publishing the same to-wit: the sum of 22.94 incurs solely to the benefit of the publishers of said newspaper; that no agreement or understanding of any division of this sum has been made with any other person; and that no part of said sum has been agreed to be paid to any person whomsoever.

Robert L. Slocum

Marcia Mehr
Notary

Subscribed and sworn to before me this

30th day of March, 2015

(SEAL)

My commission expires Sept 27, 2019

Notice of Public Hearing for Dewey County

NOTICE OF PUBLIC HEARING(S) for DEWEY COUNTY and the TC&G WATER ASSOCIATION, INC for the TC&G WATER IMPROVEMENTS PROJECT

The TC&G Water Association, Inc. is seeking up to $2,100,000 of funding from the Board of Water and Natural Resources in order to undertake water distribution system improvements—including meters, booster pump station, and pipeline. The funds could be either a grant from the state Consolidated Water Facilities Construction Program or a loan from the Drinking Water State Revolving Fund (DWSRF) Program. The expected Drinking Water SRF loan terms are 2.25% for 30 years, and the Board of Water and Natural Resources may forgive all or a portion of the loan principal. The amount and source of all funds will be determined by the Board of Water and Natural Resources when the applications are presented at a scheduled board meeting. The purpose of the public hearing is to discuss the proposed project, the proposed financing, and the source of repayment for the loan. The public is invited to attend and comment on the project.

Dewey County may also submit an application to the State of South Dakota for a Community Development Block Grant in order to assist with the financing of the TC &G water system improvement project. The county expects to apply for up to $515,000 from the CDBG Community Projects Account to be used for the proposed projects which will cost approximately $2,100,000. The purpose of the hearing is to receive comments regarding the application from members of the county and to assess the community development needs of the county, prioritize them, and identify the activities to be undertaken to meet the needs. The meeting is open to the public and interested persons are encouraged to attend. Disabled individuals wishing assistance should contact the Dewey County Auditor for information and/or special assistance the request should be made 24 hours in advance of the meeting.

The public hearing will be held at the Dewey County Courthouse, in Timber Lake, SD, on March 23, 2015 at 1 p.m. MT.

Published 3/12/15 at a total approximate cost of $22.94.

SPECIAL MEETING OF DEWEY COUNTY COMMISSIONERS, March 23, 2015

The Dewey County Commissioners and TC&G Water Association met on Monday, March 23, 2015 at 1:00 p.m. in the Dewey County Courthouse to conduct a joint public hearing and meeting regarding financial applications for a TC&G Project. Chairman Bob Berndt called the meeting to order for Dewey County and President Don Hollenbeck called the meeting to order for TC&G Water. Present for Dewey County were Commissioners Rod Enright, Bob Keckler and John Meginness and State's Attorney Steve Aberle. Absent: Commissioner Dee Ann Lawrence. Present for TC&G Water were board members Bill Hahne, James Keller, Stephen Keller, Kelly Landis and Leon Voegele, Jason Voegele, water superintendent, and TC&G patrons Claude Hahne and Raymond Reiss. Board member Ted Schweitzer joined the meeting later.

Marlene Knutson of the Central South Dakota Enhancement District was present to discuss the requirements for applications involving CDBG and DENR funds. The TC&G Water Association would like to complete replacements and upgrades which will result in a $2.1 million project. The project is being undertaken as the system has experienced water losses and cannot get water to all patrons of the system due to water main breaks, old water meters and a booster station that needs to be replaced. Alternatives of doing nothing to a new water storage facility were also reviewed by the consulting engineer in the facility plan. Proposed financing for the project includes CDBG funds and SDDENR funding. SDDENR funds if given all as a loan will be at 2.2% for 30 years which would result in a rate of approximately $157 user/month for 7,000 gallons. Repayment amounts were also discussed if the end result is a $1,600,000 loan and a $1,000,000 loan. SDDENR will review the application and make an offer to the TC&G Water Association. Any loan repayments will come from water charges to the users.

Dewey County will be applying for a CDBG Grant on behalf of TC&G Water. The CDBG program requirements were discussed. The grant is available to benefit low to moderate income individuals. Dewey County wishes to apply for $515,000.00 in funding. A recent income survey revealed that 58.8% of households on the rural water system are considered low to moderate income, which allows Dewey County to apply for the grant. TC&G Water will be solely applying for the SDDENR funding.

At this time, the Dewey County Commissioners developed a Community Development and Housing Needs Assessment Plan. The TC&G Water project, County Road 10, County Jail, demand for housing and road equipment were projects identified and prioritized by group consensus. Ways to implement the projects were also discussed. A copy of the detailed plan is available for inspection in the county auditor's office. Rod Enright made a motion to adopt the assessment plan and John Meginness seconded it. Motion carried.

The following resolution was presented for approval:

RESOLUTION 03-23-2015

WHEREAS, Dewey County is applying for a Community Development Block Grant from the US Department of Housing and Urban Development as administered by the State of South Dakota to assist with a T.C.&G Water Association, Inc. water improvements project; and

WHEREAS, Dewey County is required to designate a certifying officer for the purpose of signing required documents pertaining to this grant;

NOW, THEREFORE BE IT RESOLVED, that the Chairman of the Dewey County Commissioners, be hereby designated as the county's official for the purpose of signing the CDBG grant agreement;

FURTHER, BE IT RESOLVED that the Chairman of the Dewey County Commissioners, be hereby designated as the county's official for the purpose of signing contracts, correspondence, pay requests, and other required documents; and

WHEREAS, Dewey County is required to designate an environmental certifying officer for the purpose of signing required environmental documents pertaining to this grant;

NOW, THEREFORE, BE IT RESOLVED, that the Chairman of the Dewey County Commissioners be hereby designated as the county's environmental certifying officer for the purpose of signing environmental correspondence and other required documents and forms.

This resolution is effective upon passage.

Dated this 23rd day of March, 2015.

By: _____
Robert Berndt, Chairman
Dewey County Board of County Commissioners

Attest: _____
Kyrie Lemburg, Auditor
Dewey County

Bob Keckler made a motion to approve and adopt the resolution. John Meginness seconded the motion and motion carried.

A second resolution was presented to authorize Chairman Berndt to submit application for the CDBG Grant.

RESOLUTION 03-23-2015(2)

WHEREAS, Dewey County and the T.C.&G Water Association, Inc. have identified the need for water system improvements; and

WHEREAS, Dewey County proposes to assist with said improvements to the T.C.&G Water System, including, but not limited to the replacement of meters, a booster pump station, distribution pipe, plus necessary appurtenances; and

WHEREAS, Dewey County is eligible for Federal assistance for the proposed project, and

WHEREAS, Dewey County has held the required public hearing on Monday, March 23, 2015, at 1:00 p.m., and

WHEREAS, with the submission of the CDBG application Dewey County assures and certifies that all CDBG program requirements will be fulfilled,

THEREFORE, BE IT RESOLVED that Dewey County duly authorizes the Chairman of the County Commission to sign and submit the CDBG application requesting up to $515,000 of funds.

This resolution is effective immediately upon passage.

Adopted this 23rd day of March, 2015.

_____

Robert Berndt, Chairman
Dewey County Board of County Commissioners

ATTEST: _____

Kyrie Lemburg, Auditor
Dewey County

Rod Enright made a motion to approve and adopt the resolution. John Meginness seconded it and motion carried.

A resolution was presented to the TC&G Water Board stating they wish to apply for SDDENR funding for up to $2.1 million. Kelly Landis made a motion to approve and adopt Resolution No. 101. Leon Voegele seconded it. Aye: 7; Nay: 0.

RESOLUTION NO. 101

RESOLUTION AUTHORIZING AN APPLICATION FOR FINANCIAL ASSISTANCE, AUTHORIZING THE EXECUTION AND SUBMITTAL OF THE APPLICATION, AND

DESIGNATING AN AUTHORIZED REPRESENTATIVE TO CERTIFY AND SIGN PAYMENT REQUESTS.

WHEREAS, the T.C.&G Water Association, Inc. , a nonprofit corporation organized and existing under the laws of the State of South Dakota (the "Corporation"), has determined it is necessary to proceed with improvements to its Water System, including but not limited to the replacement of meters, a booster pump station, distribution pipe, plus necessary appurtenances.

WHEREAS, the Corporation has determined that financial assistance will be necessary to undertake the Project and an application for financial assistance to the South Dakota Board of Water and Natural Resources (the "Board") will be prepared; and

WHEREAS, it is necessary to designate an authorized representative to execute and submit the Application on behalf of the Corporation and to certify and sign payment requests in the event financial assistance is awarded for the Project.

NOW THEREFORE BE IT RESOLVED by the Corporation as follows:

1. The District hereby approves the submission of an Application for financial assistance in an amount not to exceed $2,100,000 to the South Dakota Board of Water and Natural Resources for the Project.

2. The Board Chairman and/or Kelly Landis, Board Member is hereby authorized to execute the Application and submit it to the South Dakota Board of Water and Natural Resources, and to execute and deliver such other documents and perform all acts necessary to effectuate the Application for financial assistance.

3. The Board Chairman and/or Kelly Landis, Board Member is hereby designated as the authorized representative of the Corporation to do all things on its behalf to certify and sign payment requests in the event financial assistance is awarded for the Project.

Adopted at T.C.&G Board Meeting, held at Timber Lake, South Dakota, this 23rd day of March, 2015.

This resolution is effective upon passage.

APPROVED:

_____

President, TC&G Water Assn., Inc.

Attest: _____

TC&G Water Assn., Inc.

A Hold Harmless Agreement drafted by Dewey County State's Attorney Aberle was presented to the TC&G Water Board for approval. This agreement states that Dewey County will not incur any expenses related to the project. Kelly Landis made a motion to approve the agreement and Bill Hahne seconded it. Aye: 7; Nay: 0. President Hollenbeck signed the agreement.

Since there was no further business, Kelly Landis made a motion to adjourn the TC&G meeting. Bill Hahne seconded. Aye: 7; Nay: 0. Rod Enright made a motion to adjourn the county meeting and Bob Keckler seconded it. Motion carried. The next regular county meeting will be held Tuesday, April 7, 2015 at 10:00 a.m. in the Dewey County Courthouse.

_____ _____

Kyrie Lemburg, Auditor Robert W. Berndt, Chairman

Published once at a total approximate cost of $_____

T. C. & G WATER ASSOCIATION. INC.

HCR 77 Box 95
Glencross, SD 57630

January 8, 2014

Dear T.C. & G. Water Association Member:

During the December 2013 regular monthly meeting of the T.C. & G. Water Board there was a lot of discussion regarding a rate increase. Our water system is over 40 years old and we have some major upgrades that will need to be done. We can either have a small rate increase that would not give us enough operating money to do major system upgrades as they are needed or we can do a significant rate increase that would allow us to make repairs and upgrades without having to acquire emergency funds.

The board has decided, by unanimous vote, that it is time for a rate increase. This board realizes that each of you depend on the availability of water. This increase is to help us keep the system operational so you can continue to rely upon this service.

The board has done their part and each of you can do yours. It is your responsibility to read your meters on a monthly basis. Accurate readings and regular payments will help with consistent cash flow. We are relying on your commitment to this water association.

The rate increase is as follows: **Effective: February 1, 2014**

- All monthly meters (rural and town) will have a monthly minimum of $65 per month.
- Gallons used will increase to $4 per thousands of gallons used.
- Second households will pay a monthly minimum of $65 per month.
- Pasture taps will be read in April and payable in May and read again in September and payable in October. The rate will be $65 per year and will be due with the May payment. Pasture taps will also pay $4 per thousands of gallons used.

The board appreciates your attendance at the annual meeting held in November at the Trail City Hall.

We hope we have a good turn out again next year. We wish you all the best in 2014.

Sincerely,

T.C. & G. Water Association Board of Directors

Don Hallenbeck
Leon Voegele
James Keller
William R. Hakes
Stephen Keller
Kelly Jacobs

Loan Amortization Calculator

Almost any data field on this form may be calculated. Enter the appropriate numbers in each slot, leaving blank (or zero) the value that you wish to determine, and then click "Calculate" to update the page.

If all loan

Principal	Payments per Year
2100000.00	4

Annual Interest Rate	Number of Regular Payments
2.2500	120

Balloon Payment	Payment Amount
	24113.06

X4 = 96,452.24 X 10%
9,645.22
$106,097.46 =

☑ Show Amortization Schedule

Calculate

This loan calculator is written and maintained by Bret Whissel.
See Bret's Blog for help, a spreadsheet, derivations, calculator news, and more information.

Summary

Principal borrowed:	$2,100,000.00
Regular Payment amount:	$24,113.06
Final Balloon Payment:	$0.00
Interest-only payment:	$11,812.50
***Total Repaid:**	$2,893,567.20
***Total Interest Paid:**	$793,567.20

Annual Payments:	4
Total Payments:	120 (30.00 years)
Annual interest rate:	2.25%
Periodic interest rate:	0.5625%
Debt Service Constant:	4.5930%
***Total interest paid as a percentage of Principal:**	37.789%

**These results are estimates which do not account for accumulated error of payments being rounded to the nearest cent. See the amortization schedule for more accurate values.*

135 = users/meter
785.91 / users / year
65.49 $65.50

Pmt	Principal	Interest	Cum Prin	Cum Int	Prin Bal
1	12,300.56	11,812.50	12,300.56	11,812.50	2,087,699.44
2	12,369.75	11,743.31	24,670.31	23,555.81	2,075,329.69
3	12,439.33	11,673.73	37,109.64	35,229.54	2,062,890.36
4	12,509.30	11,603.76	49,618.94	46,833.30	2,050,381.06
5	12,579.67	11,533.39	62,198.61	58,366.69	2,037,801.39
6	12,650.43	11,462.63	74,849.04	69,829.32	2,025,150.96
7	12,721.59	11,391.47	87,570.63	81,220.79	2,012,429.37
8	12,793.14	11,319.92	100,363.77	92,540.71	1,999,636.23
9	12,865.11	11,247.95	113,228.88	103,788.66	1,986,771.12
10	12,937.47	11,175.59	126,166.35	114,964.25	1,973,833.65
11	13,010.25	11,102.81	139,176.60	126,067.06	1,960,823.40
12	13,083.43	11,029.63	152,260.03	137,096.69	1,947,739.97
13	13,157.02	10,956.04	165,417.05	148,052.73	1,934,582.95
14	13,231.03	10,882.03	178,648.08	158,934.76	1,921,351.92
15	13,305.46	10,807.60	191,953.54	169,742.36	1,908,046.46
16	13,380.30	10,732.76	205,333.84	180,475.12	1,894,666.16
17	13,455.56	10,657.50	218,789.40	191,132.62	1,881,210.60
18	13,531.25	10,581.81	232,320.65	201,714.43	1,867,679.35
19	13,607.36	10,505.70	245,928.01	212,220.13	1,854,071.99
20	13,683.91	10,429.15	259,611.92	222,649.28	1,840,388.08
21	13,760.88	10,352.18	273,372.80	233,001.46	1,826,627.20
22	13,838.28	10,274.78	287,211.08	243,276.24	1,812,788.92
23	13,916.12	10,196.94	301,127.20	253,473.18	1,798,872.80
24	13,994.40	10,118.66	315,121.60	263,591.84	1,784,878.40
25	14,073.12	10,039.94	329,194.72	273,631.78	1,770,805.28
26	14,152.28	9,960.78	343,347.00	283,592.56	1,756,653.00
27	14,231.89	9,881.17	357,578.89	293,473.73	1,742,421.11
28	14,311.94	9,801.12	371,890.83	303,274.85	1,728,109.17
29	14,392.45	9,720.61	386,283.28	312,995.46	1,713,716.72
30	14,473.40	9,639.66	400,756.68	322,635.12	1,699,243.32
31	14,554.82	9,558.24	415,311.50	332,193.36	1,684,688.50
32	14,636.69	9,476.37	429,948.19	341,669.73	1,670,051.81
33	14,719.02	9,394.04	444,667.21	351,063.77	1,655,332.79
34	14,801.81	9,311.25	459,469.02	360,375.02	1,640,530.98
35	14,885.07	9,227.99	474,354.09	369,603.01	1,625,645.91
36	14,968.80	9,144.26	489,322.89	378,747.27	1,610,677.11
37	15,053.00	9,060.06	504,375.89	387,807.33	1,595,624.11
38	15,137.67	8,975.39	519,513.56	396,782.72	1,580,486.44
39	15,222.82	8,890.24	534,736.38	405,672.96	1,565,263.62
40	15,308.45	8,804.61	550,044.83	414,477.57	1,549,955.17
41	15,394.56	8,718.50	565,439.39	423,196.07	1,534,560.61
42	15,481.16	8,631.90	580,920.55	431,827.97	1,519,079.45
43	15,568.24	8,544.82	596,488.79	440,372.79	1,503,511.21
44	15,655.81	8,457.25	612,144.60	448,830.04	1,487,855.40
45	15,743.87	8,369.19	627,888.47	457,199.23	1,472,111.53
46	15,832.43	8,280.63	643,720.90	465,479.86	1,456,279.10
47	15,921.49	8,191.57	659,642.39	473,671.43	1,440,357.61
48	16,011.05	8,102.01	675,653.44	481,773.44	1,424,346.56

Pmt	Principal	Interest	Cum Prin	Cum Int	Prin Bal
49	16,101.11	8,011.95	691,754.55	489,785.39	1,408,245.45
50	16,191.68	7,921.38	707,946.23	497,706.77	1,392,053.77
51	16,282.76	7,830.30	724,228.99	505,537.07	1,375,771.01
52	16,374.35	7,738.71	740,603.34	513,275.78	1,359,396.66
53	16,466.45	7,646.61	757,069.79	520,922.39	1,342,930.21
54	16,559.08	7,553.98	773,628.87	528,476.37	1,326,371.13
55	16,652.22	7,460.84	790,281.09	535,937.21	1,309,718.91
56	16,745.89	7,367.17	807,026.98	543,304.38	1,292,973.02
57	16,840.09	7,272.97	823,867.07	550,577.35	1,276,132.93
58	16,934.81	7,178.25	840,801.88	557,755.60	1,259,198.12
59	17,030.07	7,082.99	857,831.95	564,838.59	1,242,168.05
60	17,125.86	6,987.20	874,957.81	571,825.79	1,225,042.19
61	17,222.20	6,890.86	892,180.01	578,716.65	1,207,819.99
62	17,319.07	6,793.99	909,499.08	585,510.64	1,190,500.92
63	17,416.49	6,696.57	926,915.57	592,207.21	1,173,084.43
64	17,514.46	6,598.60	944,430.03	598,805.81	1,155,569.97
65	17,612.98	6,500.08	962,043.01	605,305.89	1,137,956.99
66	17,712.05	6,401.01	979,755.06	611,706.90	1,120,244.94
67	17,811.68	6,301.38	997,566.74	618,008.28	1,102,433.26
68	17,911.87	6,201.19	1,015,478.61	624,209.47	1,084,521.39
69	18,012.63	6,100.43	1,033,491.24	630,309.90	1,066,508.76
70	18,113.95	5,999.11	1,051,605.19	636,309.01	1,048,394.81
71	18,215.84	5,897.22	1,069,821.03	642,206.23	1,030,178.97
72	18,318.30	5,794.76	1,088,139.33	648,000.99	1,011,860.67
73	18,421.34	5,691.72	1,106,560.67	653,692.71	993,439.33
74	18,524.96	5,588.10	1,125,085.63	659,280.81	974,914.37
75	18,629.17	5,483.89	1,143,714.80	664,764.70	956,285.20
76	18,733.96	5,379.10	1,162,448.76	670,143.80	937,551.24
77	18,839.33	5,273.73	1,181,288.09	675,417.53	918,711.91
78	18,945.31	5,167.75	1,200,233.40	680,585.28	899,766.60
79	19,051.87	5,061.19	1,219,285.27	685,646.47	880,714.73
80	19,159.04	4,954.02	1,238,444.31	690,600.49	861,555.69
81	19,266.81	4,846.25	1,257,711.12	695,446.74	842,288.88
82	19,375.19	4,737.87	1,277,086.31	700,184.61	822,913.69
83	19,484.17	4,628.89	1,296,570.48	704,813.50	803,429.52
84	19,593.77	4,519.29	1,316,164.25	709,332.79	783,835.75
85	19,703.98	4,409.08	1,335,868.23	713,741.87	764,131.77
86	19,814.82	4,298.24	1,355,683.05	718,040.11	744,316.95
87	19,926.28	4,186.78	1,375,609.33	722,226.89	724,390.67
88	20,038.36	4,074.70	1,395,647.69	726,301.59	704,352.31
89	20,151.08	3,961.98	1,415,798.77	730,263.57	684,201.23
90	20,264.43	3,848.63	1,436,063.20	734,112.20	663,936.80
91	20,378.42	3,734.64	1,456,441.62	737,846.84	643,558.38
92	20,493.04	3,620.02	1,476,934.66	741,466.86	623,065.34
93	20,608.32	3,504.74	1,497,542.98	744,971.60	602,457.02
94	20,724.24	3,388.82	1,518,267.22	748,360.42	581,732.78
95	20,840.81	3,272.25	1,539,108.03	751,632.67	560,891.97
96	20,958.04	3,155.02	1,560,066.07	754,787.69	539,933.93

Pmt	Principal	Interest	Cum Prin	Cum Int	Prin Bal
97	21,075.93	3,037.13	1,581,142.00	757,824.82	518,858.00
98	21,194.48	2,918.58	1,602,336.48	760,743.40	497,663.52
99	21,313.70	2,799.36	1,623,650.18	763,542.76	476,349.82
100	21,433.59	2,679.47	1,645,083.77	766,222.23	454,916.23
101	21,554.16	2,558.90	1,666,637.93	768,781.13	433,362.07
102	21,675.40	2,437.66	1,688,313.33	771,218.79	411,686.67
103	21,797.32	2,315.74	1,710,110.65	773,534.53	389,889.35
104	21,919.93	2,193.13	1,732,030.58	775,727.66	367,969.42
105	22,043.23	2,069.83	1,754,073.81	777,797.49	345,926.19
106	22,167.23	1,945.83	1,776,241.04	779,743.32	323,758.96
107	22,291.92	1,821.14	1,798,532.96	781,564.46	301,467.04
108	22,417.31	1,695.75	1,820,950.27	783,260.21	279,049.73
109	22,543.41	1,569.65	1,843,493.68	784,829.86	256,506.32
110	22,670.21	1,442.85	1,866,163.89	786,272.71	233,836.11
111	22,797.73	1,315.33	1,888,961.62	787,588.04	211,038.38
112	22,925.97	1,187.09	1,911,887.59	788,775.13	188,112.41
113	23,054.93	1,058.13	1,934,942.52	789,833.26	165,057.48
114	23,184.61	928.45	1,958,127.13	790,761.71	141,872.87
115	23,315.03	798.03	1,981,442.16	791,559.74	118,557.84
116	23,446.17	666.89	2,004,888.33	792,226.63	95,111.67
117	23,578.06	535.00	2,028,466.39	792,761.63	71,533.61
118	23,710.68	402.38	2,052,177.07	793,164.01	47,822.93
119	23,844.06	269.00	2,076,021.13	793,433.01	23,978.87
120	*23,978.87	134.88	2,100,000.00	793,567.89	0.00

*The final payment has been adjusted to account for payments having been rounded to the nearest cent.

Request for Verification of USDA Rural Development Debt

Name of entity: T. C. & G. Water Association

Regarding Rural Water Development

hereby authorizes USDA Rural Development (Rural Development) to release and verify to the South Dakota Board of Water and Natural Resources (the Board) and the Department of Environment and Natural Resources (DENR) information on the indebtedness owed by the applicant to USDA Rural Development, and further authorizes the release of such information by the Board, DENR or Rural Development as may be necessary to process the application for financial assistance.

Printed Name & Title: Karen Salzer, Secretary/Bookkeeper

Karen Salzer

Signature of person authorizing the release of information

Date: 3/27/15

Date of Original Loan: 09/05/03

Amount of Loan: $106,000

Maturity Date: 09/05/2043

Type of Payment (Check One): ☑ Monthly ☐ Quarterly ☐ Annual

Amount of Payment: 470

Payment Status (Check One): ☑ Current ☐ Delinquent

Accrued Interest: 223.81

Principal Loan Balance: 91,527.33

Reserve Payment Amount: Fully Funded

Current Reserve Balance: 11,187

Fully Funded Reserve Amount: 5,640

Security for Loan: RE Mortgage, System revenue

Status Date as of: 3/30/2015

Printed Name & Title: Brian L. Ring, RD Specialist

Signature of person verifying the above information

Date: 3/30/15

Marlene Knutson

From: Ring, Brian - RD, Pierre, SD <Brian.Ring@sd.usda.gov>
Sent: Monday, March 30, 2015 10:44 AM
To: Marlene Knutson (MKnutson@csded.org)
Cc: ksalzer@mge.coop
Subject: FW: Scanned Document Attached
Attachments: 2197_001.pdf

Verification attached. There are a lot of variables on our amortization schedule, but a good approximation for 2015 is $1750 prin. And $3890 int.; for 2016 $1815 prin. And $3825 int. total payments per year is $5640. Loan was for drilling a new well and some main line improvements. Hope this helps.

Brian L. Ring
Loan Specialist
Rural Development
U.S. Department of Agriculture
1717 N. Lincoln Ave, Ste 102, Pierre, SD 57501
Phone: 1-605-224-8870, ext. 122 Fax: 1-855-262-1942
www.rurdev.usda.gov/sd_RuralDevelopment.html

FY2012 Annual Report

"Committed to the future of rural communities"

From: Netcopy@one-mail.fsc.usda.gov [mailto:Netcopy@one-mail.fsc.usda.gov]
Sent: Monday, March 30, 2015 9:30 AM
To: Ring, Brian - RD, Pierre, SD
Subject: Scanned Document Attached

BERKADIA®

Berkadia Commercial Mortgage, LLC
323 Norristown Road, Suite 300
Ambler, PA 19002

**********MIXED AADC 190
TC & G WATER ASS OCIATION, INC.
ATTN: MARGARET S ALZER, BOOKKEEPER
HC77
PO BOX 95
GLENCROSS SD 57630-0095

February 10, 2015

Re: Berkadia Loan # 010533903
Year End Account Information for 2014

Ladies and Gentlemen:

Berkadia recently issued you a 2014 Year End Account Information letter. The letter dated January 28, 2015 was incorrectly issued without the Berkadia loan number. We apologize for any inconvenience this may have caused.

Enclosed you will find a reprinted 2014 Year End Account Information letter with all the necessary information needed for year end reporting.

Please do not hesitate to contact your Berkadia Client Relations Manager toll-free at (888) 334-4622 with any questions.

Berkadia has recently moved our office; please see the new mailing address above.

Sincerely,

Berkadia Servicing

BERKADIA®

Berkadia Commercial Mortgage, LLC
118 Welsh Road
Horsham, PA 19044

January 28, 2015

**********MIXED AADC 190
TC & G WATER ASSOCIATION, INC.
ATTN: MARGARET SALZER, BOOKKEEPER
HC77
PO BOX 95
GLENCROSS SD 57630-0095

RE: **Berkadia Loan No:** 010533903

We are pleased to provide your year-end information for **2014.**

The convenience of ***Berkadia's LoanView®*** site provides access to your loan information 24 hours a day, 7 days a week. Go to: ***www.loanview.berkadia.com***.

Year End Account Activity

LoanView Login Page
Enter: Your **Login Name** and **Password**
Select: **Reports** tab
Select: **Year End Statements** to view current and past year end statements for your loans.
Select: A loan and choose a year to see the following list of documents, if applicable.
Annual Mortgage Summary
Year End 1099 INT
Year End 1098

2014 Reports

LoanView Login Page
Enter: Your **Login Name** and **Password**
Select: **Reports** tab
Select: **Transaction Activity Report** or **Reserve Activity Report**

Year End Account Information			
Balances as of: 12/31/14		**Paid Year To Date**	
Principal	$1,668.82	Principal	$1,320.19
Tax Escrow	$0.00	Interest	$149.81
Insurance Escrow	$0.00	Taxes	$0.00
Reserve Escrow	$0.00		
FHA / MIP Escrow	$0.00		
Late Charges Due	$0.00		

Please call us toll-free at **(888) 334-4622,** if you have any questions.

GMAC Commercial Mortgage

LOAN SERVICING ACCOUNT STATUS SUMMARY

FOR 1/01/00 TO 12/31/00

LOAN NO: 01-0533903
TAX ID NO:
ORIGINAL BALANCE: 25,000.00
CURRENT BALANCE: 15,407.93

BORROWER

TC & G WATER ASSOCIATION, INC.
ATTN: MARGARET SALZER, BOOKKEEPER
PO BOX 95
GLENCROSS SD 576300000

INTEREST RATE: 5.00000%
NOTE DATE: 6/76
TERM: 40 YRS 00 MOS.
MATURITY DATE: 6/16

Date	Transaction	Pd for	Principal	Gross Interest	FHA/MIP	Real Estate Tax	Property Insurance	Reserves	Misc. Fees	Suspense	Late Charge	IRP Subsidy	Principal Balance
--BEGIN	BALANCES												16,061.71
6/15	PMT REC'D	6/00	653.78-	816.22									15,407.93
BALANCES TO DATE			653.78	816.22	.00	.00	.00	.00	.00	.00	.00	.00	15,407.93

TOTAL TAXES PAID .00
TOTAL LATE CHARGES PAID .00
TOTAL IRP SUBSIDY RECEIVED .00
TOTAL INTEREST PAID 816.22

BERKADIA®

Berkadia Commercial Mortgage, LLC
323 Norristown Road, Suite 300
Ambler, PA 19002

**********MIXED AADC 190
TC & G WATER ASS OCIATION, INC.
ATTN: MARGARET S ALZER, BOOKKEEPER
HC77
PO BOX 95
GLENCROSS SD 57630-0095

February 10, 2015

Re: Berkadia Loan # 010533904
Year End Account Information for 2014

Ladies and Gentlemen:

Berkadia recently issued you a 2014 Year End Account Information letter. The letter dated January 28, 2015 was incorrectly issued without the Berkadia loan number. We apologize for any inconvenience this may have caused.

Enclosed you will find a reprinted 2014 Year End Account Information letter with all the necessary information needed for year end reporting.

Please do not hesitate to contact your Berkadia Client Relations Manager toll-free at (888) 334-4622 with any questions.

Berkadia has recently moved our office; please see the new mailing address above.

Sincerely,

Berkadia Servicing

BERKADIA

Berkadia Commercial Mortgage, LLC
118 Welsh Road
Horsham, PA 19044

January 28, 2015

**********MIXED AADC 190
TC & G WATER ASSOCIATION, INC.
ATTN: MARGARET SALZER, BOOKKEEPER
HC77
PO BOX 95
GLENCROSS SD 57630-0095

RE: **Berkadia Loan No:** 010533904

We are pleased to provide your year-end information for **2014**.

The convenience of ***Berkadia's LoanView®*** site provides access to your loan information 24 hours a day, 7 days a week. Go to: ***www.loanview.berkadia.com***.

Year End Account Activity

LoanView Login Page
Enter: Your **Login Name** and **Password**
Select: **Reports** tab
Select: **Year End Statements** to view current and past year end statements for your loans.
Select: A loan and choose a year to see the following list of documents, if applicable.
Annual Mortgage Summary
Year End 1099 INT
Year End 1098

2014 Reports

LoanView Login Page
Enter: Your **Login Name** and **Password**
Select: **Reports** tab
Select: **Transaction Activity Report** or **Reserve Activity Report**

Year End Account Information			
Balances as of: 12/31/14		**Paid Year To Date**	
Principal	$13,866.58	Principal	$2,511.95
Tax Escrow	$0.00	Interest	$827.05
Insurance Escrow	$0.00	Taxes	$0.00
Reserve Escrow	$0.00		
FHA / MIP Escrow	$0.00		
Late Charges Due	$0.00		

Please call us toll-free at **(888) 334-4622,** if you have any questions.

GMAC
Commercial Mortgage

LOAN SERVICING ACCOUNT STATUS SUMMARY

FOR 1/01/00 TO 12/31/00

LOAN NO: 01-0533904
TAX ID NO:
ORIGINAL BALANCE: 56,800.00
CURRENT BALANCE: 40,108.10

BORROWER

TC & G WATER ASSOCIATION, INC.
ATTN: MARGARET SALZER, BOOKKEEPER
PO BOX 95
GLENCROSS SD 576300000

INTEREST RATE: 5.00000%
NOTE DATE: 1/79
TERM: 40 YRS 00 MOS.
MATURITY DATE: 1/19

Date	Transaction	Pd for	Principal	Gross Interest	FHA/MIP	Real Estate Tax	Property Insurance	Reserves	Misc. Fees	Suspense	Late Charge	IRP Subsidy	Principal Balance
--BEGIN	BALANCES												41,493.05
1/21	PMT REC'D	1/00	1,384.95-	1,954.05									40,108.10
BALANCES TO DATE			1,384.95	1,954.05	.00	.00	.00	.00	.00	.00	.00	.00	40,108.10

TOTAL TAXES PAID	.00
TOTAL LATE CHARGES PAID	.00
TOTAL IRP SUBSIDY RECEIVED	.00
TOTAL INTEREST PAID	1,954.05

PROMISSORY NOTE

Amount: **$50,000.00**
Date: **August 19, 2014**

FOR VALUE RECEIVED, the undersigned, T.C. & G. WATER ASSOCIATION, INC., a South Dakota non-profit corporation, duly organized and existing under the laws of the state of South Dakota, of HC 77 Box 95, Glencross, South Dakota 57630 ("Borrower") promises to pay to the order of MOREAU-GRAND ELECTRIC COOPERATIVE, INC. of 405 9th Street, Timber Lake, South Dakota 57656 ("Lender"), the principal sum of Fifty Thousand and no/100s Dollars ($50,000.00) ("Principal"), together with a service fee in the amount of one percent (1%) per year of the outstanding principal loan balance, payable at the times hereinafter set forth.

INTEREST, SERVICE FEE, AND LATE CHARGE: The sum borrowed by Borrower shall not bear interest; however, Borrower agrees that the loan will be subject to a service fee in the amount of one percent (1%) per year of the outstanding principal loan balance ("Service Fee"). Also, if a payment required hereunder is not paid when due, Borrower agrees to pay a late charge of $100.00 to defray Lender's costs incident to collecting such late payment ("Late Charge"). This Late Charge shall apply individually to all payments past due and there will be no daily pro rata adjustment. This provision shall not be deemed to excuse a late payment or deemed a waiver of any other rights that Lender may have, including the right to declare the entire principal balance and all accrued Late Charges and Service Fees to be immediately due and payable.

TERMS OF PAYMENT: This Note shall be payable as follows. On September 1, 2015, and on the 1st day of each September annually thereafter, up to and including September 1, 2024, the Principal and Service Fee shall be paid as follows:

September 1, 2015	$5,500[1]
September 1, 2016	$5,450
September 1, 2017	$5,400
September 1, 2018	$5,350
September 1, 2019	$5,300
September 1, 2020	$5,250
September 1, 2021	$5,200
September 1, 2022	$5,150
September 1, 2023	$5,100
September 1, 2024	$5,050

APPLICATION OF PAYMENTS: So long as a default does not exist, all payments shall be applied first to any costs of collection, then to Late Charges, then to Service Fees, and then to the Principal balance. If a default exists, Lender may apply any payments received to Principal,

[1] In addition to the Principal and Service Fee totaling, $5,500, Borrower's payment on September 1, 2015 shall include an additional amount to reimburse Lender for Lender's legal fees and loan closing fees as provided in Paragraph 1.2 of the *Loan Agreement*.

USDA loan
Moreau-Grand

LOAN AGREEMENT

This Loan Agreement ("Agreement") is entered into on this 19th day of August, 2014, by and between T.C. & G. WATER ASSOCIATION, INC., a South Dakota non-profit corporation ("Ultimate Recipient") and MOREAU-GRAND ELECTRIC COOPERATIVE, INC. ("Moreau-Grand").

RECITALS

A. This Agreement sets forth the terms agreed upon by Ultimate Recipient and Moreau-Grand regarding a loan ("the Loan") that Moreau-Grand is making to Ultimate Recipient pursuant to the Rural Electrification Act of 1936, as amended ("the Act"), and 7 C.F.R. § 4280, Subpart A – Rural Economic Development Loan and Grant Program ("the Regulations").

B. Ultimate Recipient has completed and submitted an *Economic Development Revolving Loan Fund Application* and supporting materials (collectively "Application") to Moreau-Grand requesting a Loan in the amount of $50,000 from Moreau-Grand's Revolving Loan Fund ("the Fund") to be used for the project described in the *Application* ("the Project"). The Fund was established in June of 2003 pursuant to a *Letter of Agreement* between Moreau-Grand and the United States Department of Agriculture and is governed by the *Rural Development Plan* adopted by Moreau-Grand's Board of Directors in August of 2003.

C. NOW, THEREFORE, in consideration of the mutual agreements herein contained, Moreau-Grand and Ultimate Recipient agree as follows:

AGREEMENT

1. Loan Terms

1.1 Moreau-Grand shall lend Fifty Thousand and no/100s Dollars ($50,000.00) to Ultimate Recipient to be used solely to promote rural economic development as more particularly described in the *Application*.

1.2 The term of the Loan shall be ten (10) years. The Loan will not bear interest; however, as provided in the *Promissory Note*, (a) the Loan will be subject to a service fee in the amount of one percent (1%) per year of the outstanding principal loan balance, (b) Ultimate Recipient will reimburse Moreau-Grand for any legal fees and loan closing fees that Moreau-Grand incurs in connection with the Loan, and (c) any indebtedness not paid when due will be subjected to late charges, costs, and other charges.

1.3 Ultimate Recipient shall repay the Loan over such ten (10) year term in accordance with the *Promissory Note* executed by Ultimate Recipient. Ultimate Recipient shall begin to repay the Loan on the dates set forth in the *Promissory Note* and shall continue paying without interruption until all indebtedness associated with the Loan has been repaid in full on or before the final maturity date of the *Promissory Note*.

2. Affirmative Covenants

2.1 Ultimate Recipient shall execute and deliver the *Promissory Note* to Moreau-Grand in order to evidence its obligation to repay the Loan by the terms of this Agreement and the *Promissory Note*. Ultimate Recipient shall pay all indebtedness evidenced by the *Promissory Note* in the manner and at the times described therein. To secure the *Promissory Note*, Ultimate Recipient shall further provide Moreau-Grand with a valid mortgage on Ultimate Recipient's real estate and improvements ("Mortgage") that is subject only to the mortgages in favor of the United States Department of Agriculture.

2.2 Ultimate Recipient shall promptly use the proceeds of the Loan only in the manner and exclusively for the purposes set forth in the *Application* and in accordance with this Agreement and the Regulations (as they may be amended from time to time). No material changes may be made in the purpose of the Project without the prior written approval of Moreau-Grand. Until disbursed by Ultimate Recipient for authorized Loan purposes, Ultimate Recipient shall maintain the Loan proceeds in a separate account of a financial institution that is fully insured by the Federal Deposit Insurance Corporation.

2.3 Ultimate Recipient shall return to Moreau-Grand as a prepayment on the *Promissory Note* (a) all proceeds of the Loan which have not been used or disbursed by Ultimate Recipient for authorized Loan purposes during the twelve month period following the advance of the proceeds of the Loan from Moreau-Grand to Ultimate Recipient, (b) any interest earned on the undisbursed Loan proceeds, and (c) any Loan proceeds returned to Ultimate Recipient as a result of a credit, refund, or otherwise.

2.4 Ultimate Recipient shall make all payments on the *Promissory Note* by using an automated clearing house (ACH) system or, if notified by Moreau-Grand in writing to do so, any other reasonable method of payment specified by Moreau-Grand. Specific instructions for using ACH will be provided by Moreau-Grand prior to the first scheduled payment.

2.5 If the Project will be funded, developed, owned, leased, managed, or operated by any other participant(s), Ultimate Recipient shall use its best efforts to cause such participant(s) to abide by their commitments to Ultimate Recipient and to the completion of the transactions contemplated in the *Application* and this Agreement.

2.6 Contemporaneous with the end of Ultimate Recipient's fiscal year, Ultimate Recipient shall provide complete copies of its annual financial reports (i.e. Income Statement and Balance Sheet) and federal income tax return. Moreau-Grand may require Ultimate Recipient to provide financial reports that have been audited by a certified public accountant.

2.7 Ultimate Recipient shall maintain a certified list of expenditures and attachments as described in this section at its premises for review by Moreau-Grand representatives, auditors, or others conducting a review or audit of Ultimate Recipient and the expenditure of the proceeds of the Loan. Ultimate Recipient shall also submit a duplicate certified list of expenditures and attachments as described in this section to Moreau-Grand for its files and the United States Department of Agriculture as requested.

2.8 Upon the completion of the project or the one year anniversary of Moreau-Grand's advance of the Loan proceeds to Ultimate Recipient, whichever occurs earlier, Ultimate Recipient shall (a) provide an itemized list to Moreau-Grand setting forth all expenditures made on the Project, which list shall include a certification providing as follows: "I certify that the proceeds of the rural economic development loan from Moreau-Grand Electric Cooperative, Inc. were expended on approved purposes as shown on this list and the attached invoices, receipts, bills of sale, and other evidence represent items shown on this list," and (b) attach the invoices, receipts, bills of sale, and other evidence representing and/or documenting the items contained in the list (collectively "List of Expenditures"). The invoices, receipts, bills of sale, and other evidence must at least total the amount of unreturned Loan funds (see Paragraph 2.3, supra).

2.9 Ultimate Recipient shall diligently monitor its own performance to ensure that the objectives and purposes as described in the *Application* are being achieved. One Hundred Twenty (120) days after the advance of the proceeds of the Loan from Moreau-Grand to Ultimate Recipient, Ultimate Recipient shall submit a written management report ("Management Report") to Moreau-Grand detailing the status of the Project.

The Management Report shall:

(a) Indicate the number and types of jobs created or retained,

(b) Identify the portion(s) of the Project which have been completed and those which remain to be completed, and

(c) Identify any problems, delays, or advance conditions which will materially affect Ultimate Recipient's attainment of the Project's objectives as well as a summary of the action(s) taken or contemplated to resolve the same.

Within thirty (30) days of the completion of the Project, Ultimate Recipient shall provide a final Management Report, accompanied by color photographs, documenting Ultimate Recipient's overall accomplishments.

2.10 Ultimate Recipient shall (a) permit Moreau-Grand representatives to visit the Project during regular business hours to verify and evaluate the use of the Loan funds, (b) participate in telephonic conferences during regular business hours to discuss the Project, and (c) permit Moreau-Grand representatives to inspect and copy Ultimate Recipient's records concerning the Project during regular business hours.

2.11 Ultimate Recipient shall immediately notify Moreau-Grand in writing of any occurrence by Ultimate Recipient which may result in the discontinuance of payments toward the *Promissory Note*, the cessation or dissolution of Ultimate Recipient's operations or corporate status, or the institution of bankruptcy proceedings involving Ultimate Recipient.

2.12 In addition to any other federal regulations or statutes which may be applicable, Ultimate Recipient shall comply with the Regulations, as they may be amended from time to time, including, without limitation, those set forth in 7 C.F.R. § 4280.31.

3. Representations and Warranties

Ultimate Recipient represents and warrants that on and as of the date first set forth above:

3.1 The amount of the Loan ($50,000) is not more than 50% of the total amount of funds needed to complete the Project.

3.2 Ultimate Recipient is a duly organized and existing corporation in good standing under the laws of the state of South Dakota.

3.3 Ultimate Recipient has the corporate power and authority to enter into this Agreement, the *Promissory Note*, and the *Mortgage*, and the power and authority to perform the obligations contained therein.

3.4 This Agreement, the *Promissory Note*, and the *Mortgage* have been duly authorized, executed, and delivered by Ultimate Recipient and such documents constitute the legal and binding agreements of Ultimate Recipient, enforceable against Ultimate Recipient in accordance with their respective terms.

3.5 The execution or the delivery by Ultimate Recipient of this Agreement, the *Promissory Note*, and the *Mortgage*; the consummation of the transactions contemplated herein; and the fulfillment by Ultimate Recipient of the terms hereof do not conflict with or violate, result in a breach of, or constitute a default under any term or provision of Ultimate Recipient's *Articles of Incorporation* or *By-Laws* or any law, statute, regulation, or order applicable to Ultimate Recipient, or the terms of any indenture, deed of trust, mortgage, note, agreement or instrument to which Ultimate Recipient or any of its properties is bound. Ultimate Recipient has not received any notice from any other party to any of the foregoing that a default has occurred or that any event or condition exists that with the giving of notice or lapse of time or both would constitute a default.

3.6 No approval, authorization, consent, order, registration, filing, qualification, license, or permit of or with any state or federal court or governmental agency or body having jurisdiction over Ultimate Recipient is required for the consummation by Ultimate Recipient of the transactions contemplated by this Agreement, the *Promissory Note*, or the *Mortgage*.

3.7 There is no pending or threatened action, suit, or proceeding before any court, arbitrator, or governmental agency, authority, or body which, if adversely determined, could have a material adverse effect on Ultimate Recipient's ability to perform its obligations under this Agreement, the *Promissory Note*, or the *Mortgage*.

3.8 The *Application* and all information, reports, and other papers and data furnished to Moreau-Grand by Ultimate Recipient concerning the Loan and Project are complete and correct in all material respects to the extent necessary to give Moreau-Grand a true and accurate knowledge of the subject matter and no document furnished or other written statement made to Moreau-Grand contains any untrue statement of a fact material to the financial condition of

Ultimate Recipient or the nature of the Project or omits to state such a material fact necessary in order to make the statements contained therein not misleading.

3.9 Ultimate Recipient has reviewed the Regulations and understands and accepts the requirements which the Regulations impose upon Ultimate Recipient.

3.10 Ultimate Recipient does not expect or intend the Project to result primarily in the transfer of any existing employment or business activity from one area to another.

3.11 Ultimate Recipient certifies (a) that the Loan was not conditioned upon Ultimate Recipient purchasing or accessing electric or telecommunications service from Moreau-Grand or any other specific utility, (b) that the Loan proceeds will not be used to pay off or refinance any existing indebtedness of the Project; and (c) that it is not presently delinquent on any debt (federal, state, or private) and has not been delinquent on any debt within the twenty-four (24) month period preceding Ultimate Recipient's *Application*.

4. Default

4.1 Upon the occurrence of an event of default as defined in this Agreement, Moreau-Grand may declare all or any portion of the indebtedness arising under this Agreement, including indebtedness evidenced by the *Promissory Note*, to be immediately due and payable and may proceed to enforce its rights under this Agreement and the *Promissory Note*.

4.2 As used in this Agreement, the term "Event of Default" shall mean the occurrence of any of the following:

(a) Any installment payment is not paid within thirty (30) days of the date which it is required to be made, whether by acceleration or not;

(b) Failure, inability, or unwillingness of Ultimate Recipient to carry out or comply with, or cause to be carried out or complied with, the specific undertakings described in this Agreement, the *Promissory Note*, or the *Application*;

(c) Any representation or warranty made by Ultimate Recipient shall prove to be false, incomplete, or incorrect in any material respect;

(d) Failure to perform any covenant, condition, or agreement, and such default shall continue for thirty (30) days after written notice specifying such default and requiring the same to be remedied shall have been given to Ultimate Recipient by Moreau-Grand;

(e) An event of default shall have occurred and be continuing under any mortgage of Ultimate Recipient which secures any form of financial assistance to Ultimate Recipient by Moreau-Grand;

(f) Commencement of a case in bankruptcy by or against Ultimate Recipient;

(g) Application for appointment of a receiver for, making a general assignment for the benefit of creditors by, or insolvency of Ultimate Recipient; or

(h) Violation of the Regulations in any material respect by any officer, director, employee, or agent of Ultimate Recipient, and such violation shall continue for a period of thirty (30) days without being rectified to Moreau-Grand's satisfaction after written notice specifying such default and requiring the same to be rectified shall have been given to Ultimate Recipient by Moreau-Grand.

5. Miscellaneous

5.1 Every right or remedy herein conferred upon or reserved to Moreau-Grand shall be cumulative and shall be in addition to every other right and remedy now or hereafter existing at law or in equity, or by statute or regulation.

5.2 The invalidity of any one or more phrases, clauses, sentences, paragraphs, or provisions of this Agreement shall not affect the remaining portions hereof.

5.3 In the event that Moreau-Grand shall sell the *Promissory Note* to an insured purchaser as provided in the Act, Moreau-Grand, and not the insured purchaser, shall be considered to be, and shall have the rights of, the holder of the *Promissory Note* for purposes of this Agreement.

5.4 This Agreement, the *Promissory Note*, and the *Mortgage* shall each be governed by, and construed in accordance with, the laws of the United States and the regulations governing the Rural Economic Development Loan and Grant Program, as amended.

5.5 In addition to the obligations created by this Agreement, Ultimate Recipient agrees to do and perform each and every act to be required of Ultimate Recipient pursuant to the terms of this Agreement and the *Promissory Note* as well as the *Letter of Agreement* between Moreau-Grand and the United States Department of Agriculture and any other federal regulations governing the Fund.

T.C. & G. WATER ASSOCIATION, INC.

By: Don Hollenbeck

Don Hollenbeck

Its: President

STATE OF SOUTH DAKOTA)
)SS
COUNTY OF DEWEY)

On the 19th day of August, 2014, before me, the undersigned officer, personally appeared Don Hollenbeck, who acknowledged himself to be the President of T.C. & G. Water Association, Inc., and that he, as such President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public
My Commission Expires: 7/12/16

(SEAL)

MOREAU-GRAND ELECTRIC COOPERATIVE, INC.

By: Roderick D. Schad
Roderick D. Schad
Its: President

STATE OF SOUTH DAKOTA)
)SS
COUNTY OF DEWEY)

On the 19th day of August, 2014, before me, the undersigned officer, personally appeared Roderick D. Schad, who acknowledged himself to be the President of Moreau-Grand Electric Cooperative, Inc., and that he, as such President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public
My Commission Expires: 7/12/16

(SEAL)

State of South Dakota

OFFICE OF THE SECRETARY OF STATE

Certificate of Good Standing
Nonprofit Corporation

ORGANIZATIONAL ID#: NS005170

I, **Shantel Krebs**, Secretary of State of the State of South Dakota, do hereby certify that **T.C. & G. WATER ASSOCIATION, INC.** was duly incorporated under the laws of this state on **September 1st, 1972**.

I, further certify that said corporation has complied with the laws of this State relative to the formation of corporations of its kind and is now a regularly and properly organized and existing corporation under the laws of this State and is in good standing, as shown by the records of this office. This certificate is not to be construed as an endorsement, recommendation or notice of approval of the corporation's financial condition or business activities and practices. Such information is not available from this office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of South Dakota, in Pierre, the Capital City, this March 30, 2015.

Shantel Krebs

Shantel Krebs
Secretary of State

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All Rights Reserved

Entity Detail File Annual Report Statement of Change Forms

Name	**T.C. & G. WATER ASSOCIATION, INC.** Obtain a Certificate of Good Standing
Corporate ID	**NS005170**
Incorporation/Qualification Date	**9/1/1972**
Home State	**SOUTH DAKOTA**
Status	**Good Standing**
Last Annual Report	**2014**
Corporation Type	**Domestic Nonprofit**
Stock Info	

Registered Agent Documents Officers

Registered Agent Name & Address

TED SCHWEITZER
HC 77
GLENCROSS, SD 57630-0095

BY-LAWS
OF
T.C. & G. WATER ASSOCIATION, INC.

ARTICLE I
General Purposes

This association shall be known as the T. C. & G. Water Association, Inc., incorporated under the laws of the State of South Dakota.

The purposes for which the corporation is formed, and the powers which it may exercise are set forth in the Articles of incorporation of the Association.

ARTICLE II
Name and Location

Section 1. The name of the corporation is the T. C. & G. Water Association, Inc.

Section 2. The principal office and place of business of this corporation shall be located in the City of Trail City, State of South Dakota, but the corporation may maintain offices and places of business at other places within or without the State as the Board of Directors may determine.

ARTICLE III
Seal of Corporation

Section 1. The seal of the corporation shall have inscribed thereon the name of the corporation, the year of its organization and the words "Non-Stock Corporation".

Section 2. The Secretary shall have custody of the seal.

Section 3. The impression of the seal shall be made on all papers and documents requiring the signature of an executive officer of the corporation.

ARTICLE IV
Fiscal Year

The fiscal year of the corporation shall begin the 1st day in January in each year.

ARTICLE V
Governing Body

Section 1. This corporation shall be governed by a Board of Directors consisting of seven members to be elected by the members of the corporation at the first regular annua l meeting and at each annual meeting thereafter. Such board shall meet immediately after the adjournment and organize by electing a President, Vice-President and Secretary and Treasurer from their own number.

ARTICLE VI
Membership and Certificate

Section 1. The holders of membership certificates in this corporation are its members.

Section 2. The Board of Directors is authorized and directed to:

a. Issue appropriate certificates of membership in the corporation to each of the aforesaid members who shall thereafter be entitled to all the privileges and benefits contemplated by Articles of Incorporation by signing such agreements for the purcha se of water for domestics use as are required by the corporation. Additional members, who are qualified by reason of location and ownership of property or Directors as members of the corporation if facilities and sufficiency of water is available upon the usual agreement for purchases of water and paying the required fee, and otherwise complying with Articles of the Corporation and By-Laws. No person otherwise eligible shall be permitted to subscribe for or otherwise acquire membership in the corporation if the capacity of the corporation is inadequate to supply the water to an additional member without jeopardizing the necessary supply of water for the existing members.

b. Each certificate, among other things, shall carry the following condition: This membership certificate, No. _____ is issued and accepted in accordance with and subject to the conditions and restrictions stipulated in the Articles of Incorporation and By-Laws and amendments to the same.

c. Transfers of membership certificates shall be made only upon the books of the corporation, only to persons eligible to become members only with the approval of the Board of Directors and only when the member transferring is free from indebtedness to the corporation.

d. No member of this corporation shall be entitled to more than one vote at meetings of the members or to hold more than one of the membership certificates of the corporation. Every member upon becoming a member of this corporation agrees to sign such a greement for the purchase of water from the corporation as may from time to time be provided and required by the corporation, and agrees, in case he wishes to dispose of his membership certificate, separate and apart from the premises served thereunder, to first offer the same to the corporation at its fair book value and that he will make no offer of assignment or sale of the same unless the corporation shall fail after thirty days notice in writing so to purchase the membership certificate.

Section 3. All transfers of membership certificates shall be made upon the books of the corporation upon the surrender of the certificates covering the same by the holders thereof or by their legal representatives, but only with the approval of the Board of Directors and only to persons eligible to become members and only when the transferring member is free from indebtedness to the corporation.

Section 4. Each member agrees to sign such water users' agreements as the corporation shall from time to time provide and require.

Section 5. In case of the death of a member or if a member ceases to be eligible to hold membership as provided in Section 11, or wilfully fails to comply with these By-Laws and other requirements, or willfully obstructs the purposes and proper activities of the corporation, the corporation, through the Board of Directors, may elect to purchase his membership certificate and terminate his membership upon tender to him or his heirs or legal representative of the fair book value of his membership certificate as determined by the Board of Directors, together with any dividends due and unpaid less any indebtedness then due from him to the corporation. Any member whose membership is so terminated for cause other than that of ceasing to be eligible, may appeal fro the action of the Board of Directors to a vote of the members at the next regular meeting of the members or special meeting of the members called for such purpose.

ARTICLE VII

Meeting of Members

Section 1. The annual meeting of the members of this Corporation shall be held at the City of Trail City, County of Dewey, State of South Dakota, or such other place as is designated by the Board of Directors at least twenty days in advance of the annual meeting date, at 7:00 o'clock P. M., on the first Monday in November of each year, if not a legal holiday, or, if a legal holiday, on the next business day following.

Section 2. Special meetings of the members may be called at anytime by the action of the Board of Directors and such meetings must be called whenever a petition requesting such meeting is signed by at least six of the members and presented to the Secretary, or to the Board of Directors. The purpose of every special meeting shall be stated in the notice thereof, and no business shall be transacted there at except such as is specified in the notice.

Section 3. Notice of meetings of members of the Corporation may be given by a notice mailed to each member of record, direct to the address shown upon the books of the corporation, at least ten days prior to the meeting. Such a notice shall state the nature, time, place and purpose of the meeting, but no failure or irregularity of notice of any annual meeting regularly held, shall effect any proceedings taken thereat.

Section 4. Twenty percent of the membership shall constitute a quorum for the transaction of business at any meeting. Unless such quorum is present, no business shall be transacted. If, however, such quorum shall not be present at any regular or special meeting, the members present shall have power to adjust the meeting from time to time without notice other then announcement at the meeting, until a quorum is present. Any business may be transacted which might have been transacted at the meeting as originally called.

ARTICLE VIII
Officers and Directors

Section 1. The officers of the association shall be a President, Vice-President Secretary, Treasurer and such other officers as may be determined by the Board of Directors from time to time. The officers of Secretary and Treasurer may be held by the same person.

Section 2. The Board of Directors of the corporation shall be managed and directed by seven (7) directors who shall be members of the corporation and who shall be elected to serve until their successors have been elected and assumed office. At the first annual meeting in 1973, two directors shall be elected by a majority vote of the members present and voting to serve a term of one year and after the expiration of the one year term, successors shall thereafter be elected for terms of three years. Two directors shall be elected for terms of three years. Two directors shall be elected by a majority vote of the members present and voting to serve for a term of two years and after the expiration of the two years term, successors shall thereafter be elected for a term of three years. Three directors shall be elected by a majority vote of the members present and voting to serve for a term of three years and after the expiration of the three year term, successors shall thereafter be elected for a term of three years.

Section 3. If the office of Director or Officer should become vacant for any cause, the remaining officers may choose a successor, who shall serve to the next regular or special meeting of the members when the vacancy shall be filled. The officer so named shall serve to the next regular meeting provided for in the By-Laws.

Section 4. Subject to Paragraph XIV of the Articles of incorporation, compensation of officers may be fixed at any regular or special meeting of the members of the corporation.

ARTICLE IX
Duties of Officers - Directors

Section 1. The Board of Directors, subject to the restrictions of the law, the Articles of Incorporation, and By Laws, shall exercise all of the powers of the association; and, without prejudice to or limitation upon their general powers, it is hereby expressly provided that the Board of Directors shall have, and are hereby given, full power and authority (to be exercised by resolution by a majority vote of all the members) in respect to the matters and as hereinafter set forth.

a. To pass upon the qualifications of members and to cause to be issues appropriate certificates of membership.

b. To select and appoint all officers, agents or employees of the corporation or remove such agents or employees of the corporation for just cause, prescribe such duties and designate such powers as may not be inconsistent with these By laws, fix their compensation and pay for faithful services.

c. To borrow from any source, money, goods or services and to make and issue notes and other negotiable and transferable instruments, mortgages, deeds of trus and trust agreements and to do every act and thing necessary to effectuate the same.

d. To prescribe, adopt and amend, from time to time such equitable uniform rules and regulations as, in their descretion, may be deamed essential or convenient for the conduct of the business and affairs of the corporation and the guidance and control of its officers and employees, and to prescribe adequate penalties for the breach thereof.

e. To order, at least once each year, an audit of the books and accounts of the corporation by a competent public auditor or accountant. The report prepared by such auditor or accountant shall be submitted to the members of the corporation at their annual meeting.

f. To fix the charges to be paid by such member for services rendered by the corporation to him the time of payment and the manner of collection.

g. To require all officers, agents and employees charged with responsibility for the custody of any of the funds of the corporation to give adequate bonds, the cost thereof to be paid by the corporation, and it shall be mandatory upon the trustees to so require.

h. To select one or more banks to act as despositories of the "unds of the corporation and to determine the manner of receiving, depositing, and disbursing the funds of the corporation and the form of checks and the person or persons by whom the same shall be signed, with the power to change such banks and the person or persons signing such checks and the form thereof at will.

i. To levy assessments upon the members of the corporation, notice of assessments so levied by the Board of Directors shall be mailed to each member at the address shown in the books of the corporation, at least thirty days prior to the final due date for payment thereof. In the event any assessment is not paid when due, the Board of Directors shall have the option to either declare the delinquent membership forfeited, or to bring suit in a court of competent jurisdiction for recovery of the amount of the delinquent assessment as a contract obligation, upon giving the delinquent member thirty days written notice by mail at the address as shown in the books of the corporation, of the intended action, if payment is not made prior to that time.

ARTICLE X

Duties of Officers

Section 1. Duties of President. The President shall preside over all meetings o" the corporation and the Board of Directors, call special meetings of the Board of Directors, perform all acts and duties usually performed by an executive and presiding officer and sign all membership certificates and such other papers of the corporation as he may be authorized or directed to sign by the Board of Directors, provided the Board of Directors may authorize any person to sign any or all checks, contracts and other instruments in writing on behalf of the corporation. The President shall perform such other duties as may be prescribed by the Board of Directors.

Section 2. Duties of the Vice-President. In the absence or disability of the President, the Vice-President shall perform the duties of the President provided, however, that in case of death, resigna tion or disability of the President, the Board of Directors may declare the office vacant and elect his successor.

Section 3. Duties of the Secretary-Treasurer. The Secretary-Treasurer shall keep a complete record of all meetings of the corporation and of the Board of Directors and shall have general charge and supervision of the books and records of the corporation He shall sign all membership certificates with the President and such other papers pertaining to the corporation as he may be authorized or directed to do so by the Board of Directors, He shall serve all notices required by law and by these By laws and shall ma ke a full report of all matters and business pertaining to his office to the members a t the annual meeting. He shall keep the corporate seal and membership certificate, records of the corporation, complete and countersign all certificate, [illegible] and affix [illegible] corporate seal to all papers requiring seal. He shall keep a proper membership certificate record, showing the name of each member of the corporation and date of issuance, surrender, cancellation or forfeiture. He shall make all reports required by law and shall perform such other duties as may be required of him by the corporation or the Board of Directors. Upon the election of his successor, the Secretary-Treasurer shall turn over to him all books and other property belonging to the corporation that he may have in his possession. He shall also perform such duties with respect to the finances of the corporation as may be prescribed by the Board of Directors.

ARTICLE XI

Duties of Corporation and Members

Section 1. The Corporation will install, maintain and operate a main distribution pipe line or lines from the source of the water supply and service lines from the main distribution pipe line or lines to the property line of each member of the corporation, at which points, designated as delivery points, meters to be purchased, installed, owned and maintained by the corporation shall be placed. The cost of the service line or lines from the main distribution pipe line or lines of the corporation to the property line of each member shall be paid by the corporation. The corporation will also purchase and install a cut-off valve in each service line from its main distribution line or lines, such cut-off valve to be owned and maintained by the corporation and to be installed on some portion of the service line owned by the corporation. The corporation shall have the sole and exclusive right to use such cut-off valve to turn it on and off.

Section 2. Each member shall be entitled to only one service line for which he shall pay a fee of $25.00.

Each member shall pay the cost of installation of his service line from the point at which the corporation pipe line contacts his property line to the point where it is connected with the member's meter distribution system installed or to be installed on his property.

If additional service lines are desired by a member, he shall be required to pay a fee of twenty five ($25.00) dollars for each service line in excess of one. The water delivered through such service lines will be metered, and the charges for such water shall be determined on the same basis as applies to the basic service line. No new service line or change in an existing service line may be made which will interfere with an existing line or delivery of water therein. Each service line shall connect with the corporation's water system at the nearest available place to the place of desire use by the member if the corporation's water system shall be of sufficient capacity to permit the delivery of water through a service line at that place without interfering with the delivery of water through a prior service line. If the corporation's water system shall be inadequate to permit the delivery of water through a service line installed at such place without interfering with the delivery of water through a prior service line, then such service line shall be installed at such place as may be designate by the corporation. Ea ch member will be required to dig or have dug a ditch for the connection of the service line or lines from the property line of the member to his dwelling or other portion of his premises and will also be required to purchase and install the portion of the service line or lines from his property line to the place

of use on his premises and to maintain such portion of such service line or lines which shall be owned by the member, at his own expense, provided that the corporation may, if the Board of Directors so determine, purchase the pipe for and install such portion of such service line or lines, the cost of which will, however, be paid by the individual members.

Section 3. The Board of Directors shall, prior to the beginning of each calendar yea r, determine the flat minimum monthly rate to be charged each member during the following calendar year for a specified quantity of water, such flat minimum monthly rate to be payable irrespective of whether any water is used by a member during any month, and the amount of additional charges, if any, for additional water which may be supplied and the members, shall fix the date for the payment of such charges, a nd shall notify each member of the amount of such charges and the dates fixed by the Board of Directors. The failure to pay water charges dulyimposed shall result in the automatic imposition of the following penalties:

a. Non-payment for thirty days after due. The water shall be cut off from the delinquent member's property.

b. Non-payment for sixty days. The Board of Directors shall have the option to terminate and purchase the membership for the fair book value or bring suit to collect the charges for water service rendered, as a matter of contract, as provided for in Article IX, Section 1, i, of these By laws.

Section 4. The Board of Directors shall be authorized to require each member to enter into water users agreements which shall embody the principles set forth in the foregoing sections of this article.

ARTICLE XII
Distribution of Surplus Funds

Section 1. It is not anticipated that there will be any net income. If there should be any, than at the end of the fiscal year, after paying the expenses of the of the corporation for operation and otherwise, and after setting aside reserves for depreciation on all buildings, equipment and office fixtures and such other reserves as the Board of Directors may deem proper and after providing for payments on interest and principal of obligations and amortized debts of the corporation, and after providing for the purchase of proper supplies and equipment, and the net earning shall be accumulated in a surplus fund for the purpose of replacing, enlarging, extending and requiring the system and property of the corporation and for such other purposes as the Board of Directors may determine to be for the best interests of the corporation. The said surplus fund of any portion thereof may from time to time at the discretion of the Board of Directors be distributed to the members as provided in the By laws, on the basis of the assessments and charges made and levied against and paid by such members during the year.

Section 2. If the corporation suffers a loss in any year, the Board of Directors, at its discretion, may charge such loss against the part of the reserve apportioned to those patrons whose patronage gave rise to such loss or against those patrons' ourstanding certificates of equity or actually assess those patrons for such loss.

Section 3. Any part or whole of such apportionment may be credited at the discretion of the Board of Directors to the indebtedness of the members, should any exist, and in such case, the member shall be notified in writing of the amount so applied.

ARTICLES XIII
Amendments

Section 1. These By laws may be repealed or amended by a vote of a majority of the members present at any regular meeting of the corporation, or at any special meeting of the corporation called for the purpose, except that the members shall not have the power to change the purposes of the corporation so as to decrease its rights a nd powers under the laws of the state, or to weive any requirement of bond or other provision for the safety and accurity of the property and funds of the corporation or its members, or to deprive any member of rights and privileges than existing, or so to amend the By laws, as to effect a fundamental change in the policies of the corporation. Notice of any amendment to be made at a special meeting of the members must be given at least ten days before such meeting and must set forth the amendments to be considered.

CERTIFICATE

I, Ray Johnson, Secretary of T. C. & G. Water Association, Inc. a corporation existing under the laws of the State of South Dakota, hereby certify that the attached and foregoing is a true copy of the By-Laws of said Association, together with all amendments thereto, adopted by a vote of the members of said Association, and vote of the Directors of said Association on December 3, 1974, and that the foregoing By-Laws are still in full force and effect as of this 3rd day of December, 1974.

Secretary of T. C. & G. Water Association, Inc

(SEAL)

ARTICLES OF INCORPORATION
OF
T.C. & G. WATER ASSOCIATION, INC.

KNOW ALL MEN BY THESE PRESENTS: That we, Louis Merkel, Roland Bickel, David Keller, Raymond Reiss, Frank Kraft, Ervin Keller and Herman Hulm, residents of the State of South Dakota and over the age of twenty-one years, have associated ourselves together for the purpose of forming a nonprofit corporation in accordance with the provisions of Chapter 47-22 of SDCL of 1967, as amended, and do hereby make, execute and acknowledge in triplicate, these articles of Incorporation in writing.

ARTICLE I

The name of this Corporation shall be T.C. & G. Water Association, Inc.

ARTICLE II

This Corporation shall have perpetual existence.

ARTICLE III

The objects and purposes of this Corporation are:

A. to acquire, construct, maintain, and operate a system for the diversion, supply, storage, and distribution of water to the members of this Corporation for domestic purpose within the area served by the Corporation in the Counties of Corson and Dewey, South Dakota.

B. To acquire by appropriation or otherwise, and to lease, sell or dispose of water and water rights for domestic purposes.

C. To borrow money for the use of said corporation and to issue securities therefor and to pledge, mortgage, hypothecate, and otherwise dispose of the real, personal and intangible property of the corporation as security therefor.

D. To have power to establish schedules of rates for the delivery of water, and to levy assessments upon its members, irrespective of whether or not payment in full has been made for their memberships, and to collect such water charges and assessments from its members. In the event of delinquency in the payment of such water charges and assessments, the corporation shall have the power to enforce the collection thereof by either or by any combination of the following remedies, upon giving notice to the delinquent member in the manner provided in the By laws as the same are in force and effect at the time such delinquency occurs.

(1) By personal action of debt brought against the delinquent member in a court of competent jurisdiction.

(2) By forfeiture of the delinquent membership or by termination of the delinquent membership, in the method provided by the By laws.

(3) By withholding the delivery of water from the service connection of the delinquent member.

E. To exercise any and all powers indicental to or conductive to the aforesaid objects or any of them.

ARTICLE IV

The principal place of business of the Association shall be located at Trail City, Dewey County, South Dakota.

ARTICLE V

The address of the initial registered office shall be Trail City, South Dakota, and the name of the initial registered agent at said address for the service of process is David Keller.

ARTICLE VI

The affairs of the Association shall be under the control of seven (7) Directors, and those who shall as Directors manage the affairs of the Association for the first year and until their successors are duly elected and qualified are:

Name	ADress
Louis Merkel	Trail City, S. Dak.
Roland Bickel	Trail City, S. Dak.
David Keller	Trail City, S. Dak.
Raymond Reiss	Trail City, S. Dak.
Frank Kraft	Trail City, S. Dak.
Ervin Keller	Trail City, S. Dak.
Herman Hulm	Trail City, S. Dak.

At the first annual meeting following the expiration of the one-year period for which the Directors herein designated will serve, and at each annual meeting thereafter, a new Board of Directors will be elected in accordance with the provisions of the By laws of the Association and the laws of the State of South Dakota, in such cases made and provided.

ARTICLE VII

The names and addresses of each incorporator are listed as follows:

Name	Address
Louis Merkel	Trail City, S. Dak.
Roland Bickel	Trail City, S. Dak.
David Keller	Trail City, S. Dak.
Raymond Reiss	Trail City, S. Dak.
Frank Kraft	Trail City, S. Dak.
Ervin Keller	Trail City, S. Dak.
Herman Hulm	Trail City, S. Dak.

ARTICLE VIII

The Board of Directorsshall establish a minimum water charge and a schedule of charges for water uses in excess of the minimum. The established minimum water charge shall apply to each service connection. Annually the Board of Directors shall review the established rates and, based upon consideration of the expenses of operation and maintenance, repayment of indebtedness and establishement of a proper reserve fund, and the anticipated amount of such cost during the coming year, shall make any proper revision of such schedule of rates.

ARTICLE IX

If at any time during the fiscal year it appears in the judgment of the Board of Directors that the amount to be derived from the collection of water charges during such fiscal year will be insufficient for the payment of all costs indident to the operation and maintenance of the corporation's system and payment of the corporation's current indebtedness, the Board shall make and levy an assessment upon each member so that the total of such assessment is sufficient, with the amount of water charges collected and reasonably anticipated to be collected, to fully pay the costs of operation and payments on said current indebtedness. A proportionate amount of the total of such assessment levied in any year shall be levied against each member in an amount equal to that portion which the number of service connections supplying each member bears to the total number of service connections served by the system of the corporation.

ARTICLE X

Section 1. There shall be no capital stock issued by the corporation, and membership in the corporation shall be limited to persons, corporations, or bodies politic owning, controlling or occupying land situated within the area served by the water system of the corporation and reasonably accessible thereto. Applicants for membership must be approved and payment of the membership fee as fixed in the By laws, shall be admitted to membership, provided that no occupant of land who is otherwise eligible for membership shall be entitled or be admitted to membership if the capacity of the corporation's system or sources of water supply is required to meet the needs of existing members.

Section 2. Each member, upon payment of the membership fee, shall be entitled to have one service connection installed at a point which may conveniently be tapped for the supply of water to the premises occupied by him, and upon payment of recurring water charges and also assessments, shall be entitled to a supply of water as available from the system of the corporation. Any person desiring more than one service connection shall be required to apply for and to pay a separate membership fee for each service connection by the corporation.

Section 3. There shall be an annual meeting of the members of the corporation to be held at such time and place as may be provided in the By Laws. Each member shall be entitled to only one vote irrespective of the number of memberships held.

Section 4. Membership in this Association shall be transferable and subject to mortgage or pledge only upon the approval of the Board of Directors. The above provisions shall be recited in all certificates of membership issued.

ARTICLE XI

The By laws of the Association for the management of its affairs shall be adopted by the members of said Association, and said members will be empowered to amend or repeal said By laws in accordance with the provisions thereof.

ARTICLE XII

Neither cumulative nor proxy voting shall be allowed. Each member shall be permitted only one vote.

ARTICLE XIII

Sale, conveyance, or encumbrances of all or any part of the property of the company may be made by the Board of Directors, provided, however, that such sale, conveyance or encumbrance is authorized by a two-thirds vote of the members at a regular membership meeting or a special membership meeting called for the purpose, and instruments of conveyance or encumbrance shall be executed on behalf of the company by the President and attested by the Secretary of the Company.

ARTICLE XIV

Section 1. No officer, Director or member shall at any time receive or become entitled to receive any pecuniary profit from the operations hereof either by dividends or other distribution or by payment of any salary, wage, or reward of any kind in excess of reasonable compensation for services actually rendered by any officer, agent, Director, or employee or member of the corporation.

Section 2. No dividend or distribution of the funds or other property of the corporation shall be made until all debts are fully paid and then only upon its final dissolution, nor shall any distribution be made except by a vote of the majority of the members of the corporation or a quorum thereof as provided in the By laws. In the event of dissolution, for the purpose of merger, the net funds of the corporation, if any, shall be transferred to any other or several nonprofit organizations having one or more purposes in common with this corporation.

Section 3. No member's individual liability shall extend beyond the consideration paid by each member for his membership certificate.

IN WITNESS WHEREOF, we, the incorporators, do hereby make, sign, seal and acknowledge this Certificate in triplicate.

David Keller
Roland Bickel
Frank Kraft
Louis Merkel
Ervin Keller
Herman Hulm
Raymond P. Reiss

STATE OF SOUTH DAKOTA)
: SS
COUNTY OF DEWEY)

I, Andrew Aberle, a Notary Public in and for said County and State, do hereby certify that Louis Merkel, Roland Bickel, David Keller, Raymond Reiss, Frank Kraft, Ervin Keller and Herman Hulm, who are known to me to be the persons whose names are subscribed to the foregoing Articles of Incorporation, appeared before me this day in person and each acknowledged that he signed, sealed and delivered said instrument in writing as his free and voluntary act, for the uses and purposes therein set forth.

In witness whereof I hereunto set my hand ans official seal this 29th day of August, 1972.

Andrew Aberle
Andrew Aberle, Notary Public
South Dakota

My Commission Expires:
10/15/74

STATE OF SOUTH DAKOTA)
: SS
COUNTY OF DEWEY)

We, Louis Merkel, Roland Bickel, David Keller, Raymond Reiss, Frank Kraft, Ervin Keller and Herman Hulm, being first duly sworn each for himself deposes and says: that he is one of the persons described in and who signed the foregoing articles of incorporation as an incorporator therein; that he has read the said articles and knows the contents thereof; that the incorporators intend in good faith to form a corporation for the purpose of the promotion of lawful business as set forth in the Articles and not for the purpose of enabling any corporation or corporations to avoid the provisions of Chapter 37-1, SDCL of 1967, as amended, releting to unlawful trusts and combinations and laws amendatory thereto.

David Keller
Roland Bickel
Frank Kraft
Louis Merkel
Ervin Keller
Herman Hulm
Raymond P. Reiss

Subscribed and sworn to before me this 29th day of August, 1972.

Andrew Aberle
Andrew Aberle, Notary Public
South Dakota

My Commission Expires:
10/15/74

(SEAL)

Final Report (Amended)

Water System Facility Plan

Prepared for

TC&G Water Association

June 2015

3030 Airport Road, Suite A, Pierre, SD 57501
Phone:(605) 224-1123; Fax (605) 224-0659

Final Report (Amended)

Water System Facility Plan

Prepared for

TC&G Water Association

June 2015

Brosz Engineering, Inc.
ARCHITECTURE ENGINEERING SURVEYING

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
7836
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4/4/2015

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Chapter 1.0
INTRODUCTION

This chapter presents the need for this report and the objectives of the study. A list of abbreviations is also included to assist the reader in understanding the information provided.

1.1 PURPOSE

The Trail City and Glencross Water Association (TC&G) (Figure 1.1) operates water infrastructure facilities, and services rural customers in the Trail City and Glencross area. TC&G is reviewing their current operational status, capacity, and assessing ways to better service existing and future customers.

TC&G has authorized Brosz Engineering, Inc. (BEI), to prepare a report, which will provide inventory and condition of the current water system. Based on these assessments, alternatives and recommendations will be provided for updating the current water system.

The recommended plan presented herein addresses the design, construction, and financing of alternatives to meet anticipated regulatory requirements, residential and commercial growth, and system reliability needs for TC&G. Implementation of the recommended improvements will provide adequate and dependable water systems for existing and future customers. This report will serve as a tool in order for TC&G to make effective decisions.

1.2 SCOPE

The principal elements of this report include the following:

1. Analyze and inventory current drinking water supply, storage, and distribution systems. Deficiencies, as well as satisfactory elements within the system, will be annotated within the report.
2. Investigate possible alternatives for water system improvements.
3. Issue formal recommendations based on alternative analysis.

1.3 ACKNOWLEDGEMENTS

Brosz Engineering wishes to acknowledge and thank everyone at TC&G for their assistance and cooperation. Their cooperation and courtesy in obtaining a variety of necessary information was extremely valuable in completing and producing this report.

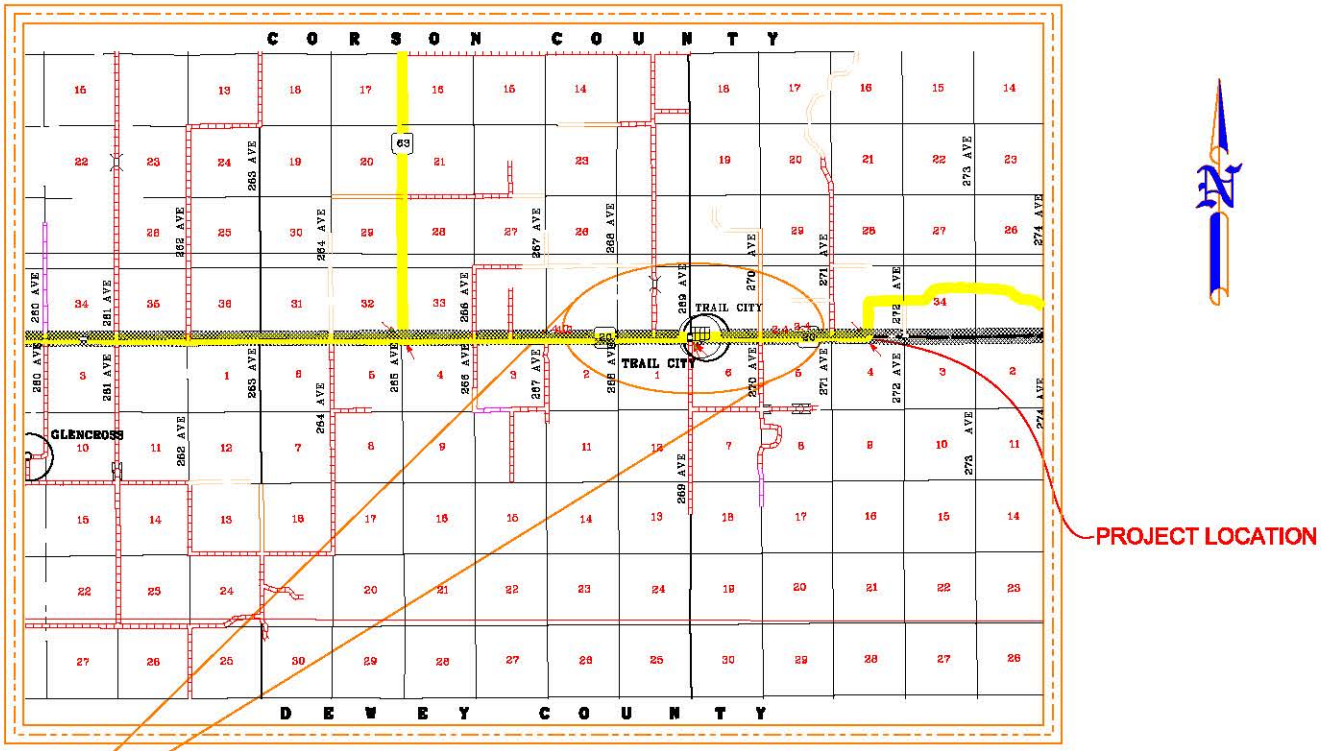
1.4 ABBREVIATIONS

AC	asbestos cement
ADD	average day demand
AMR	Automatic Meter Reading
AWWA	American Water Works Association
BEI	Brosz Engineering, Inc.
CDBG	community development block grant
cfs	cubic feet per second
CI	cast iron
CIP	capital improvement program
CWFCP	consolidated water facilities construction program
CY	cubic yard
EDA	Economic Development Administration
EPA	U.S. Environmental Protection Agency
EPS	Extended Period Simulation
ES	equalizing storage
EUAC	Equivalent Uniform Annual Cost
F	Farenheit
FEMA	federal emergency management agency
ft	feet
ft^3/day	cubic feet per day
fps	feet per second
gal	gallons
GO	general assessment
GOED	Governor's Office of Economic Development
gpm	gallons per minute
gpd	gallons per day
gpcd	gallons per day per capita
HDPE	high-density polyethylene
hp	horsepower
HUD	Housing and Urban Development
IFC	International Fire Code
In	inches
IPS	iron pipe size
K	1000 of a unit
kWh	kilowatt-hour
LF	linear feet
LS	lump sum
MDD	maximum day demand
MG	million gallons
MMD	maximum month demand
mgd	million gallons per day
mg/L	milligrams per liter
mL	milliliter
NA	Not Applicable; Not Available
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
PHD	peak hour demand
PRV	pressure reducing valve
psi	pounds per square inch

PVC	polyvinyl chloride
Qs	normal supply capacity
RD	Rural Development
RUS	Rural Utility Service
SD DENR	South Dakota Dep. of Environment and Natural Resources
sf	square feet
UPC	Uniform Plumbing Code
USDA	United States Department of Agriculture

LOCATION MAP OF
TRAIL CITY, SOUTH DAKOTA

CORSON & DEWEY COUNTY



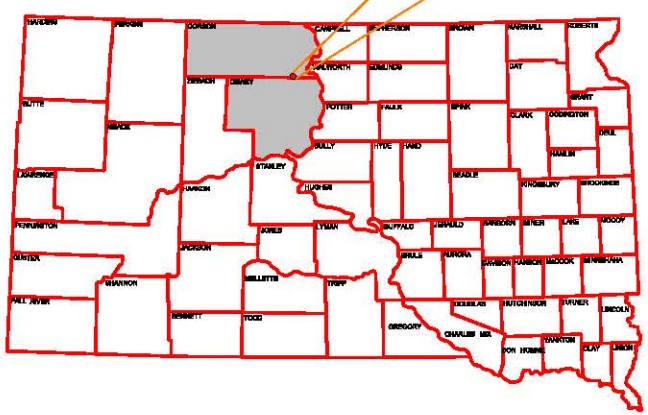


Figure 1.1 - Location Map

3030 Airport Rd, Box 23
Pierre, SD 57501
PH: 605.224.1123
BROSZ ENGINEERING, INC.
ARCHITECTURE ENGINEERING SURVEYING

Chapter 2.0
PLANNING AREA CHARACTERISTICS

This chapter presents introductory information regarding the Trail City & Glencross Water Association (TC&G) service area, future population estimates, and all necessary environmental review information required to complete funding considerations by SD DENR and any other applicable funding agencies.

2.1 STUDY AREA

TC&G service area is located in Dewey and Corson Counties, approximately 38 miles northeast of the City of Eagle Butte and 19 miles southwest of the City of Mobridge. South Dakota Highway 20 (SD-20) runs through the area of service. A location map is shown on Figure 1.1, and a detailed service area map is identified on Figure 2.1.

2.2 COUNTY POPULATION STATISTICS

Dewey County has a population of 5,301 based on the 2010 US Census. The county's median age is 29.1, while the SD median age is 36.9. Data from the 2010 census states that Dewey County has an average household size of 3.2 with a median household income is $34,797, which is slightly higher than the poverty threshold income level of $33,710.

Corson Counties has a population of 4,050 respectively, based on the 2010 US Census. The county's median age is 29.8, while the SD median age is 36.9. Data from the 2010 census states that Corson County has an average household size of 3.0 with a median household income is $29,451, which is lower than the poverty threshold income level of $33,710.

2.3 HISTORICAL POPULATION AND FUTURE GROWTH

Population statistics shown in Table 2.1 were obtained from the US Census Bureau. The combined population of Dewey and Corson Counties are trending downward steadily between 1960 and 2010. The population of Dewey and Corson Counties is influenced greatly by local businesses and the surrounding agricultural community, which in turn, drive the local economy.

The status of these variables, in addition to the growth of industry and business opportunities in neighboring communities will be the primary factor(s) in the population forecast of the Counties. It is anticipated that the Counties will see periods of population flux during the design life of the proposed improvements detailed in Chapter 4.0. Although the population will probably not significantly change every year, the historical population has been extrapolated to develop a conservative estimated population for the area in the years to come.

Table 2.1 – Dewey and Corson County Historical and Projected Populations

Year	*Dewey Population*	*Corson Population*
1960	5,257	5,798
1970	5,170	4,994
1980	5,366	5,196
1990	5,523	4,195
2000	5,972	4,181
2010	5,301	4,050
2020	**5,710***	**3,518***
2030	**5,789***	**3,170***
2040	**5,869***	**2,822***
(*) Denotes population forecast estimate		

2.4 SOIL / GEOLOGY / TOPOGRAPHY / CLIMATE

There is one main classification of soil type within the proposed improvement project area(s) of Dewey and Corson Counties. These series, as determined by the Natural Resources Conservation Service Soil Survey of Dewey and Corson Counties, are the Reeder loam association (27.0%). The remainder of the soil types are of a sandy loam or silty clay varieties. Detailed descriptions of the soil classifications are shown within Appendix D.

The Reeder loam association is a sandy drift over loamy till. It is characterized as well drained, nonsaline to slightly saline soil, with a silty clay underlayment. It is characterized as well drained, nonsaline to very slightly saline, with a silty clay underlayment.

These types of soils are suitable for engineered uses as proposed within this report. However, it is recommended that a Geotechnical Engineering firm be employed to determine the appropriateness and any limitations of the insitu soils.

The topography of the service area is gradually undulating, with slopes typically between 2 to 15 percent. Areas found near the Missouri River drainages are significantly steeper. However, these are small areas located on the outer limits of any improvements included in this report. The approximate elevation within the service area is 2,125 feet above sea level.

The climate of the TC&G Water Association service area is characterized as semi-arid or steppe. Winter is relatively long and cold, while summers are fair and hot. Most of the precipitation occurs during the warm period of late spring and early summer. Approximately 70% of the annual precipitation falls between April and August. Annual precipitation for the area is normally 19 inches. Average temperatures range between 18 F in the winter to 70 F in the summer.

2.5 ENVIRONMENTAL REVIEW INFORMATION

As part of the environmental assessment requirement for the facility planning process, the project sponsor is required to contact various state and federal agencies in regards to possible adverse environmental impact(s) from the proposed infrastructure improvements. Environmental assessment letters have been sent to the following agencies:

- *U.S. Fish and Wildlife Service*
- *U.S. Army Corps of Engineers (District and Area Offices)*
- *South Dakota Department of Environment and Natural Resources*
- *Natural Resources Conservation Service*
- *South Dakota Department of Game, Fish, and Parks*
- *South Dakota Division of Emergency Management*

All agencies responded to the assessment letters. Their response letters are included in Appendix A. It is expected that no negative environmental impacts will occur from construction taking place on previously disturbed land.

2.5.1 FLOODPLAINS, WETLANDS, AND AQUIFERS

Agencies were contacted about possible impacts upon floodplains, wetlands, and aquifers. Possible impacts include: 1) Flood Hazards; 2) Floodplain Construction; and 3) Impacts to Wetland(s). Return correspondence from the US Corps of Engineers stated that no impacts were expected. If impacts are projected throughout the course of construction, the agency needs to be contacted and any necessary information and/or permits (i.e. 404 Permit) obtained for regulatory approval.

FLOODPLAINS

A FEMA floodplain map for the TC&G service area is currently not available. After a thorough evaluation of the existing FEMA designations for the service area, it has been determined that there are not any floodplain areas within the service area. Therefore, the proposed improvements are not expected to encroach in any dedicated floodplain.

WETLANDS

The proposed water system improvements are not anticipated to impact areas considered as natural wetlands defined by the US Fish and Wildlife Service. Appendix A contains the National Wetlands Inventory map for the areas included in the proposed improvements.

AQUIFERS

Obtaining groundwater from shallow aquifers in the TC&G service area typically produce water quality that is of good quality for drinking or livestock watering purposes, but has some slight hardness.

TC&G lies under the Fox Hills Formations. These shallow depth formations typically produce wells that can yield between 20 and 200 gpm. Water quality is consistent throughout the formation. These formations have thickness in excess of 60 ft.

The proposed improvements to the existing water system are not anticipated to impact any of the underlying aquifers.

2.5.2 AGRICULTURAL LANDS

The Natural Resources Conservation Service was contacted about possible impacts to prime or important farmland. Return correspondence stated that no impacts were expected, due to the fact that all construction will take place on previously disturbed land.

2.5.3 WILD AND SCENIC RIVERS

There are no "Wild and Scenic Rivers" within the proposed construction area. Therefore, no impacts of this resource will occur.

The Moreau River is the nearest body of water and is free flowing upstream and downstream until the confluence of the Missouri River. There are no potential impacts to either Moreau River or the Missouri River from the proposed improvements.

2.5.4 FISH AND WILDLIFE

Proposed improvements are in an urbanized setting not suitable for fish and wildlife. Therefore, no impact is expected. The U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish, and Parks were contacted in regards to the impacts of fish and wildlife. Both agencies reported that no impact would occur to fish or wildlife during the course of construction.

THREATENED & ENDANGERED SPECIES / CRITICAL HABITAT

The U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish, and Parks were contacted in regards to the impacts of critical habitat for fish and wildlife. Both agencies reported that no impact would occur to critical habitat during the course of construction. Table 2.2 lists the threatened and endangered species known to exist within the TC&G service area.

Table 2.2 – Threatened and Endangered Species

County	Group	Species	Certainty of Occurrence	Status
Corson & Dewey	Bird	Crane, Whooping	Known	E
	Bird	Plover, Piping	Known	T (CH)
	Bird	Tern, Least	Known	E
	Mammal	Ferret, Black Footed	Possible	E, XN*
	Fish	Sturgeon, Pallid	Possible	E
	Bird	Sprague's Pipit	Possible	C
E = Endangered; T = Threatened; C = Candidate; XN = Experimental/Non-essential population				
CH = Critical Habitat; PCH = Proposed Critical Habitat, XC* = Introduced into CRST (Dewey Co)				

2.5.5 AIR QUALITY

The proposed project area do not have air quality problems. Local air quality problems occur due to odors from different sources such as livestock feeding operations, as well as, other sources.

Dust storms can also occur on occasion; particularly in dry years when lack of moisture reduces the vegetative cover on the land surface.

The proposed project is not expected to have long term adverse impacts on air quality. Short term impacts include fugitive dust from construction. This will be minimized by incorporation of a SWPPP Plan, as well as, BMP's.

2.5.6 WATER QUALITY AND QUANTITY

The major surface water source near the proposed improvements are tributaries of the Moreau River which drains into the Moreau River. The beneficial uses for these tributaries are:

- Fish and wildlife propagation, recreation, and stock watering waters; and
- Irrigation waters

These waterways flow for approximately 17.5 miles where it enters the Moreau River. Beneficial uses for the Moreau River include:

- Warm water semi-permanent fish life propagation;
- Limited contact recreation waters;
- Fish and wildlife propagation, recreation, and stock watering waters; and
- Irrigation waters

The South Dakota Department of Environment and Natural Resources was contacted in regards to possible impacts of surface water quality or quantity. All applicable departments within SDDENR reported that no potential impacts are expected due to this project.

2.6 HISTORICAL, CULTURAL, AND ARCHEOLOGICAL

The following are listed in the National Register of Historic Places. The proposed improvements are not expected to adversely impact this historical district.

- Harding Schoolhouse – 5.5 miles Northwest of Trail City, SD

Verification of historic sites will be requested from the State Historical Preservation Office (SHPO). An archeological review is not expected to be required in the location of the proposed improvements. All proposed work areas have been previously disturbed during the initial placement of the water facilities.

2.7 DIRECT AND INDIRECT IMPACTS

Previous portions of this section have addressed the impact of the proposed improvements on water quality, fish and wildlife, and cultural resources. The remainder of this section addresses other potential impacts and mitigation measures that may be necessary to implement.

WATER AND AIR RESOURCES

Construction of the proposed improvements will require excavation and site grading. Potential impacts include short term localized erosion and fugitive dust. Erosion and sediment control best management practices will be implemented to negate any potential for impact.

WILDLIFE

The proposed project is in both urbanized and rural areas. Wildlife will be prevented from occupying the areas immediately adjacent to the construction sites. No long term effects on wildlife are expected as a result of this project.

CULTURAL RESOURCES

Construction of the proposed improvements is not expected to have any impact upon cultural resources in the area. There is a potential for unearthing or covering up historic or archeological resources during construction.

In the event that these resources are compromised during construction, the immediate stoppage of work is dictated by a required condition in the contract specifications. Additionally, the TC&G Water Association will employ a full time engineer who will monitor construction activities and observe for any cultural resource impacts.

2.8 MITIGATION OF ADVERSE IMPACTS

Adverse impacts will be minimized to the greatest extent possible by the implementation of accepted cautionary measures. Temporary and permanent erosion control will be included in the construction process. Appropriate permits will be secured prior to the discharge of any trench dewatering or storm waters. Protection of human health, safety, and welfare will be incorporated into the contract documents. If permanent adverse impacts result from the project, mitigating measures will be followed to the satisfaction of the appropriate oversight agencies.

Positive impacts include improved human health and safety, as well as, improved water service for the TC&G Water Association. This impact is of long-term value to the residents who obtain water from TC&G.

2.9 NO ACTION TAKEN ENVIRONMENTAL IMPACT

If no action is taken by TC&G, the current water infrastructure will further degrade and will increase the cost to operate and maintain their system.

Chapter 3.0
WATER STORAGE AND DISTRIBUTION SYSTEMS

This chapter describes the current TC&G water system(s), analyses that were conducted to verify and ascertain design parameters, and issues that the system is currently facing. In addition, results from a walk through inspection of the current facilities and components that need repair or replacement are also included.

3.1 INTRODUCTION

On June 23, 2014, representatives from BEI traveled to the TC&G Water System to conduct an on-site evaluation of the current water system. The TC&G Water System consists of the following components

- Five (5) groundwater wells
- Five (5) well houses that provide metering and disinfection capabilities
- One (1) 15'x24' standpipe with booster pump station
- One (1) 91,000 gallon ground storage reservoir with booster pump station
- One (1) standalone pressure booster pump station

There is also approximately 227,012 feet of mainline piping ranging in size from 6 inch to 1-1/4 inch, with the majority being between 2 to 4 inch PVC.

3.1.1 TC&G Water System Infrastructure History

- In 1971, the design of a 30,000 gpd water system was proposed by TC&G Water System. The system was constructed in 1973 and consists of Well #1, a standpipe on the west end of the system, an 8'x80' standpipe on the east end of the system, and PVC waterlines of various sizes.

- In 1975, Wells #3 was constructed to meet the increasing demand for water.

- In 1979, the standpipe on the east end of the system was replaced with a 100,000 gallon ground level storage tank with a booster pump station and Well #2 was constructed. These improvements partially alleviated the problem of the lack of flow and pressure on the east end of the system.

- In the winter of 1989, the 100,000 gallon storage tank froze completely. This caused damage to the tank by stressing the seams. The tank was repaired and put back in service. In 1993, this tank developed leaks and it was determined that the tank was beyond repair. In 1995, this tank was replaced with a 91,000 gallon ground level tank.

- In 2005, Well #4 was drilled to provide additional supply. In the same year Well #3 had a pipe collapse and was abandoned. Well #5 was drilled to replace it.

- In 2006, Well #6 was constructed to increase water supply. Because of the high maintenance that was needed near Trail City, 1-1/4 miles of 5 inch PVC mainline was replaced with 6 inch PVC.

3.2 WATER SUPPLY AND TREATMENT SYSTEM

The supply system consists of five (5) groundwater wells that are pumped to a standpipe on the west end of the service area. These wells can reliably deliver 200 gpm into the distribution system.

Water is pumped from the wells to well houses that consist of metering and disinfection equipment. Sodium hypochlorite is injected into influent piping before it enters into the storage reservoirs, as well as, ortho-phosphate to prevent oxidation of iron and manganese in the system.

Pictures of the well houses are included in Appendix E. These structures are in good condition and are being maintained adequately. The only exception to this is that there has not been adequate ventilation or humidity control in the majority of these buildings. Subsequently, exposed electrical components contain moderate corrosion. The system operators are experiencing intermittent electrical issues caused by this corrosion. These improvements are considered O&M items that can be scheduled and performed locally with available revenue.

Therefore, it is recommended that improvements be made to the buildings to adequately ventilate and control humidity in the buildings. Additionally, a schedule will need to be implemented to replace the electrical components that have been compromised due to corrosion.

Finally, the water generated from two of the wells has decreased over the last two (2) to three (3) years. This is believed to be due to encrustation of the well casing and infiltration of the gravel pack media by excess fines. These issues have been identified as O&M items that can be easily remedied by scrubbing the well casing and replacing the gravel pack media.

Upon further discussion with TC&G, the Association will perform these O&M improvements (well house ventilation, electrical component replacement, and well improvements) with annual revenues by local forces within the next three (3) years.

Increased ventilation shall be supplied to the well houses and electrical components shall be evaluated and replaced on an “as-needed” basis. The two wells in question shall be scrubbed and gravel pack media replaced. By placing priority to these issues, TC&G will allocate funds to perform the O&M improvements and not need to seek additional funding for these improvements. Therefore, these recommendations will not be discussed further in the report

3.3 WATER DEMAND

TC&G Water System currently maintains approximately 138 active water service connections (17 residential, 65 farm, and 56 pasture/livestock). Since the bulk of the system is farm and livestock connections, the overall demand for water is greatly influenced by these two types of users.

Table 3.1 shows the annual water produced, billed, and lost for the last four years. The large amount of water loss (28.4%) is detrimental to the overall success of the water system. Therefore, improvements are needed to be made to the existing metering system, as well as, how often the meter readings are taken.

Table 3.1 - TC&G Water Loss Summary				
Date	**Water Produced (gal)**	**Water Billed (gal)**	**Unbilled Water (gal)**	**Unbilled Water (%)**
2011	34,011,800	23,049,000	10,962,800	32.2%
2012	35,818,300	21,152,200	14,666,100	40.9%
2013	32,320,900	26,792,176	5,528,724	17.1%
2014	26,787,400	20,588,800	6,198,600	23.1%
Avg	***32,234,600***	***22,895,544***	***9,339,056***	***28.4%***

The water system reads most of the meters on an annual basis so monthly water use data is unavailable. Based on historical data, the average monthly usage between 2003 and 2006 was approximately 1,276,700 gallon, which was during a significant drought period in the area. Over the last four years between 2011 and 2014 the average monthly usage has increased 67% to 1,908,053 gallon, which is 63,600 gpd. This comparison in water usage demonstrates the significant increase in reliance on TC&G water in lieu of utilizing available stock damns and dugouts to water livestock, even during periods of average or above average precipitation.

The system can currently deliver consistent pressure and flow at average demand conditions. However, during peak demand the distribution system cannot deliver enough water to the east end of the system after the east tank empties. This is believed to be due to the large percentage of use on the west side of the system, as well as, large head loss through the distribution piping.

3.3.1 Residential Per-Capita Consumption

The per capita consumption rate is used for estimating future water requirements, evaluating the adequacy of the supply source, and determining storage needs. The consumption rate, expressed in gallons per day per capita (gpcd), is applied to the projected population to yield future water requirements. Over the past recorded water use history, the average monthly consumption rate for residential usage has ranged between a low of 42 gpcd and a high of 183 gpcd. These consumption rates average to a usage of 85 gpcd.

However, to conservatively account for planning, modeling, and future design purposes, a residential consumption rate of 100 gpcd will be used to estimate future water requirements for TC&G.

3.3.2 Farm and Pasture Consumption

Farm and pasture connections are predominately used to water livestock. The vast majority of farm connections also serve a residence on the property. Pasture connection usage varies greatly and is dependent upon the current moisture conditions in the area. When moisture is adequate or abundant, stock dams and other storage reservoirs are filled so that livestock can utilize the available water. During dry or drought periods, the opposite is true and subsequently supplemental water is needed to provide the necessary water demand.

However, over the last five (5) years, TC&G has seen a significant increase in the amount of water used by its service area, even in abundantly wet years. This shows that

there has been a migration from using water in stock dams to that offered through TC&G.

Daily water intake varies greatly on the type and size of animal, temperature, and feed that is being consumed by the livestock. Therefore, a daily consumption rate is difficult to obtain for farm and pasture connections. However, current literature recommends an average daily demand of 12 gpm and 20 gpm shall be used for pasture and farm connections, respectively.

3.4 SEASONAL DEMANDS AND PEAKING FACTORS

Peaking factors represent seasonal and daily demand variations, above the average annual water demand. The various peaking conditions are either statistical concepts or numerical values established through a review of historical data and are, at times, adjusted to reflect a level of conservatism.

Numbers developed for the seasonal demands and peaking factors were taken from the gallons of water produced each month and not monthly usage. This was due from the lack of consistent usage data. However, usage data was used to help validate the numbers presented in the report.

3.4.1 MAXIMUM MONTH DEMAND

The maximum month demand (MMD) is the highest water demand during a calendar month, usually occurring in either July or August. The MMD peaking factor is expressed as a multiplier applied to the average day demand (ADD), and is used primarily in the evaluation of supply capabilities.

The MMD ratio for small to medium sized communities can frequently range between 1.2 to 1.8, but has also been known to be as high as 7.0. Based upon historical water use data for the TC&G Water System the MMD was found to be 3,469,320 gallons. This translates to a ratio of 1.8. From this data and previous water use records, this study recommends a peaking factor of 1.8.

Maximum Month Demand = 1.8 x Average Day Demand

3.4.2 MAXIMUM DAY DEMAND

Maximum day demand (MDD) is the highest water demand during a 24-hour period. The MDD peaking factor is expressed as a multiplier applied to the ADD. Water system sources are typically sized to meet the anticipated MDD of a water system.

In general, the MDD is 2.0 to 2.5 times greater than the average day demand. To be consistent with acceptable peaking factors of MDD, this study recommends a peaking factor of 2.5.

Maximum Day Demand = 2.5 x Average Day Demand

3.4.3 PEAK HOUR DEMAND

Peak hour demand (PHD) is the highest water demand during any one-hour period. The PHD is expressed as a multiplier applied to the average day demand. PHD simulates

high water use throughout the system during peak demands and identifies areas of the distribution system that experience low pressures.

This condition is similar to applying maximum day plus fire flow; only in this case, the entire system is exposed to stressful conditions.

In general, the PHD ranges between 2.5 and 3.5 times greater than the average day demand. In the absence of hourly metering records, this study recommends a peaking factor of 3.5.

Peak Hour Demand = 3.5 x Average Day Demand

3.5 PROJECTED WATER REQUIREMENTS

Based on the future trends in population and the established daily water consumption rate of 63,600 gpd, the future water requirements were estimated and summarized below.

Based on these projections, at year 2030 it is anticipated that the average day and maximum day requirements will approach 72,500 gpd and 181,250 gpd, respectively. Therefore, it is projected that TC&G will be able to maintain adequate water service in the future with the current level of water being produced from the current well field system.

3.6 WATER STORAGE SYSTEM

The water storage system consists of a 15' x 24' standpipe which holds approximately 31,700 gallon on the west edge of the system and a 91,000 gallon ground storage reservoir on the east side of the service area. The system was originally designed to fill the storage tanks during off peak times. The off peak time was assumed to be 10 hours so it would take approximately 150 gpm to fill the east tank, if empty. Because of peak usage and head loss, the existing distribution system can only provide 40 gpm and it takes approximately 38 hours to fill the tank if empty.

The principle function of storage is to provide reserve supply of water for: 1) operational equalization and 2) emergency needs. Operational storage is directly related to the amount of water necessary to meet peak demands. The intent of operational storage is to provide the difference in quantity between the customer's peak demands and the system's reliable available supply. The volume of water allocated for emergency uses is decided based on the historical record of emergencies experienced, and on the amount of time which is expected to lapse before a hypothetical emergency can be corrected.

3.6.1 Operational Storage

Operational storage is the amount of desirable stored water in a system to regulate fluctuations in demand so that extreme variations will not be imposed on the source of supply. With operational storage, system pressures are improved and stabilized to better serve customers throughout the service area. Operational storage is commonly estimated between 25 percent and 50 percent of the MDD. Based on the amount of water available and water use records, this study recommends an operational storage equal to 30 percent of the MDD.

3.6.2 EQUALIZING STORAGE

When the source pumping capacity cannot meet the periodic daily or sustained peak demands placed upon the water system, equalizing storage is required in order to provide adequate service pressures throughout the distribution system. The volume of this storage component depends upon several variables, including source production capacity, and the mode of operation. The following equation is used in determining the amount of equalizing storage needed for an on-demand supply source.

$$ES = (PHD - Qs)(150 \text{ minutes})$$

where, Qs is the normal supply capacity, in gallons per minute, and PHD is the peak hourly demand, in gallons per minute

Currently, 200 gpm is normally supplied into the water system. The peak hourly demand of the system is approximately 185 gpm. Therefore, an equalizing storage capacity is not necessary. However, a capacity of 10,000 gallon is recommended for the TC&G water storage system to be conservative for planning and future growth of the system.

3.6.3 STANDBY STORAGE

Standby storage is the volume of water recommended to meet demand during emergency situations such as pipeline failures, major trunk main failures, pump failures, electrical power outages, or natural disasters. The amount of emergency storage included within a particular water distribution system is an owner option, based on an assessment of risk, the desired degree of system dependability, economic considerations, and water quality concerns. Emergency storage is usually estimated at 50 to 100 percent of the MDD.

Therefore, due to access to available water and the limited occurrences of emergency situations (power outages, snow storms, etc.), this study recommends a standby storage volume equal to 50 percent of the MDD for the TC&G Water Association.

3.6.4 TOTAL STORAGE

The total storage is a summation of the previous components required to evaluate the necessary storage required for a given facility. The existing east storage tank is in very good condition and the west standpipe is in good condition for a tank its age and has served the association well over the previous several years.

The theoretical recommended storage required for future conditions of the water system is estimated to be 137,200 gallons. Even though this is slightly larger than what is currently available (125,000 gallons), the amount of storage that the system has available is sufficient now. However, as improvements are made to the system and as the service area grows, so too will the storage volume within the system.

3.7 WATER DISTRIBUTION SYSTEM

The water distribution system for the TC&G Water Association is made up of approximately 227,012 feet of mainline piping ranging in size from 6 inch to 1-1/4 inch, with the majority being between 2 to 4 inch PVC. The majority of the existing water main

is glued joint PVC pipe that was plowed in during the initial construction from the early 1970's.

Because the pipe was initially plowed in, there are sections of the service area that are prone to breakage due to the amount of rock in the subsurface. These sections of pipe are replaced on an "as-needed" basis during water main breaks. Additional pipe has been installed as the system has grown in size.

Flush hydrants and valves are not being exercised on a periodic basis. It would behoove TC&G to implement a regular valve-exercising program, as part of their annual O&M program. This will extend the life of the valves within the distribution system.

All water service meters are well over 20 years old, with a significant amount being from the original construction in 1973. The existing meters are past their useful design life and subsequently, causing significant revenue loss, due to unbilled water.

It is the recommendation of this report that all service meters in the service area be replaced, as soon as possible, in order to prevent revenue loss from unbilled water usage. It is also recommended that the system implement the use of an Automatic Meter Reading (AMR) system to aid in monthly billing and recording requirements.

3.8 FLOW RATES AND VELOCITIES

Transmission grid mains are generally sized to carry the greater of 1) the PHD, or 2) the MDD plus fire flow. Other criteria related to the distribution piping include the maximum and minimum velocities and the maximum allowable friction losses.

High velocities may cause damage to the pipes and to their appurtenances. Normally, velocities of 10 feet per second (fps), or higher, do not cause ill effects if they occur for a limited duration. It is normally good practice to become concerned when pipe velocities in excess of 8 fps on a continuous basis.

As long as the maximum velocity criteria and the pressure criteria are not violated, high head loss by itself is not an important factor. However, it may be a warning that the pipe is nearing the limit of its carrying capacity, and may not have sufficient capacity to perform under stringent conditions. It is normally good practice to monitor pipes that have a head loss in excess of 10 feet per 1,000 feet. The roughness coefficients for calculating head loss in pipes will be based on industry standards for similar pipe materials and service age.

3.9 PRESSURE RATES

Pressures maintained within distribution systems vary depending on distribution pipe sizes and topography. It is essential that the water pressure in a consumer's residence or place of business be neither too high nor too low. Low pressures, below 30 pounds per square inch (psi), cause annoying flow reductions when more than one water-using appliance is used. High pressures may cause faucets to leak and valve seats to wear out quickly.

Additionally, high service pressures usually result in wasted water and high water utility bills. The Uniform Plumbing Code (UPC) requires water pressures not exceed 80 psi at service connections, unless the service is provided with a pressure-reducing device. It is

recommended that the minimum pressure criteria during maximum day conditions be no less than 40 psi, while the minimum acceptable service pressure criteria during peak hour conditions be no less than 35 psi. A lower minimum service pressure of 25 psi is applicable to certain pressure zones with restrictive elevations.

3.10 WATER SYSTEM MODELING

Hydraulic modeling was conducted on the storage and distribution systems. This was accomplished with the use of the hydraulic modeling software WaterCAD® by Bentley Systems, Inc.

One type of hydraulic analysis was conducted on the TC&G storage and distribution system. This was an extended period simulation (EPS). A fire flow analysis was not conducted due to the fact that the system is not able to provide fire flow capability.

An EPS was conducted to simulate pressures, flows, and storage tank levels during average and peak use conditions. This simulation determines areas of low pressure, small pipes causing flow bottlenecks, or inadequacies in current tank refilling practices.

All analyses were conducted to obtain a complete understanding of the existing water storage and distribution systems. This will allow for proper recommendations to improve reliability and efficiency.

3.11 EXTENDED PERIOD SIMULATION (EPS) ANALYSIS

An EPS analysis was conducted to determine if the existing storage and distribution system are experiencing adequate service pressures and flowrates during peak demands. Additionally, storage requirements were looked at in regards to the ability to effectively provide water during times of emergency response, water restrictions, or anything that might cause the need for storage.

In order to effectively simulate water use over the course of a typical day, a diurnal water use curve was constructed. The curve graphically represents the peaking factors associated with water demand over the course of a day. This curve was used during the EPS analysis.

3.11.1 FLOWRATE AND PRESSURE ANALYSIS

During peak day conditions, the existing distribution and storage systems cannot adequately provide sufficient pressure and flow to all water service connections. The existing trunk line is smaller than needed from the west standpipe to the east edge of the service area. This creates excessive headloss and prevents adequate flow from the east storage reservoir to the rest of the eastern service area. All modeling results are shown are shown in Appendix C.

3.11.2 WATER STORAGE ANALYSIS

The existing water storage tank was also modeled. The storage system is critical in maintaining adequate service pressure, as well as, providing adequate emergency storage during water main breaks or any short-term water restrictions imposed by TC&G.

Due to the high head loss within the system and the demand within the western half of the system, the east storage tank becomes completely empty within 12 hours and is unable to refill itself until peak demands are diminished. Therefore, by upsizing the existing main lines and limiting backflow from the east tank the east portion of the water system can maintain adequate pressures throughout the day.

3.12 RESULTS AND CONCLUSIONS

As a result of the inspection of the TC&G water system, it is apparent that the system does a commendable job of operating and maintaining their water system.

The system obtains water entirely from groundwater wells for its potable water needs. The amount generated is adequate now and into the future. The storage reservoirs are in good working condition due to regular operation and maintenance activities.

The distribution system is plagued by water main breaks in certain areas but those specific sections are being replaced on an “as-needed” basis.

System modeling has shown that the main trunk line needs to be upsized from 4 inch to 6 inch from the west standpipe to the east storage reservoir. Additionally, the main trunk line east of the eastern storage reservoir needs to be upsized from 2-1/2 inch to 4 inch, at a minimum. Headloss through the undersized piping is causing severe pressure loss and inability to provide adequate flow to the eastern portion of the service area.

Water loss within the system is significantly larger than commonly seen for systems this age. Upon review of the metering system, it is apparent that the service meters are past their useful life and are in need of replacement.

Overall, the water system is in good condition. However, there still are various O&M items that may be considered to assist the system in improving the efficiency of operating and maintaining its water system. These items are discussed in detail in Chapter 4.0

Figure 3.1 - Existing Service Area & System Map

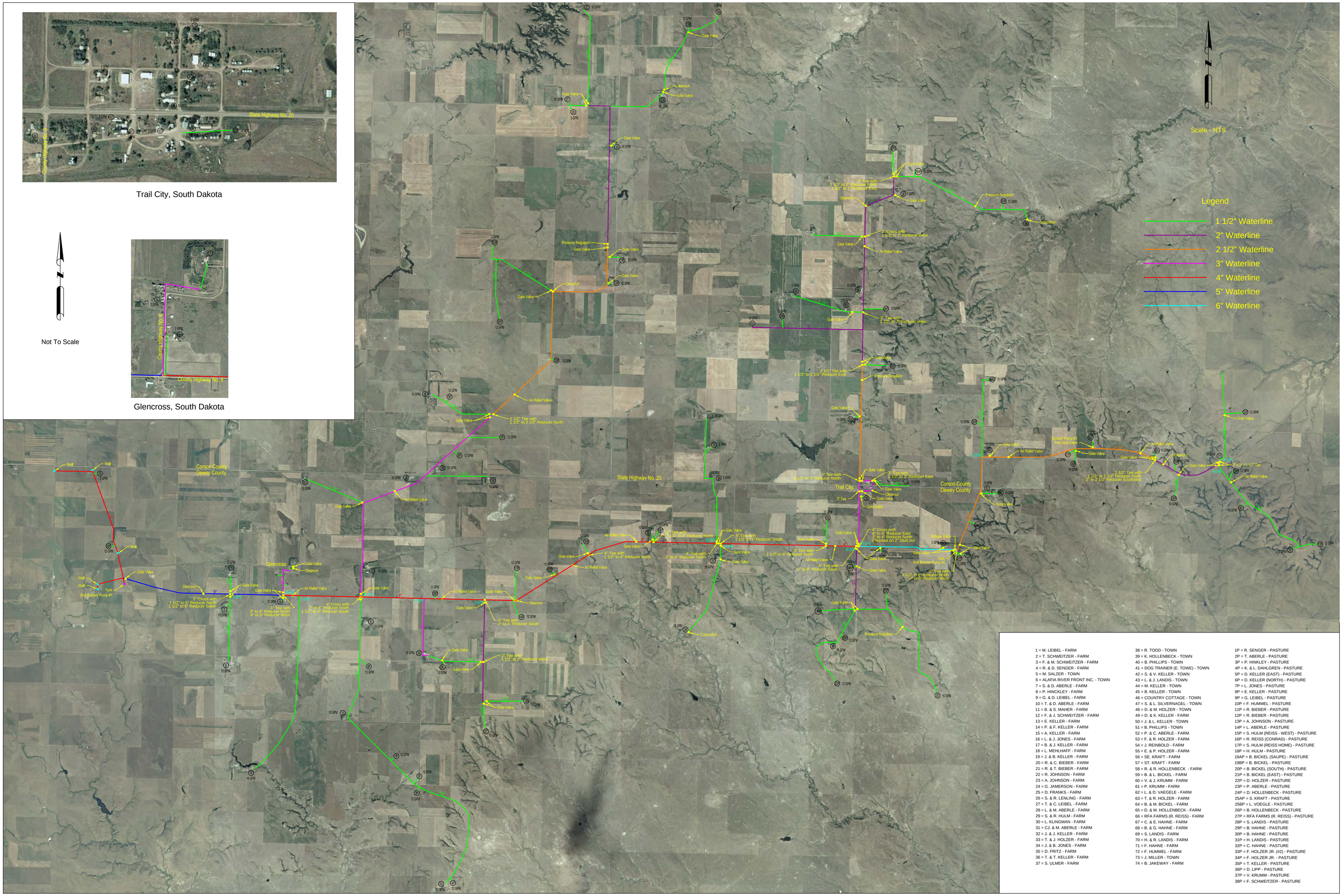


Table 3.2 Planning and Design Criteria Summary
Water System Facility Plan
TC&G Water Association

Planning Criteria

Average Daily Water Consumption =	63,600	gpd

Water Use Peaking Factors

Maximum Month Demand =	1.8	x Average Day Demand
Maximum Day Demand =	2.5	x Average Day Demand
Peak Hour Demand =	3.5	x Average Day Demand

Source of Supply

Normal Production Capacity =	97,200	gpd
Standby Production Capacity =	48,000	gpd
Total Production Capacity =	145,200	gpd

Storage

Operational Storage =	47,700	gallon
Equalizing Storage =	10,000	gallon
Standby Storage =	79,500	gallon
Total Storage =	137,200	gallon

Service Pressures

Maximum Pressure =	80	psi
Minimum Pressure (during Max Day) =	40	psi
Minimum Pressure (during Peak Hour) =	35	psi
Minimum Residual Pressure (during Emergencies) =	20	psi

Distribution Mains

Maximum desireable pipeline velocity =	8	fps
System shall be sized to accommodate the greater of =	Peak Hour Demand, or MDD + Fire Flow	

Chapter 4.0
PROPOSED WATER SYSTEM ALTERNATIVES

This chapter proposes improvement alternatives to the water storage and distribution facilities. These improvements will be evaluated based on the system's technical requirements, cost effectiveness, and operational reliability. In addition, cost estimating and life cycle analysis are presented herein.

4.1 COST ESTIMATING CRITERIA

The cost estimates presented in this study are opinions developed from prior bid tabulations, cost curves, information obtained from previous studies, and Brosz Engineering's experience on previous projects. The costs estimated for each alternative are intended to be used to facilitate revisions to the TC&G Water System's CIP and ultimately to support determination of user rates and connection impact fees.

4.1.1 PERIOD OF ANALYSIS

A planning period is selected to approximate the life of the capital facilities to be compared in the economic analysis, as well as to capture the influence of significant factors on economic decisions. A planning period of 20 years was selected for this project, encompassing the design period from 2015 through 2035. This represents the typical period for facilities planning and approximates the life of major equipment in water facilities. In addition, 20 years is the minimum planning period required for EPA Facilities Planning.

4.1.2 OPERATIONS LABOR RATE

The operations labor rate is estimated to be $25.00 per hour, including fringe benefit costs, based on the 2015 average rates for the water system operator. A crew equaling three-fourth (3/4) full-time employee equivalent will be tasked with routine preventive maintenance procedures, as well as, normal operation of the facility.

4.1.3 POWER COSTS

The City is currently served with electricity from Moreau-Grand Electric. Power rates for the TC&G Water System are shown in the table below.

Table 4.1 – Power Rates for the TC&G Water System

Kilowatt-Hours Used	Electric Rate (per kilowatt-hour)
Monthly User Fee	$25.00 (minimum fee required)
0 - unlimited	$0.0572

Therefore, if mechanical equipment is used for system processes, the proposed design will take into account the life cycle costs of electricity usage.

4.1.4 MAINTENANCE COSTS

To estimate the cost of maintaining new facilities, an allowance is made based on the original construction cost of the facility. Unless explicitly delineated by the manufacturer, an allowance for mechanical equipment maintenance was selected to be three percent, based on previous engineering experience.

4.1.5 COST ESTIMATING ACCURACY

The cost estimates presented in the report have been prepared for predesign study purposes and for guidance in project evaluation and implementation. Final costs of a project will depend on actual labor and material costs, competitive market conditions, final project scope, implementation schedule, and other variable factors such as: preliminary alignment generation, investigation of alternative routings, and detailed utility and topography surveys.

The American Association of Cost Engineers defines three types of cost estimates:

• An Order of Magnitude Estimate for Master Plan Studies. This is an approximate estimate made without detailed engineering data. It is normally expected that an estimate of this type would be accurate within +50 percent to -30 percent.

• A Budget Estimate for Predesign Study. A budget estimate is prepared with the use of flow sheets, layouts, and equipment details. It is normally expected that an estimate of this type would be accurate within +30 percent to -15 percent.

• A Definite Estimate (Engineer's Estimate) for Time of Contract Bidding. This estimate is prepared from very defined engineering data. The data includes fairly complete plot plans and elevations, soil data, and a complete set of specs. It is expected that a definite estimate would be accurate within +15 to -5 percent.

Costs developed for this study should be considered a "budget estimate" and have an expected accuracy range of +30 percent to -15 percent.

4.2 EQUIVALENT UNIFORM ANNUAL COST(S)

All alternatives presented within the chapter are compared using the Equivalent Uniform Annual Cost(s) or EUAC. EUAC focuses on the annual cost of owning and operating equipment or systems. It is a cash flow analysis approach, where cash flows are converted to their respective design lives. Comparing alternatives using the EUAC method takes into account the design life of each alternative, operational costs, maintenance activities, and any salvage value of equipment and materials at the end of the useful life.

The EUAC method expresses life cycle costs as an annualized estimate of cash flow instead of a lump-sum estimate of present value. Because life cycle costs are calculated as an annualized amount, engineering professionals may use this method to compare the economic value of systems with different service lives. Therefore, the alternative that has the lowest upfront capital cost may not always be the lowest cost alternative. Below in Table 4.1 show the different values and terms used within the EUAC comparison.

Table 4.2 – Equivalent Uniform Annual Cost(s)		
Variable	**Definition**	**Value**
Design Life = n	*Length of Time Facility is Expected to Operate at Design Conditions*	*Varies, but for this report a value of 20 years is used*
Interest = i	*Annual interest rate*	*7.50%*
Present Worth = PW	*Upfront cost of an item*	*Varies*
Salvage Value = SV	*Value of equipment or material at end of design life*	*Varies*
Net Present Worth of Salvage Value = PWSV	*Present Worth of Salvage Value*	
Net Present Worth of Capital Costs = NPW	*Present Worth less the Present Worth of Salvage Value (PW – PWSV)*	*Varies*
Net Present Worth of Annual Costs	*Present worth of annual O&M costs over the design life*	
Equivalent Uniform Annual Cost(s)	*Annual cost of present worth of capital, salvage, and O&M costs*	

4.3 WATER SUPPLY ALTERNATIVES

TC&G Water System currently operate and maintain five (5) groundwater wells and wells houses that provide metering and disinfection capabilities to the overall system. TC&G has done a very good job of upkeep and required maintenance for the wells and well houses. Therefore, no formal improvement alternatives will be recommended for the water supply system.

However, based on the inspections conducted, it is apparent that certain O&M activities could be done better in order to increase the longevity of the supply system. These items include:

- ***Perform well capacity testing (every 3 years).***
- ***Redevelop well capacity through casing cleaning and media replacement.***
- ***Calibrate meters in well houses.***
- ***Provide adequate ventilation and humidity control in well houses.***
- ***Replace electrical components that have significant corrosion.***

4.4 WATER STORAGE & PRESSURE ALTERNATIVES

TC&G Water System currently operates and maintains a 15'x24' standpipe built in 1973 and 95,000 gallon ground storage tank that was built in 1995. TC&G has done a commendable job of upkeep and required maintenance for both storage tanks. Additionally, there are three pressure booster stations located throughout the system.

The alternatives presented below will be prioritized to adequately supply the distribution system with enough operational storage and pressure to minimize areas of minimal pressure and water outages throughout the system.

4.5 STORAGE & PRESSURE ALTERNATIVE 1 – DO NOTHING

A "Do Nothing" alternative would consist of keeping the storage system the same as it is currently operating. No improvements would be made. This alternative is not recommended for the fact that this would lead to increased water loss, water main breaks, and a propensity to operate the water system in a "reactive" mode rather than a "proactive" mode.

4.6 STORAGE & PRESSURE ALTERNATIVE 2 – REPLACEMENT OF EXISTING PUMP STATION

Alternative 2 for the storage system would be to replace the existing booster pump station located adjacent to the standpipe on the west edge of the system. The structure is beyond repair and is a significant cause for accidents and the overall health and safety of those who operate the system.

4.6.1 DESIGN CRITERIA

Design of the booster pump station will be in accordance with AWWA, SD DENR, OSHA, Ten States Standards, and all other applicable design criteria. In addition, all comments and concerns of review agencies would be addressed and/or implemented prior to bidding of the construction project.

4.6.2 SCHEMATIC OF ALTERNATIVE 2

No schematic is provided for this alternative, although the new pump station will be design similarly to the existing booster pump stations that already exist within the water system.

4.6.3 ENVIRONMENTAL IMPACTS

No environmental impacts are foreseen with this alternative. All disturbances will occur at the individual properties, with no effect of the distribution system as a whole.

4.6.4 LAND REQUIREMENTS

Additional land maybe required for this alternative, dependent upon the ultimately site location for the pump station. All temporary and permanent easements shall be obtained prior to construction of the pump station.

4.6.5 CONSTRUCTION PROBLEMS

Problems that maybe encountered during construction include obtaining easements to potential pump station site property.

4.6.6 COST ESTIMATES

A detailed cost estimate and EUAC has been performed for this alternative and are shown in Tables 4.3 and 4.4.

4.6.7 ADVANTAGES & DISADVANTAGES OF ALTERNATIVE 2

Advantages associated with the alternative include eliminating water infrastructure from the system that is significantly past its design life. Disadvantages include significant capital cost.

Table 4.3 - Opinion of Probable Construction Costs

Water Storage Alternative 2 - Replacement of Existing Booster Pump Station

ITEM	BID ITEM DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
1	Mobilization	1	LS	$ 12,500.00	$ 12,500.00
2	Booster Pump Building	1	LS	$ 25,000.00	$ 25,000.00
3	Booster Pump Mechanical	1	LS	$ 22,500.00	$ 22,500.00
4	Booster Pump Electrical	1	LS	$ 23,000.00	$ 23,000.00
5	4" Gate Valve	4	EA	$ 1,100.00	$ 4,400.00
6	4" MJ Elbow	4	EA	$ 525.00	$ 2,100.00
7	4" MJ Tee	2	EA	$ 575.00	$ 1,150.00
8	4" MJ Sleeve	2	EA	$ 325.00	$ 650.00
9	4" Retainer Gland	14	EA	$ 100.00	$ 1,400.00
10	4" Foster Adapters	4	EA	$ 175.00	$ 700.00
				Total Construction Costs	**$ 93,400.00**
	Contingency / Admin & Legal Fees				
	10% Contingency				$ 9,340.00
	6% Admin / Legal				$ 5,604.00
				Subtotal	**$ 14,944.00**
	Design and Construction Management Services				
	Design Engineering				$ 9,340.00
	Construction Inspection, Testing, and Management				$ 9,340.00
				Subtotal	**$ 18,680.00**
				TOTAL PROJECT COST	**$ 127,024.00**

Table 4.4 - Equivalent Uniform Annual Costs Analysis				
Water Storage Alternative 2 - Replacement of Existing Booster Pump Station				
Initial Capital Costs				
Item	**Capital Cost**	**Salvage Value**	**Salvage Present Worth**	**Net Present Worth**
Mobilization	$ 12,500.00			$ 12,500.00
Booster Pump Building	$ 25,000.00	$ 10,000.00	$ 4,146.43	$ 20,853.57
Booster Pump Mechanical	$ 22,500.00	$ 9,000.00	$ 3,731.79	$ 18,768.21
Booster Pump Electrical	$ 23,000.00	$ 9,200.00	$ 3,814.71	$ 19,185.29
4" Gate Valve	$ 4,400.00	$ 1,760.00	$ 729.77	$ 3,670.23
4" MJ Elbow	$ 2,100.00	$ 840.00	$ 348.30	$ 1,751.70
4" MJ Tee	$ 1,150.00	$ 460.00	$ 190.74	$ 959.26
4" MJ Sleeve	$ 650.00	$ 260.00	$ 107.81	$ 542.19
4" Retainer Gland	$ 1,400.00	$ 560.00	$ 232.20	$ 1,167.80
4" Foster Adapters	$ 700.00	$ 280.00	$ 116.10	$ 583.90
				$ 79,982.16
Annual O&M Costs				
Item	**Capital Cost**			**Net Present Worth**
Energy	$ 3,500.00			$ 45,527.78
Maintenance	$ 850.00			$ 11,056.75
Labor	$ 1,250.00			$ 16,259.92
Miscellaneous	$ 500.00			$ 6,503.97
				$ 79,348.41
Total Net Present Worth				$ 159,330.57
Equivalent Uniform Annual Cost (20 yrs @ 4.5%)				**$ 7,168.88**

4.7 STORAGE & PRESSURE ALTERNATIVE 3 – REPLACEMENT OF STANDPIPE

Alternative 3 for the storage system would be to replace the existing standpipe. The age and condition of the standpipe is nearing the end of its useful life. Based on the current condition of the existing standpipe, we believe that it will adequately serve for another 10 to 15 years. It is recommended that the standpipe be re-evaluated every other year to determine if replacement is ultimately needed.

4.7.1 DESIGN CRITERIA

Design of the standpipe will be in accordance with AWWA, SD DENR, OSHA, Ten States Standards, and all other applicable design criteria. In addition, all comments and concerns of review agencies would be addressed and/or implemented prior to bidding of the construction project.

4.7.2 SCHEMATIC OF ALTERNATIVE 3

No schematic is provided for this alternative, although the replacement standpipe shall be similar to the existing structure, although it will be slightly larger.

4.7.3 ENVIRONMENTAL IMPACTS

No environmental impacts are foreseen with this alternative. All disturbances will occur on previously disturbed land, with no effect of the distribution system as a whole.

4.7.4 LAND REQUIREMENTS

Additional land is not required for this alternative.

4.7.5 CONSTRUCTION PROBLEMS

Problems that maybe encountered during construction include construction of the new standpipe while providing adequate storage to maintain pressure within the distribution system.

4.7.6 COST ESTIMATES

A detailed cost estimate and EUAC has been performed for this alternative and are shown in Tables 4.5 and 4.6.

4.7.7 ADVANTAGES & DISADVANTAGES OF ALTERNATIVE 3

Advantages associated with the alternative include eliminating water infrastructure from the system that is significantly past its design life. Disadvantages include significant capital cost.

Table 4.5 - Opinion of Probable Construction Costs

Water Storage Alternative 3 - Replacement of Existing Standpipe

ITEM	BID ITEM DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
1	Mobilization	1	LS	$ 22,500.00	$ 22,500.00
2	Steel Ground Standpipe (45,000 Gallon)	1	LS	$ 60,000.00	$ 60,000.00
3	6" C900 PVC	871	LF	$ 34.00	$ 29,614.00
4	6" Hydrant	1	EA	$ 3,750.00	$ 3,750.00
5	6" Gate Valve	4	EA	$ 1,500.00	$ 6,000.00
6	6" MJ Tee	2	EA	$ 450.00	$ 900.00
7	6" MJ Sleeve	2	EA	$ 325.00	$ 650.00
8	6" Retainer Gland	22	EA	$ 125.00	$ 2,750.00
9	4" Retainer Gland	1	EA	$ 105.00	$ 105.00
10	Base Course	120	Ton	$ 22.00	$ 2,640.00
				Total Construction Costs	**$ 128,909.00**
	Contingency / Admin & Legal Fees				
	10% Contingency				$ 12,890.90
	6% Admin / Legal				$ 5,156.36
				Subtotal	**$ 18,047.26**
	Design and Construction Management Services				
	Design Engineering				$ 12,890.90
	Construction Inspection, Testing, and Management				$ 12,890.90
				Subtotal	**$ 25,781.80**
				TOTAL PROJECT COST	**$ 172,738.06**

Table 4.6 - Equivalent Uniform Annual Costs Analysis				
Water Storage Alternative 3 - Replacement of Existing Standpipe				
Initial Capital Costs				
Item	**Capital Cost**	**Salvage Value**	**Salvage Present Worth**	**Net Present Worth**
Mobilization	$ 22,500.00			$ 22,500.00
Steel Ground Standpipe (45,000 Gallon)	$ 60,000.00	$ 24,000.00	$ 9,951.43	$ 50,048.57
6" C900 PVC	$ 29,614.00	$ 11,845.60	$ 4,911.69	$ 24,702.31
6" Hydrant	$ 3,750.00	$ 1,500.00	$ 621.96	$ 3,128.04
6" Gate Valve	$ 6,000.00	$ 2,400.00	$ 995.14	$ 5,004.86
6" MJ Tee	$ 900.00	$ 360.00	$ 149.27	$ 750.73
6" MJ Sleeve	$ 650.00	$ 260.00	$ 107.81	$ 542.19
6" Retainer Gland	$ 2,750.00	$ 1,100.00	$ 456.11	$ 2,293.89
4" Retainer Gland	$ 105.00	$ 42.00	$ 17.42	$ 87.58
Base Course	$ 2,640.00	$ 1,056.00	$ 437.86	$ 2,202.14
				$ 111,260.31
Annual O&M Costs				
Item	**Capital Cost**			**Net Present Worth**
Energy	$ -			$ -
Maintenance	$ 850.00			$ 11,056.75
Labor	$ 1,250.00			$ 16,259.92
Miscellaneous	$ 500.00			$ 6,503.97
				$ 33,820.63
Total Net Present Worth				$ 145,080.94
Equivalent Uniform Annual Cost (20 yrs @ 4.5%)				**$ 6,527.64**

4.8 WATER DISTRIBUTION ALTERNATIVES

The water distribution system is comprised mostly of PVC piping, which has been installed at different times since the inception of the TC&G Water System in 1973. New pipe has been installed to new service areas, as well as, certain areas that are plagued by frequent breaks.

The current amount of water loss within the system is of concern. Although a small portion may be contributed to the age of the pipe, valves, fittings, etc., it should also be noted that the age of the residential water meters are past their intended design life and are at the end of their effectiveness.

Therefore, alternatives associated with the distribution system will be prioritized to reduce water loss and maximize effectiveness in providing a reliable distribution system during normal, as well as, repair and emergency operations.

4.9 DISTRIBUTION ALTERNATIVE 1 – DO NOTHING

A “Do Nothing” alternative would consist of keeping the distribution system the same as it is currently operating. No improvements would be made. This alternative is not recommended for the fact that this would lead to increased water loss, water main

breaks, and a propensity to operate the water system in a “reactive” mode rather than a “proactive” mode.

4.10 DISTRIBUTION ALTERNATIVE 2 – REPLACEMENT OF SELECT WATER MAIN

Alternative 2 for the distribution system would be to replace the water mains within the system that are causing bottlenecks and severe pressure loss within the system. Although TC&G has replaced a significant amount of the water main that is having trouble with breakage, there still is a significant portion that is causing severe pressure losses in the system and subsequently hindering the ability for the system to deliver adequate water to the outreaches of the system.

4.10.1 DESIGN CRITERIA

Design of the water main will be in accordance with AWWA, SD DENR, OSHA, Ten States Standards, and all other applicable design criteria. In addition, all comments and concerns of review agencies would be addressed and/or implemented prior to bidding of the construction project.

4.10.2 SCHEMATIC OF ALTERNATIVE 2

No schematic is provided for this alternative. However, the existing water main from the existing standpipe to the east side of the service area shall be upsized to 6 inch and 4 inch, respectively.

4.10.3 ENVIRONMENTAL IMPACTS

No environmental impacts are foreseen with this alternative. All disturbances will occur at the individual properties, with no effect of the distribution system as a whole.

4.10.4 LAND REQUIREMENTS

Additional land is not required for this alternative.

4.10.5 CONSTRUCTION PROBLEMS

Problems that maybe encountered during construction include obtaining access to individual homes and alternative hours of access during late evening or early morning.

4.10.6 COST ESTIMATES

A detailed cost estimate and EUAC has been performed for this alternative and are shown in Tables 4.7 and 4.8.

4.10.7 ADVANTAGES & DISADVANTAGES OF ALTERNATIVE 2

Advantages associated with the alternative include eliminating water infrastructure from the system that is significantly past its design life. Disadvantages include significant capital cost.

Table 4.7 - Opinion of Probable Construction Costs

Water Distribution Alternative 2 - Replacement of Select Water Infrastructure

ITEM	BID ITEM DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
1	Mobilization	1	LS	$ 125,000.00	$ 125,000.00
2	6" PVC, Class 200	94,000	LF	$ 10.00	$ 940,000.00
3	6" Gate Valve & Box	15	EA	$ 1,500.00	$ 22,500.00
4	4" Gate Valve & Box	4	EA	$ 1,100.00	$ 4,400.00
5	3" Gate Valve & Box	4	EA	$ 1,000.00	$ 4,000.00
6	2 1/2" Gate Valve & Box	7	EA	$ 900.00	$ 6,300.00
7	1 1/2" Gate Valve & Box	10	EA	$ 600.00	$ 6,000.00
8	6" Cross	4	EA	$ 850.00	$ 3,400.00
9	6" Tee	8	EA	$ 675.00	$ 5,400.00
10	6" x 4" Reducer	6	EA	$ 525.00	$ 3,150.00
11	6" x 3" Reducer	2	EA	$ 475.00	$ 950.00
12	6" x 2" Reducer	8	EA	$ 450.00	$ 3,600.00
13	6" x 1 1/2" Reducer	10	EA	$ 425.00	$ 4,250.00
14	6" Sleeve	6	EA	$ 525.00	$ 3,150.00
15	4" & Larger Connection to Existing Pipeline	12	EA	$ 1,000.00	$ 12,000.00
16	3" & Smaller Connection to Existing Pipeline	25	EA	$ 1,500.00	$ 37,500.00
17	2" Flushing Connection	12	EA	$ 1,200.00	$ 14,400.00
18	6" Restrained Joint	25	EA	$ 225.00	$ 5,625.00
19	4" Restrained Joint	15	EA	$ 185.00	$ 2,775.00
20	3" Restrained Joint	10	EA	$ 150.00	$ 1,500.00
21	2 1/2" Restrained Joint	5	EA	$ 135.00	$ 675.00
22	1 1/2" Restrained Joint	35	EA	$ 100.00	$ 3,500.00
23	6" Road Boring	100	LF	$ 50.00	$ 5,000.00
24	Road Crossings	20	EA	$ 1,200.00	$ 24,000.00
25	Base Course	500	Ton	$ 25.00	$ 12,500.00
				Total Construction Costs	**$1,251,575.00**
	Contingency / Admin & Legal Fees				
	10% Contingency				$ 125,157.50
	6% Admin / Legal				$ 75,094.50
				Subtotal	**$ 200,252.00**
	Design and Construction Management Services				
	Design Engineering				$ 106,383.88
	Construction Inspection, Testing, and Management				$ 106,383.88
				Subtotal	**$ 212,767.75**
				TOTAL PROJECT COST	**$1,664,594.75**

Table 4.8 - Equivalent Uniform Annual Costs Analysis				
Water Distribution Alternative 2 - Replacement of Select Water Infrastructure				
Initial Capital Costs				
Item	**Capital Cost**	**Salvage Value**	**Salvage Present Worth**	**Net Present Worth**
Mobilization	$ 125,000.00			$ 125,000.00
6" PVC, Class 200	$ 940,000.00	$ 376,000.00	$ 155,905.72	$ 784,094.28
6" Gate Valve & Box	$ 22,500.00	$ 9,000.00	$ 3,731.79	$ 18,768.21
4" Gate Valve & Box	$ 4,400.00	$ 1,760.00	$ 729.77	$ 3,670.23
3" Gate Valve & Box	$ 4,000.00	$ 1,600.00	$ 663.43	$ 3,336.57
2 1/2" Gate Valve & Box	$ 6,300.00	$ 2,520.00	$ 1,044.90	$ 5,255.10
1 1/2" Gate Valve & Box	$ 6,000.00	$ 2,400.00	$ 995.14	$ 5,004.86
6" Cross	$ 3,400.00	$ 1,360.00	$ 563.91	$ 2,836.09
6" Tee	$ 5,400.00	$ 2,160.00	$ 895.63	$ 4,504.37
6" x 4" Reducer	$ 3,150.00	$ 1,260.00	$ 522.45	$ 2,627.55
6" x 3" Reducer	$ 950.00	$ 380.00	$ 157.56	$ 792.44
6" x 2" Reducer	$ 3,600.00	$ 1,440.00	$ 597.09	$ 3,002.91
6" x 1 1/2" Reducer	$ 4,250.00	$ 1,700.00	$ 704.89	$ 3,545.11
6" Sleeve	$ 3,150.00	$ 1,260.00	$ 522.45	$ 2,627.55
4" & Larger Connect to Exist Pipeline	$ 12,000.00	$ 4,800.00	$ 1,990.29	$ 10,009.71
3" & Smaller Connect to Exist Pipeline	$ 37,500.00	$ 15,000.00	$ 6,219.64	$ 31,280.36
2" Flushing Connection	$ 14,400.00	$ 5,760.00	$ 2,388.34	$ 12,011.66
6" Restrained Joint	$ 5,625.00	$ 2,250.00	$ 932.95	$ 4,692.05
4" Restrained Joint	$ 2,775.00	$ 1,110.00	$ 460.25	$ 2,314.75
3" Restrained Joint	$ 1,500.00	$ 600.00	$ 248.79	$ 1,251.21
2 1/2" Restrained Joint	$ 675.00	$ 270.00	$ 111.95	$ 563.05
1 1/2" Restrained Joint	$ 3,500.00	$ 1,400.00	$ 580.50	$ 2,919.50
6" Road Boring	$ 5,000.00		$ -	$ 5,000.00
Road Crossings	$ 24,000.00		$ -	$ 24,000.00
Base Course	$ 12,500.00	$ 5,000.00	$ 2,073.21	$ 10,426.79
				$1,069,534.35
Annual O&M Costs				
Item	**Capital Cost**			**Net Present Worth**
Energy	$ -			$ -
Maintenance	$ 850.00			$ 11,056.75
Labor	$ 1,250.00			$ 16,259.92
Miscellaneous	$ 500.00			$ 6,503.97
				$ 33,820.63
Total Net Present Worth				$1,103,354.98
Equivalent Uniform Annual Cost (20 yrs @ 4.5%)				**$ 49,649.97**

4.11 DISTRIBUTION ALTERNATIVE 3 – REPLACE WATER METERING SYSTEM

Alternative 3 for the distribution system would be to replace the entire distribution metering system. Due to the significant amount of monthly water loss, it is imperative that TC&G make improvements so that water revenue can be maximized for the water system.

4.11.1 DESIGN CRITERIA

Design for the replacement of the metering system will be in accordance with SD DENR recommended design criteria and Ten States Standards. In addition, all comments and concerns of review agencies would be addressed and/or implemented prior to bidding of the construction project.

4.11.2 SCHEMATIC OF ALTERNATIVE 3

A schematic of the TC&G water distribution system is shown in Figure 3.1.

4.11.3 ENVIRONMENTAL IMPACTS

No environmental impacts are foreseen with this alternative. All disturbances will occur within original water metering locations.

4.11.4 LAND REQUIREMENTS

Additional land is not required for this alternative.

4.11.5 CONSTRUCTION ISSUES

Issues that maybe encountered during construction include hours of construction during late evening or early morning, to accommodate homeowner schedules.

4.11.6 COST ESTIMATES

A detailed cost estimate and EUAC has been performed for this alternative and are shown in Tables 4.9 and 4.10.

4.11.7 ADVANTAGES & DISADVANTAGES OF ALTERNATIVE 3

Advantages associated with the alternative include new meters which will allow TC&G to maximize their water revenue and reduce water loss to acceptable levels. The disadvantage to this alternative includes a significant capital cost.

Table 4.9 - Opinion of Probable Construction Costs
Water Distribution Alternative 3 - Replace Water Metering System

ITEM	BID ITEM DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
1	Furnish 5/8" x 3/4" Meter	75	Each	$ 280.00	$ 21,000.00
2	Furnish 1" Meter	65	Each	$ 325.00	$ 21,125.00
3	Furnish 15" Meter Pit	75	Each	$ 575.00	$ 43,125.00
4	Furnish 18" Meter Pit	65	Each	$ 650.00	$ 42,250.00
5	Furnish 1" Curb Ball Valve and Riser	140	Each	$ 105.00	$ 14,700.00
6	AMR Hardware & Software	1	LS	$ 6,500.00	$ 6,500.00
7	Maintenance & Support Agreement	1	LS	$ 9,500.00	$ 9,500.00
8	Training and Manuals	1	LS	$ 3,500.00	$ 3,500.00
9	Plumbing Modifications for Meter Retrofit 1/2" thru 2" Pipe	500	Hr	$ 90.00	$ 45,000.00
				Total Construction Costs	**$ 206,700.00**
	Contingency / Admin & Legal Fees				
	10% Contingency				$ 20,670.00
	6% Admin / Legal				$ 12,402.00
				Subtotal	**$ 33,072.00**
	Design and Construction Management Services				
	Design Engineering & Project Administration				$ 17,500.00
				Subtotal	**$ 17,500.00**
				TOTAL PROJECT COST	**$ 257,272.00**

Table 4.10 - Equivalent Uniform Annual Costs Analysis
Water Distribution Alternative 3 - Replace Water Metering System

Initial Capital Costs				
Item	**Capital Cost**	**Salvage Value**	**Salvage Present Worth**	**Net Present Worth**
Furnish 5/8" x 3/4" Meter	$ 20,625.00	$ 8,250.00	$ 3,420.80	$ 17,204.20
Furnish 1" Meter	$ 20,475.00	$ 8,190.00	$ 3,395.93	$ 17,079.07
Furnish 15" Meter Pit	$ 43,125.00	$ 17,250.00	$ 7,152.59	$ 35,972.41
Furnish 18" Meter Pit	$ 42,250.00	$ 16,900.00	$ 7,007.46	$ 35,242.54
Furnish 1" Curb Ball Valve and Riser	$ 14,700.00	$ 5,880.00	$ 2,438.10	$ 12,261.90
AMR Hardware & Software	$ 6,500.00	$ 2,600.00	$ 1,078.07	$ 5,421.93
Maintenance & Support Agreement	$ 9,750.00	$ 3,900.00	$ 1,617.11	$ 8,132.89
Training and Manuals	$ 3,600.00	$ 1,440.00	$ 597.09	$ 3,002.91
Plumbing Modifications	$ 24,000.00	$ 9,600.00	$ 3,980.57	$ 20,019.43
				$ 154,337.28
Annual O&M Costs				
Item	**Capital Cost**			**Net Present Worth**
Energy	$ -			$ -
Maintenance	$ 500.00			$ 6,503.97
Labor	$ 500.00			$ 6,503.97
Miscellaneous	$ 500.00			$ 6,503.97
				$ 19,511.90
Total Net Present Worth				**$ 173,849.19**
Equivalent Uniform Annual Cost (20 yrs @ 4.5%)				**$ 7,822.21**

4.12 SUMMARY

TC&G Water System is in need of improvements to handle current and future needs of the users. The system does a good job of operating and maintaining its current water infrastructure system.

However, certain things can be done which will improve the ability to sustain the current system and finance future improvements. Some of the recommendations do not have an associated cost savings. However, these recommendations will increase the knowledge of decision makers as to the necessity of replacement or refurbishment of the components within the system. The following recommendations are in descending priority.

1. Replace water service meters and install AMR system with new computer billing software.
2. Replace existing booster pump station on west end of system.
3. Replace existing mainline piping from West tank to Promise Road.
4. Obtain short and long term goals for TC&G Water System.
5. Develop an O&M schedule for existing pump and valves.

Chapter 5.0
SELECTION OF ALTERNATIVES

This chapter further compares the proposed infrastructure improvements in Chapters 4.0. Formal recommendations are made based upon further comparison based on the system's technical requirements, cost effectiveness, and operational reliability.

5.1 SELECTION METHODOLOGY

The alternatives that were selected in Chapter 4.0 were evaluated further, based on the following criteria:

- *Risk*
- *Capital cost*
- *O&M cost*
- *Footprint*
- *Energy consumption*
- *Reliability*
- *Operations staff familiarity*
- *Maintenance needs*

A decision matrix is typically developed to compare alternatives, however, since there are limited alternatives with the water system, a decision matrix was not developed.

TC&G does not have significant capital generation capability, it is critical that the alternatives be analyzed in a cost-effective manner that is also sensitive to community needs. As a result, the philosophy for the analysis is to incorporate conservative provisions to effectively resolve the current issues while producing a minimum amount of debt. The selected alternatives must also be reliable and require minimal operation and maintenance.

5.2 FINAL WATER FACILITY RECOMMENDATIONS

5.2.1 WATER STORAGE & PRESSURE RECOMMENDATIONS

The proposed water storage and pressure alternatives consist of 1) replacement of existing west pressure booster station; and 2) replacement of existing west standpipe.

Replacement of the existing pressure booster station, located immediately adjacent to the west standpipe needs to be replaced immediately with a new pressure booster station, located at the intersection of County Roads 6 & 8 (Bumper Crop Road Intersection). The current condition of the west booster pump station is an extreme hazard to the overall safety of the operators of the system.

The TC&G water storage system has been analyzed and considered to be adequate for current use for the service area. It is recommended that the association continue to sustain their existing O&M for both tanks, realizing that the useful life of the original standpipe may come to an end within the next 10 to 15 years.

5.2.2 WATER DISTRIBUTION RECOMMENDATIONS

The proposed water distribution alternatives consist of 1) replacement of existing service meters; and 2) replacement of select water main that still remains within the distribution system.

Replacement of the service meters must be done as soon as possible. Water loss, at the rate that currently exists, cannot be sustained for an indefinite period of time. This significantly decreases revenue and the ability to finance future water infrastructure projects.

The undersized water main needs serious thought by the board members. As it is currently, the residences on the east side of the service area are marginally served and no additional users can be hooked onto the system, as it currently is operating.

However, this option is has substantial financial costs. It is recommended that the water loss be minimized and a rate schedule implemented prior to making any further decisions on upsizing or replacing the main truck line for the TC&G water system.

5.3 USER FEE IMPACTS

As part of the cost analysis for the recommended improvements, the estimated impact on user fees has been calculated. Financial data supplied by TC&G was used to determine the current operational status of the funds. The current water rates are shown in Table 6.1.

Using the assumption of a 100% loan for these improvements, the TC&G does not have the ability to afford these improvements, as shown in Tables 5.2 and 5.3. This type of cost increase would be detrimental for the system. Further growth or improvement of infrastructure could not be accomplished. Therefore, TC&G is in great need of offsetting the proposed project with grant money.

5.4 CAPITAL FINANCE PLAN

TC&G intends will apply to various state and federal resources for grant and loan assistance to complete the projects.

5.5 ENVIRONMENTAL EVALUATION

Comments from state and federal resource agencies have been obtained concerning any possible environmental impacts from the proposed improvement projects. All correspondence pertaining to this are located in Appendix A.

5.6 VIEW OF THE PUBLIC AND CONCERNED INTEREST GROUPS

TC&G will conduct a public hearing on the proposed project improvements. Information regarding this will be submitted after it has been conducted.

5.7 FINAL SELECTION OF ALTERNATIVES

Alternatives that have been recommended for the immediate future include 1) replacement of existing service meters; 2) replace west booster pump station; and 3) replace select water main. These three alternatives have been identified by the association as projects that need to be carried out in the immediate future. These improvements will be performed, as soon as, TC&G is able to secure funding.

5.7.1 DESIGN OF PROPOSED IMPROVEMENTS

The detailed design of the proposed improvements will provide satisfactory operation and maintenance of the water infrastructure. Improvements will be designed in accordance with all applicable design criteria, AWWA, Ten States Standards for Waterworks. All industry principals and standards for the design of these systems will be strictly adhered to.

5.7.2 IMPLEMENTATION OF IMPROVEMENTS

Based upon the recommendations within this report, detailed design of the proposed improvements will be completed by the TC&G consultant and approved by SD DENR, since this is a work of "sanitary significance." Cost estimates have been prepared and are referenced in Chapter 4.0. The projects will be bid in accordance with state statues, which govern municipal corporations and will be constructed by the lowest responsive bidder.

Table 5.1 – Implementation Schedule

	Task	Date
1	*Submittal of Facility Plan*	January 2015
2	*Approval of Facility Plan*	January 2015
3	*State Water Plan App*	January 2015
4	*DENR Loan Approval*	June 2015
5	*Design Notice To Proceed*	July 2015
6	*Submittal of Plans and Specifications*	October 2015
7	*Approval of Plans and Specifications*	November 2015
8	*Solicitation of Bids*	December 2015
9	*Opening of Bids*	January 2016
10	*Award of Bid*	February 2016
11	*Start of Construction*	April 2016
12	*End of Construction*	October 2016
13	*Project Closeout*	November 2016

5.7.3 LAND ACQUISITION

No land is needed for the proposed improvements. All work will be completed in existing right-of-way, association owned property, or in easements that have already been obtained. If additional land is needed, TC&G will work in good faith to purchase the wanted parcel or obtain all necessary leases and/or easements required to perform construction.

5.7.4 INTERAGENCY AGREEMENTS

No cooperative agreements are needed with other agencies. TC&G solely owns, operates, and maintains its water system. Loan documents will be executed with the appropriate lenders, but as TC&G is incorporated, it has the legal authority to enter into such agreements. The TC&G legal advisor will provide counsel on any matters regarding this issue.

Figure 5.1 - Proposed System Improvements Map

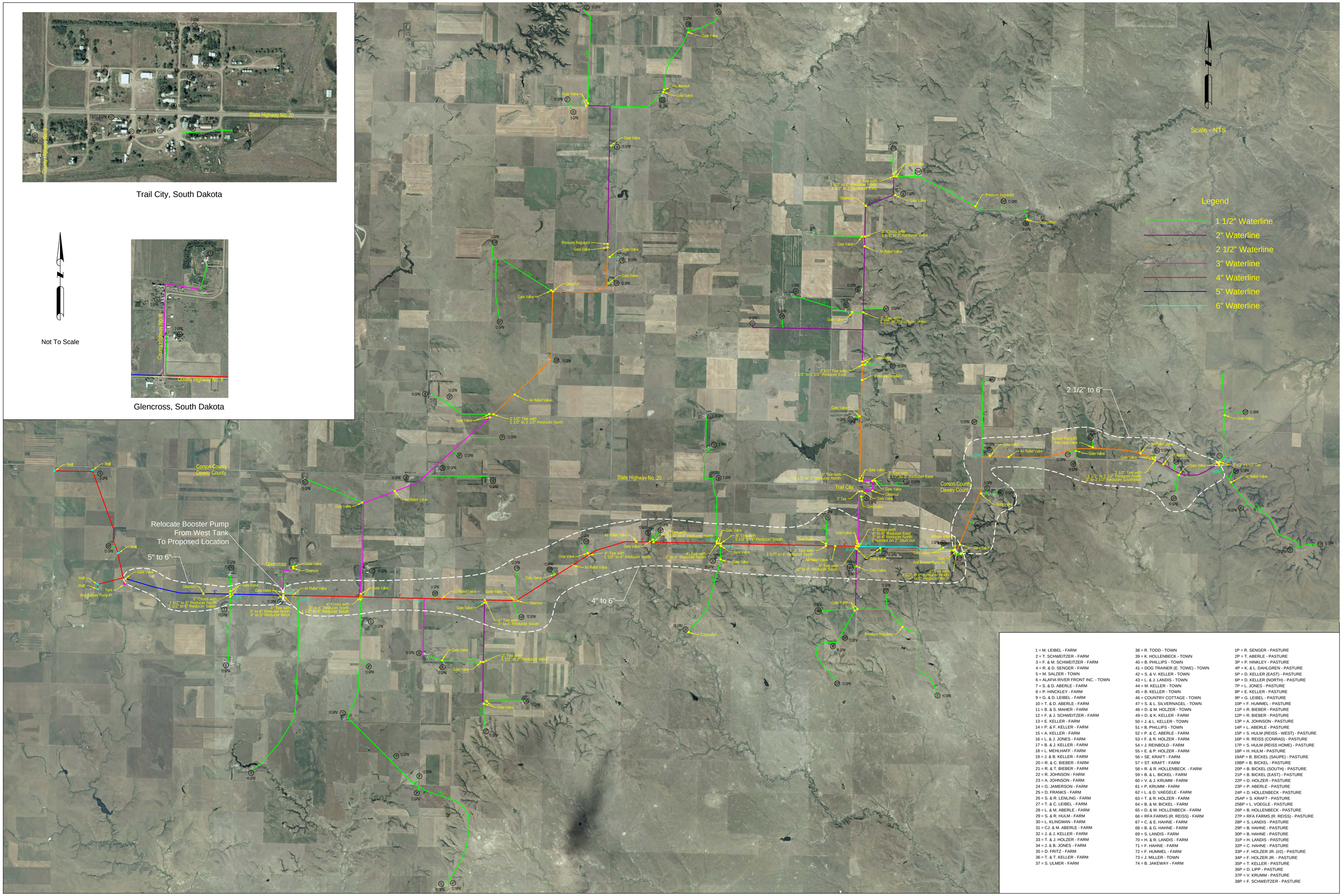


Table 5.2 - Funding and Financing of Proposed Alternative(s)
All Proposed Alternatives

	90/10 Grant/Loan	80/20 Grant/Loan	70/30 Grant/Loan	60/40 Grant/Loan	50/50 Grant/Loan	40/60 Grant/Loan	30/70 Grant/Loan	20/80 Grant/Loan	10/90 Grant/Loan	0/100 Grant/Loan
Annual O&M Costs	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000
Amount Amortized	$ 204,889	$ 409,778	$ 614,667	$ 819,556	$ 1,024,446	$ 1,229,335	$ 1,434,224	$ 1,639,113	$ 1,844,002	$ 2,048,891
Grant Amount	$ 1,844,002	$ 1,639,113	$ 1,434,224	$ 1,229,335	$ 1,024,446	$ 819,556	$ 614,667	$ 409,778	$ 204,889	$ -
Multiplication Factor	$ 0.072	$ 0.072	$ 0.072	$ 0.072	$ 0.072	$ 0.072	$ 0.072	$ 0.072	$ 0.072	$ 0.072
Annual Payment	$ 14,744.25	$ 29,488.50	$ 44,232.75	$ 58,977.00	$ 73,721.25	$ 88,465.50	$ 103,209.75	$ 117,953.99	$ 132,698.24	$147,442.49
Debt Reserve (10%)	$ 1,474	$ 2,949	$ 4,423	$ 5,898	$ 7,372	$ 8,847	$ 10,321	$ 11,795	$ 13,270	$ 14,744
Assets / Other Costs	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02
Total Annual Costs	$ 162,426	$ 178,644	$ 194,863	$ 211,082	$ 227,300	$ 243,519	$ 259,738	$ 275,956	$ 292,175	$ 308,394
Annual Revenue	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906
Surplus / Deficit	$ (56,520)	$ (72,738)	$ (88,957)	$ (105,176)	$ (121,394)	$ (137,613)	$ (153,832)	$ (170,050)	$ (186,269)	$ (202,488)
Minimum Monthly Rate Increase*	$2.47	$3.18	$3.89	$4.59	$5.30	$6.01	$6.72	$7.43	$8.14	$8.84

Assumptions:

Number of Years	20 years
Interest Rate	0.0375 or 3.75%
Total Project Costs	$ 2,048,891.00

* Rate increase based on 4 year average of gallons sold (22,895,000 gallon)

Table 5.3 - Funding and Financing of Proposed Alternative(s)
Booster Pump Station and Service Meter Replacement

	90/10 Grant/Loan	80/20 Grant/Loan	70/30 Grant/Loan	60/40 Grant/Loan	50/50 Grant/Loan	40/60 Grant/Loan	30/70 Grant/Loan	20/80 Grant/Loan	10/90 Grant/Loan	0/100 Grant/Loan
Annual O&M Costs	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000
Amount Amortized	$ 38,430	$ 76,859	$ 115,289	$ 153,718	$ 192,148	$ 230,578	$ 269,007	$ 307,437	$ 345,866	$ 384,296
Grant Amount	$ 345,866	$ 307,437	$ 269,007	$ 230,578	$ 192,148	$ 153,718	$ 115,289	$ 76,859	$ 38,430	$ -
Multiplication Factor	$ 0.088	$ 0.088	$ 0.088	$ 0.088	$ 0.088	$ 0.088	$ 0.088	$ 0.088	$ 0.088	$ 0.088
Annual Payment	$ 3,396.25	$ 6,792.50	$ 10,188.76	$ 13,585.01	$ 16,981.26	$ 20,377.51	$ 23,773.77	$ 27,170.02	$ 30,566.27	$ 33,962.52
Debt Reserve (10%)	$ 340	$ 679	$ 1,019	$ 1,359	$ 1,698	$ 2,038	$ 2,377	$ 2,717	$ 3,057	$ 3,396
Assets / Other Costs	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02	$ 21,207.02
Total Annual Costs	$ 149,943	$ 153,679	$ 157,415	$ 161,151	$ 164,886	$ 168,622	$ 172,358	$ 176,094	$ 179,830	$ 183,566
Annual Revenue	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906	$ 105,906
Surplus / Deficit	$ (44,037)	$ (47,773)	$ (51,509)	$ (55,245)	$ (58,980)	$ (62,716)	$ (66,452)	$ (70,188)	$ (73,924)	$ (77,660)
Minimum Monthly Rate Increase*	$1.92	$2.09	$2.25	$2.41	$2.58	$2.74	$2.90	$3.07	$3.23	$3.39

Assumptions:

Number of Years	15 years
Interest Rate	0.0375 or 3.75%
Total Project Costs	$ 384,296.00

* Rate increase based on 4 year average of gallons sold (22,895,000 gallon)

Chapter 6.0
CAPITAL IMPROVEMENT PROGRAM

This final chapter describes revenue and budget projections that would be available for repayment. In addition, various financing options are presented and recommendations are made in regards to possible funding options and sources.

6.1 CAPITAL IMPROVEMENT REVENUE

The water rate schedule for TC&G is presented below in Table 6.1. Based on an average monthly water usage of seven thousand gallons, the average monthly residential water bill is $93. The monthly rates are higher than the minimum recommended for application to state and federal funding agencies.

Table 6.1 – TC&G Water System Rate Schedule

Usage Group	Water Rates
Residential (Farm and Town)	$65 min + $4.00 per 1,000 gallon
Pasture Taps	$65 year + $4.00 per 1,000 gallon

Based on the current number of total and active services, the estimated annual revenue generated is approximately $94,096, as shown in Table 6.2. It is typically recommended that water systems set their rates so that the necessary funds are obtained to be self-sufficient. Additionally, it is recommended that a community set aside reserve monies for current debts and short-lived asset replacement.

Table 6.2 – Capital Improvement Income Summary[(a)]

		2015	2016	2017	2018	2019
Service	***# of Metered Connections***					
Residential	82	$91,512	$91,512	$91,512	$91,512	$91,512
Pasture	56	$14,392	$14,392	$14,392	$14,392	$14,392
Total	**138**	**$105,904**	**$105,904**	**$105,904**	**$105,904**	**$105,904**

(a) Calculated as minimum charge plus 7k gallon/month usage

6.2 CAPITAL IMPROVEMENT O&M COSTS

As seen in Table 6.3, the annual O&M costs associated with water operations for the TC&G Water System range from $121,573 to $182,557. Annual O&M costs for the proposed improvements are expected to remain relatively constant after year 2017. With appropriate reserves in place, the O&M for the proposed improvements should only be affected by yearly inflation rates.

Table 6.3 - Capital Improvement O&M Cost Summary					
	2015	2016	2017	2018	2019
Direct Benefits					
Operator Salaries	$ 39,000.00	$ 40,365.00	$ 41,777.78	$ 43,240.00	$ 44,753.40
Director Fees	$ 3,440.00	$ 3,560.40	$ 3,685.01	$ 3,813.99	$ 3,947.48
Office Related					
Admin / Office	$ 640.00	$ 662.40	$ 685.58	$ 709.58	$ 734.41
Office Supplies	$ 467.80	$ 484.17	$ 501.12	$ 518.66	$ 536.81
Copying	$ 35.00	$ 36.23	$ 37.49	$ 38.81	$ 40.16
Computer Equipment	$ 400.00	$ 414.00	$ 428.49	$ 443.49	$ 459.01
O&M					
Chemicals	$ 19,908.67	$ 20,605.47	$ 21,326.67	$ 22,073.10	$ 22,845.66
Gas and Oil	$ 2,974.09	$ 3,078.18	$ 3,185.92	$ 3,297.43	$ 3,412.84
Maint & Repairs	$ 8,840.93	$ 9,150.36	$ 9,470.63	$ 9,802.10	$ 10,145.17
Water Testing	$ 597.00	$ 617.90	$ 639.52	$ 661.90	$ 685.07
Minor Equipment	$ 344.22	$ 356.27	$ 368.74	$ 381.64	$ 395.00
Electricity	$ 27,432.96	$ 28,393.11	$ 29,386.87	$ 30,415.41	$ 31,479.95
Miscellaneous					
Professional Services	$ 70,000.00	$ 55,000.00	$ 1,000.00	$ 1,035.00	$ 1,071.23
Insurance & Taxes	$ 7,076.42	$ 7,324.09	$ 7,580.44	$ 7,845.75	$ 8,120.35
Conferences	$ 1,200.00	$ 1,242.00	$ 1,285.47	$ 1,330.46	$ 1,377.03
Operator Certifications	$ 200.00	$ 207.00	$ 214.25	$ 221.74	$ 229.50
Annual Totals	**$ 182,557.09**	**$ 171,496.59**	**$ 121,573.97**	**$ 125,829.06**	**$ 130,233.07**

6.3 DEBT AND RESERVES

Table 6.4 show existing water debt, associated debt reserves, and reserves for short-lived assets. Of the estimated annual water revenue, the entire generated revenue (100%) is currently needed for O&M, debt repayment, and reserves.

Table 6.4 - Water Capital Improvement Program Reserves					
	2015	2016	2017	2018	2019
Debt Reserves					
Existing Debt	$ 110,050.08	$ 106,198.33	$ 101,419.40	$ 95,841.34	$ 89,611.65
Proposed Debt	$ -	$ -	$ -	$ -	$ -
Short Lived Asset Reserves					
Booster Pumps	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00
Computer Equipment	$ 300.00	$ 300.00	$ 300.00	$ 300.00	$ 300.00
Annual Totals	**$ 110,900.08**	**$ 107,048.33**	**$ 102,269.40**	**$ 96,691.34**	**$ 90,461.65**

Short-lived asset reserves for replacement of the booster pumps will be on a seven-year rotation. Additionally, reserves for computer equipment are needed to assist the water department in providing sustainment to their aging water infrastructure.

6.4 FUNDING AND FINANCING OPTIONS

Financing infrastructure projects is difficult for a community that has limited resources. Projects such as these frequently consume a significant percentage of community financial resources. Consequently, to finance major capital improvement projects, other methods of obtaining capital must be investigated.

6.5 FEDERAL LOANS / GRANTS

Federal agencies such as the US Department of Agriculture's Rural Development/Rural Utility Service (RD / RUS) have both grant and loan funds available for financing improvements. A preliminary engineering report and pre-application, along with certain other information, is required before a community can submit a full application for project funding.

RD / RUS is the primary federal agency that funds local projects. There are other federal agencies that do assist local communities under "special" circumstances. Some of these agencies include the Federal Emergency Management Agency (FEMA), the Economic Development Administration (EDA) and the US Department of Housing and Urban Development (HUD). However, these agencies typically do not become involved in funding projects unless there has been a disaster or a major economic development activity is forthcoming.

6.6 STATE LOANS / GRANTS

The State of South Dakota has several programs that can provide financial assistance for community improvements. The programs are operated through various departments of state government. Some are financed with 100% state resources; some use a combination of state and federal funds, while others are federal "pass-through" funds.

6.7 SD DENR PROGRAMS

The SD DENR has a low interest loan and grant program called the Consolidated Water Facilities Construction Program (CWFCP). This program was established in 1986 by combining several existing grant and loan programs. It is funded entirely with state monies and is designed to provide financial assistance through grants and loans for water and wastewater projects throughout the state.

6.8 GOED PROGRAM

The Governor's Office of Economic Development (GOED) administers the Community Development Block Grant (CDBG) program. This program utilizes the US Department of Housing and Urban Development (HUD) small cities program funding. CDBG funds may be used for a variety of community development activities, including water and sewer system renovations and rehabilitation. Emphasis of this program is to provide benefits for low and moderate-income people. Information supplied by GOED indicates that most communities can probably qualify for funds from this program; however, an income survey may be necessary.

6.9 OTHER SOURCES FOR FINANCING

Typically, state and federal agencies cannot provide 100% of the funding for these infrastructure improvements. Even though it may be difficult for a community to finance projects, there are other resources and programs available that can be used to assist communities in financing projects such as the one being considered by the Town.

6.9.1 PAY AS YOU GO

For small communities, the most common method of financing needed improvements is the "pay-as-you-go" method. This method obtains revenue from general taxation, fees, service charges, special funds and/or special assessments. The advantages of this method are:

1. No interest payments; and
2. Greater budget flexibility.

Disadvantages of this method are:

1. Inequities between age groups (older citizens pay for a share of the project and younger citizens who may not have paid any of the costs realize greater benefits simply because of greater life spans);

2. Difficulty in generating large amounts of capital that is often required for large scale capital improvements; and

3. Large-scale capital improvements often cannot be constructed efficiently by phased construction.

6.9.2 RESERVE FUNDS

A variation of the “pay-as-you-go” method is using reserve fund financing. Communities using this method accumulate funds in advance for construction of needed capital improvements. This accumulation may be the result of surplus operating funds that are allowed to remain in the operating budget from year to year. These funds are often “earmarked” for a specific purpose. It may also be revenues from a certain percentage of the water or sewer rate that are specifically placed in a depreciation account. Financing projects in this manner is often attractive to communities.

This method has disadvantages. The most obvious drawback is that the fund has to be established for a length of time to allow it to generate sufficient capital for a substantial project. Also, good management is required to ensure that the investment pays an adequate return. If the interest generated on the investment is not greater than the inflation rate, then gains in the accumulation of the fund may be lost to inflation.

6.9.3 SALES TAX

Sales taxes can also be used to finance capital improvements. State statues allow a city to dedicate sales tax revenues to capital improvement construction. A long-range plan can be developed to allow capital improvements to be constructed in phases. As revenue is generated each year, a segment of the overall plan is constructed. Many communities are currently using this method of constructing improvements.

6.9.4 BONDS

Another method of generating revenue for improvements is through the sale of bonds on the private bond market. Three different types of bonds are frequently used to finance capital improvement projects. Each has different requirements and will need the involvement of legal counsel. The three types are General Obligation (GO), Revenue, and Special Assessment bonds.

6.9.5 GO BONDS

GO bonds always require a bond election, with a 60% majority vote needed, because these bonds pledge the taxing authority of the community to repay the bond. GO bonds typically have lower interest rates than Revenue bonds, due to the fact that they are backed by the taxing authority of the community.

6.9.6 REVENUE BONDS

Revenue bonds, which pledge revenue generated from the project, are often sold to finance capital improvements. These bonds do not require a bond election, but as with any action of a governmental body, the enabling ordinance must be approved by the board. Sales tax revenues can be and are frequently used to repay both Revenue and GO bonds.

6.9.7 SPECIAL ASSESSMENT BONDS

The final type of bond typically used is the Special Assessment bond. These bonds have a limited payback period. Assessment for principal and interest repayment is levied against adjacent owners over a given period of years. These special assessments are collected with property tax payments. Street improvements are frequently financed through the use of special assessment bonds.

6.10 SUMMARY OF FINANCING OPTIONS

No one program typically provides 100% of funding to finance a project. Most programs require or strongly recommend that the applicant provide some local funding. Low interest loans and grant offers are frequently "packaged" with available local funds to satisfactorily finance capital improvements. SD DENR also has minimum rate requirements that must be met by a community to be eligible for grant funding under the CWFCP. For example, the SD DENR recommends that the minimum rate for municipal water is $23.00 per month for 5,000 gallons of water used. If a community does not have its rates at or above this level, it will not be eligible for grant assistance from the consolidated program.

6.11 FUNDING RECOMMENDATIONS

Due to the cost of the proposed improvements and the limited amount of local finances available, this report recommends that the TC&G Water System should:

1. Complete applications for financial assistance to SD DENR SRF and Drinking Water Funding Programs, as well as, USDA's Rural Development / Rural Utility Service Water and Sewer Program, and the SD GOED Community Development Block Grant Program.

2. Evaluate the Water System's financial resources, rate structure and various funding sources available to construct capital improvement projects. Investigate if rate increases, debt restructuring, or other funding options may be used to finance all or part of the proposed project.

Appendix A

Environmental Assessment Comment Letters

RECEIVED
JUL 2 4 2014
Dept. of Environment and Natural Resources
Water Quality
Water Management

3030 Airport Rd., Suite A
Box 23 • Pierre, SD 57501
Ph: 605.224.1123

Brosz
ENGINEERING, INC.
ARCHITECTURE ENGINEERING SURVEYING

July 24, 2014

Vonnie Kallemeyn - Administrator
Waste Management Program
SD DENR
523 East Capitol Avenue
Pierre, SD 57501

Waste Management Determination
Hazardous Waste/Solid Waste/Asbestos
It appears, based on the information provided, that this project will have little or no impact on the waste management in this area.
Approved By: Vonnie Kallemeyn
Date: 7-31-14
South Dakota Department of
Environment & Natural Resources
Phone: (605) 773-3153 Fax: (605) 773-6035

RE: TC&G Water System Improvement Project(s), Environmental Assessment; Request for Comments
BEI Job No. 14-543

Dear Ms. Kallemeyn:

Brosz Engineering is assisting the TC&G Water System in gathering information for an environmental assessment on a proposed water improvement project. Although no funding applications have been completed at this stage of the planning process, the community is anticipating applying for loans and grants funded by various state and federal agencies. These agencies include, but are not limited to, the United States Department of Agriculture Rural Development – Rural Utilities Water and Waste program, South Dakota State Revolving Loan Program, and Community Development Block Grant (CDBG) funding that is available through the Small Cities Program, administered by the State of South Dakota.

The proposed water system improvements could include the replacement of water meters, water main, booster pumps, or a combination thereof.

As part of the planning process, it must be determined if the proposed construction will have any significant environmental impact. Please find enclosed a site map, which indicates the location of TC&G Water System, the entity seeking the proposed improvements. The project would be located within the limits of the TC&G Water System, in various sections within Township 18N, Ranges 26E, 27E, and 28E of Corson County, as well as, various sections within Township 17N, Ranges 26E, 27E, and 28E in Dewey County. All construction activities will take place in previously disturbed areas. Therefore, it is believed that there will be no significant impact on the environment.

If your agency has any concern with environmental or permitting issues that may impact the proposed construction, or if you have any technical questions or concerns about the project, do not hesitate to contact me.

DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

August 21, 2014

Chris Van Schepen
Brosz Engineering, Inc.
3030 Airport Road, Suite A
PO Box 23
Pierre, SD 57501

Dear Mr. Van Schepen:

The South Dakota Department of Environment and Natural Resources (DENR) reviewed the proposed TC & G Water System Improvement Projects. The DENR finds that this construction, using conventional construction techniques, should not cause violation of any statutes or regulations administered by the DENR based on the following recommendations:

1. Based on the information provided, the Air Quality Program does not anticipate any adverse impacts.

2. Based on the information provided, the Drinking Water Program does not anticipate any adverse impacts.

3. Based on the information provided, the Surface Water Quality Program does not anticipate any adverse impacts. However, efforts should be made to avoid any surface water bodies that may be encountered during construction.

4. A segment of Snake Creek that may be impacted is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

   (6) Warmwater marginal fish life propagation waters;
   (8) Limited contact recreation waters;
   (9) Fish and wildlife propagation, recreation, and stock watering waters; and
   (10) Irrigation waters.

   Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

5. A General Storm Water Permit for Construction Activities may be required. If you have any questions, please contact Greg Davis with EPA at (303) 312-7014.

6. Best Management Practices for sediment and erosion control should be incorporated into the planning, design, and construction.

7. The Waste Management Program does not anticipate any adverse impacts. All waste material must be managed according to our solid waste requirements. Please contact the Waste Management Program if you have any questions on solid waste disposal requirements at (605) 773-3153.

8. Based on the information provided, the Ground Water Quality Program does not anticipate adverse impacts to ground water quality by this project. However, plans and specifications for the water system improvements must be submitted to the Department for approval prior to construction. This is to ensure that any improvements and/or expansion plans meet the Department recommended design criteria for this type of system. There have been petroleum and other chemical releases throughout the state. Of the releases reported to the Department, we have identified several release cases potentially in the vicinity of your project and enclosed is a list of these releases. However, the locational information provided to us regarding releases is sometimes inaccurate or incomplete. If you would like to do more research regarding releases, information on releases reported in South Dakota may be obtained at the following website: http://denr.sd.gov/des/gw/Spills/dbspillsearch.aspx. If contamination is encountered during construction, or caused by construction activities on Cheyenne River Sioux tribal lands, the TC&G Water System or its designated representative, must report the contamination to the Cheyenne River Sioux Tribal Environmental Director, David D. Nelson. If contamination is encountered on Standing Rock Sioux tribal lands, the contamination must be reported to the Standing Rock Sioux Tribal Environmental Director, Allyson Two Bears. Additionally, the Ground Water Quality Program recommends that any contamination also be reported to the Department. Any contaminated soil encountered should be temporarily stockpiled and sampled to determine disposal requirements, and the materials of construction through the contaminated area be evaluated for chemical compatibility and adjusted accordingly.

If you have any questions concerning these comments, please contact me at (605) 773-3351.

Sincerely,

John Miller
Environmental Scientist
Surface Water Quality Program

cc: Brad Schultz, Air Quality Program
Mark Mayer, Drinking Water Program
Vonni Kallemeyn, Waste Management Program
Matt Hicks, Ground Water Quality Program
Allyson Two Bears, Standing Rock Sioux Tribal Environmental Director, Ft. Yates, ND
David D. Nelson, Cheyenne River Sioux Tribal Environmental Director, Eagle Butte, SD

DENR ID	site_name	city	street	material	status	r1
91044	Glencross Oil Company	Glencross	1st & Main		C	BL
2001250	Clean ATP - Salzer Property	Glencross	1 Block South of Post Office		C	KM
2002121	Clean ATP - Herman Hulm	Trail City	26577 134th Street		C	KM
2002302	Clean ATP - Bieber Farm - Site	Trail City	263 Avenue		C	KM

id = DENR Case Number
Status: C = Closed, NFA = No Further Action, O or M = Open or Monitoring, I = Inactive
r1 = DENR Reviewer (by initials)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
1616 CAPITOL AVENUE
OMAHA NE 68102-4901

REPLY TO
ATTENTION OF

August 13, 2014

Planning, Programs, and Project Management Division

Mr. Chris Van Schepen
Brosz Engineering, Inc.
3030 Airport Rd., Suite A, Box 23
Pierre, South Dakota 57501

Dear Mr. Schepen:

The U.S. Army Corps of Engineers, Omaha District (Corps) has reviewed your letter dated July 24, 2014 (received July 30, 2014) regarding the environmental review of the TC&G Water System Improvements Project (BEI Job No. 14-543), located in Corson and Dewey Counties in South Dakota. We offer the following comments for your consideration:

Your plans should be coordinated with the state water quality office in which the project is located to ensure compliance with federal and state water quality standards and regulations mandated by the Clean Water Act and administered by the U.S. Environmental Protection Agency. Please coordinate with the South Dakota Department of Environment & Natural Resources concerning state water quality programs.

If you have not already done so, it is recommended you consult with the U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks regarding fish and wildlife resources. In addition, the South Dakota State Historic Preservation Office should be contacted for information and recommendations on potential cultural resources in the project area.

Our Flood Risk and Floodplain Management Section has reviewed the proposed project and offer the following comments:

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) located in the proposed project location, panel numbers 46031C1375A, 46031C1400A, 46031C1425A, 4612030250A, 4612030275A, and 4612030300A are not printed. If the proposed water main construction crosses the floodplains of small drainageways and streams, flood-related problems should not occur if the lines are buried far enough below the beds of drainageways and streams to prevent exposure due to streambed erosion during periods of high floodflows. Any aboveground construction subject to flood damage, such as booster pumps or water meters, should either be placed above, or flood proofed to, a level above the one percent annual chance flood elevation.

To view the FEMA FIRM panels sited in this letter, please perform the following steps:

1. Navigate to the following website: https://msc.fema.gov/portal/.

2. Enter an address or a place (*i.e.*, Corson County, South Dakota or Dewey County, South Dakota) in the search box half way down the page.

3. Click on the desired panel.

4. Click on the "View" icon or "Download" icon in the left panel to view the map panel.

Since the proposed project does not appear to be located within Corps owned or operated lands, your plans should be submitted to the local floodplain administer for review and approval prior to construction. It should be ensured that the proposed project is in compliance with floodplain management criteria of Corson and Dewey Counties and the State of South Dakota. In addition, please coordinate with the South Dakota Division of Emergency Management located at:

South Dakota Division of Emergency Management
Attention: Mr. Marc Macy
118 W. Capitol Avenue
Pierre, South Dakota 57501
Telephone: 605-773-3231
Fax: 605-773-3580
Email: marc.macy@state.sd.us

Any proposed placement of dredged or fill material into waters of the United States (including jurisdictional wetlands) requires Department of the Army authorization under Section 404 of the Clean Water Act. You can visit the Omaha District's Regulatory website for permit applications and related information. Please review the information on the provided website (http://www.nwo.usace.army.mil/Missions/RegulatoryProgram.aspx) to determine if this project requires a 404 permit. For a detailed review of permit requirements, preliminary and final project plans should be sent to:

U.S. Army Corps of Engineers
Pierre Regulatory Office
Attention: Mr. Steve Naylor, CENWO-OD-R-SD
28563 Powerhouse Road, Room 120
Pierre, South Dakota 57501

In addition, please update your records with our current mailing address:

U.S. Army Corps of Engineers, Omaha District
Planning Branch
Attention: CENWO-PM-AC
1616 Capitol Ave.
Omaha, Nebraska 68102-4901

If you have any questions, please contact Ms. Amanda Ciurej of my staff at (402) 995-2897 or amanda.k.ciurej@usace.army.mil and reference PD Letter # 6485 in the subject heading.

Sincerely,

Eric A. Laux
Chief, Environmental Resources and Missouri River Recovery Program Plan Formulation Section

RECEIVED
JUL 25 2014
AIR QUALITY
PROGRAM

3030 Airport Rd., Suite A
Box 23 • Pierre, SD 57501
Ph: 605.224.1123

Brosz
ENGINEERING, INC.
ARCHITECTURE ENGINEERING SURVEYING

July 24, 2014

Brad Schultz
Senior Scientist
Air Quality Program SD DENR
523 East Capitol Avenue
Pierre, SD 57501

RE: TC&G Water System Improvement Project(s) Environmental Assessment; Request for Comments
BEI Job No. 14-543

Dear Mr. Schultz:

Brosz Engineering is assisting the TC&G Water System in gathering information for an environmental assessment on a proposed water improvement project. Although no funding applications have been completed at this stage of the planning process, the community is anticipating applying for loans and grants funded by various state and federal agencies. These agencies include, but are not limited to, the United States Department of Agriculture Rural Development – Rural Utilities Water and Waste program, South Dakota State Revolving Loan Program, and Community Development Block Grant (CDBG) funding that is available through the Small Cities Program, administered by the State of South Dakota.

The proposed water system improvements could include the replacement of water meters, water main, booster pumps, or a combination thereof.

As part of the planning process, it must be determined if the proposed construction will have any significant environmental impact. Please find enclosed a site map, which indicates the location of TC&G Water System, the entity seeking the proposed improvements. The project would be located within the limits of the TC&G Water System, in various sections within Township 18N, Ranges 26E, 27E, and 28E of Corson County, as well as, various sections within Township 17N, Ranges 26E, 27E, and 28E in Dewey County. All construction activities will take place in previously disturbed areas. Therefore, it is believed that there will be no significant impact on the environment.

If your agency has any concern with environmental or permitting issues that may impact the proposed construction, or if you have any technical questions or concerns about the project, do not hesitate to contact me.

AIR QUALITY DETERMINATION
It appears, based on the information, that the project will have little or no impact on the air quality in this area. This project is approved.
Approved By: Brad Schultz
Date: 8/5/2014
(605) 773-6038 Fax: (605) 773-5286
South Dakota Department of Environment
And Natural Resources

RECEIVED
JUL 25 2014
U.S. FISH & WILDLIFE SERVICE

3030 Airport Rd., Suite A
Box 23 • Pierre, SD 57501
Ph: 605.224.1123

Brosz
ENGINEERING, INC.
ARCHITECTURE ENGINEERING SURVEYING

July 24, 2014

Pete Gober
Field Supervisor
US Fish and Wildlife Service
420 South Garfield Avenue, Suite 400
Pierre, SD 57501

RE: TC&G Water System Improvement Project(s) Environmental Assessment; Request for Comments
BEI Job No. 14-543

Dear Mr. Gober:

Brosz Engineering is assisting the TC&G Water System in gathering information for an environmental assessment on a proposed water improvement project. Although no funding applications have been completed at this stage of the planning process, the community is anticipating applying for loans and grants funded by various state and federal agencies. These agencies include, but are not limited to, the United States Department of Agriculture Rural Development – Rural Utilities Water and Waste program, South Dakota State Revolving Loan Program, and Community Development Block Grant (CDBG) funding that is available through the Small Cities Program, administered by the State of South Dakota.

The proposed water system improvements could include the replacement of water meters, water main, booster pumps, or a combination thereof.

As part of the planning process, it must be determined if the proposed construction will have any significant environmental impact. Please find enclosed a site map, which indicates the location of TC&G Water System, the entity seeking the proposed improvements. The project would be located within the limits of the TC&G Water System, in various sections within Township 18N, Ranges 26E, 27E, and 28E of Corson County, as well as, various sections within Township 17N, Ranges 26E, 27E, and 28E in Dewey County. All construction activities will take place in previously disturbed areas. Therefore, it is believed that there will be no significant impact on the environment.

If your agency has any concern with environmental or permitting issues that may impact the proposed construction, or if you have any technical questions or concerns about the project, do not hesitate to contact me.

A written response is requested within 30 days. If comments are not received by August 24, 2014, the TC&G Water System will assume that your agency will accept a determination of no significant impact and will proceed with the remainder of the environmental assessment process at the appropriate stage of project development. No environmental impact statement will be prepared.

The entity anticipates completing the construction of the project sometime in 2015 or 2016. Thank you for your prompt attention and cooperation in this matter.

Sincerely,
Brosz Engineering, Inc.

Chris Van Schepen
Project Engineer
Brosz Engineering, Inc.
(605) 224-1123
chrisv@broszeng.com

Enclosure

This constitutes a report of the Department of The Interior prepared in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). We have reviewed and have NO OBJECTION to this proposed project.

8/6/14
Date

Field Supervisor

Appendix B

1972 Groundwater Study for TC&G Water Association

STATE OF SOUTH DAKOTA
Richard Kneip, Governor

SOUTH DAKOTA GEOLOGICAL SURVEY
Duncan J. McGregor, State Geologist

Open-File Report No. 1-UR

Preliminary Report

GROUND-WATER STUDY FOR THE TRAIL CITY AND GLENCROSS WATER ASSOCIATION

by
Assad Barari

Science Center
University of South Dakota
Vermillion, South Dakota
May 1972

GROUND-WATER STUDY FOR THE TRAIL CITY AND GLENCROSS WATER ASSOCIATION

At the request of the Trail City and Glencross Water Association, the South Dakota Geological Survey conducted a ground-water study from August 3 to August 27, 1971 in part of Corson and Dewey Counties, South Dakota (fig. 1). The purpose of the investigation was to assist the Association in locating a future community water supply.

Included in this study were: (1) a review of the geology as mapped by the South Dakota Geological Survey (W. A. Pettyjohn, 1961, and R. E. Stevenson, 1959, 1960 a and b), (2) the drilling of 36 auger test holes, (3) a well inventory, (4) a collection and analyses of 20 water samples. In addition seven water samples were collected by a member of the Association, H. A. Lippert, and were analyzed by the Geological Survey.

The exposed rocks are the members of the Fox Hills Formation (fig. 1) which cover most of the study area. These rocks consist of very fine sand mixed with clay to medium size sand. Locally there are cemented sand layers in the area which halt auger test-hole drilling. Figure 2 shows the location of the test holes drilled in the area. The logs of the test holes are presented in Appendix A; also, figure 3 shows the summary of the test-hole logs. Figure 4 shows the depth to water table and the thickness of saturated sand in the test holes. The above figures and logs indicate that the most favorable sand (larger sand particles and thicker saturated sand) was found in test hole 12 approximately 3 miles north and 3 miles east of the city of Timber Lake (fig. 5). Test hole 12 was drilled through approximately 75 feet of saturated fine to medium sand.

A feasibility report on the Trail City and Glencross water was presented to the Association by an engineering firm in 1971. This report proposes a well site south of the railroad in sec. 12, T. 17 N., R. 25 E. This location is near the proposed stand pipe. Figures 3, 5, and the logs of the test holes from this area indicate that drilling was halted in most of the test holes due to cemented sand layers. Test holes 28 and 29 south of section 12 were drilled through the Fox Hills Formation to Pierre Shale. Approximately 55 feet of saturated fine to very fine sand was penetrated in each test hole.

Water from the Fox Hills Formation is generally of good quality. The results of chemical analyses of 20 water samples collected in August 1971 are shown in table 1. All analyzed chemicals are within the standard limits set by the South Dakota Department of Health except for high manganese in samples W-4, W-12, W-13, and W-15. The samples were not analyzed for fluoride content, but water samples from Timber Lake city wells analyzed by the South Dakota Department of Health indicate that the water has less fluoride than the recommended limits.

If the Association should decide to test the potential of water in either of the following two areas: i.e., (1) in the vicinity of test hole 12 (figs. 2 and 5) where larger sand particles and thicker saturated sand was found, and/or (2) in sec. 12, T. 17 N., R. 25 E., which was proposed by the engineering firm (fig. 5), it is recommended a test well be drilled for the purpose of conducting a pump test. Sand from the test well should be sent to a well company for sand analysis and design of a screen.

The South Dakota Geological Survey will provide technical assistance and supervise the conducting of the pump test and the values of transmissivity and storage coefficient will be calculated. At least two observation wells should be drilled to measure the drawdown in addition to measuring water level in the well. The distance to the observation wells should be decided after water level is measured in the test well. The test should be conducted by a hydrologist or a qualified engineer and continued for at least 72 hours. Water samples taken during the test should be analyzed for chemical content. The chemical analyses of water should also include sodium, fluoride, and manganese which were not measured in all the samples collected in 1971. The results of the aquifer tests will afford a basis for deciding if the area will provide the required quality and quantity of water, determine the proper spacing of the production wells, and provide data for the design of well(s).

Before a permanent well is drilled the Trail City and Glencross Association should consult with the South Dakota Water Resources Commission with regard to obtaining water rights and a permit to drill a community well and the State Department of Health with regard to the biological and chemical suitability of the water.

Figure 1. Generalized geologic map of the Trail City and Glencross study area and location of the water samples collected in August, 1971.

Figure 2. Map showing location of test holes in the Trail City and Glencross study area.

Figure 3. Map showing the summary of logs of test holes drilled in the Trail City and Glencross study area.

Figure 4. Map showing depth to water table and thickness of saturated sand in test holes drilled in the Trail City and Glencross study area.

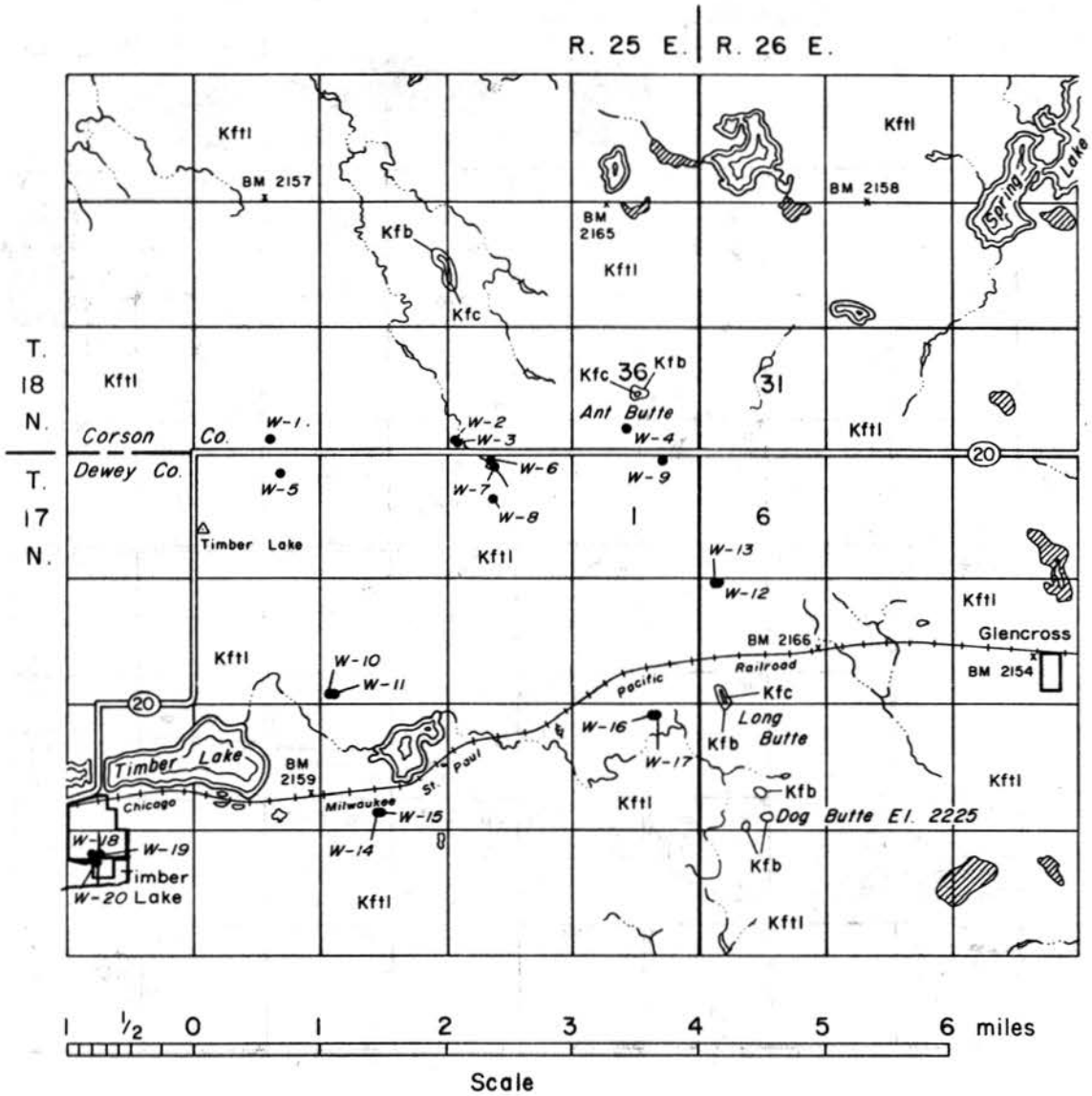
Figure 5. Map showing the location of the well site proposed by the consulting engineering firm and location of the most favorable sand.

Table 1. Chemical analyses of water samples from the Trail City and Glencross study area (collected August 1971).

Table 2. Chemical analyses of water samples from the Trail City and Glencross area collected by the Association prior to the study.

Appendix A. Logs of test holes in the Trail City and Glencross study area.

Appendix B. Well records in the Trail City and Glencross area.



EXPLANATION

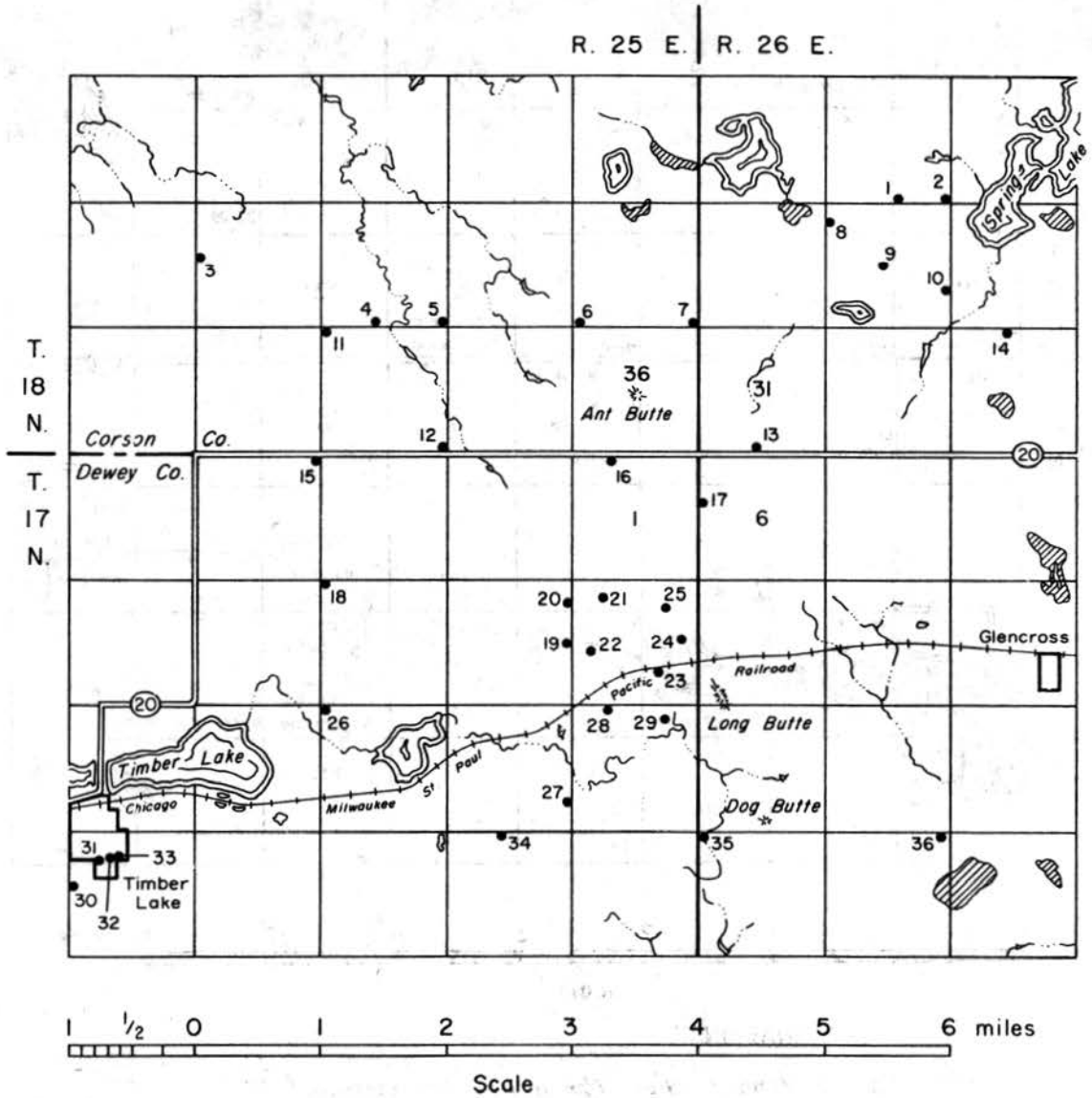
Fox Hills Formation — Upper Cretaceous

- Kfc – Colgate Member *(Gray, fine to very fine sandstone)*
- Kfb – Bullhead Member *(Beds of light gray to buff and dark gray clay)*
- Kftl – Timber Lake Member *(Fine grained light gray to buff sand with reddish brown cemented layers)*

W-9 ● Water sample △ Triangulation station × Bench Mark

by Assad Barari, 1971 drafted by D. W. Johnson

Figure 1. Generalized geologic map of the Trail City and Glencross study area, *(modified from W. A. Pettyjohn 1961, and R. E. Stevenson 1959-1960, a and b)* and location of water samples collected in August, 1971.



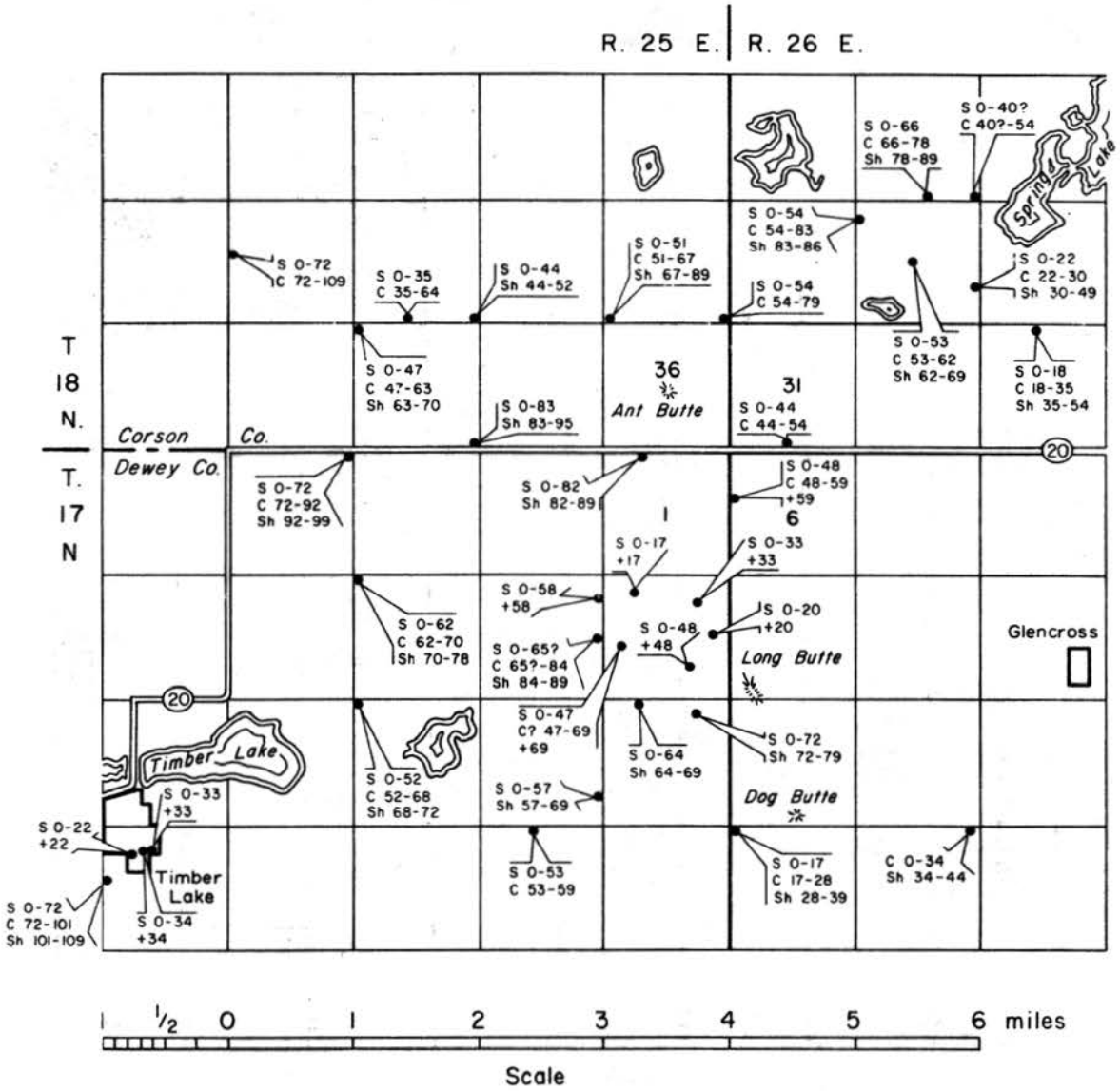
EXPLANATION

•9 Test hole, number refers to test holes in Appendix A

Lake Intermittent lake Intermittent stream

by Assad Barari, 1971 drafted by D. W. Johnson

Figure 2. Map showing location of test holes in the Trail City and Glencross study area.



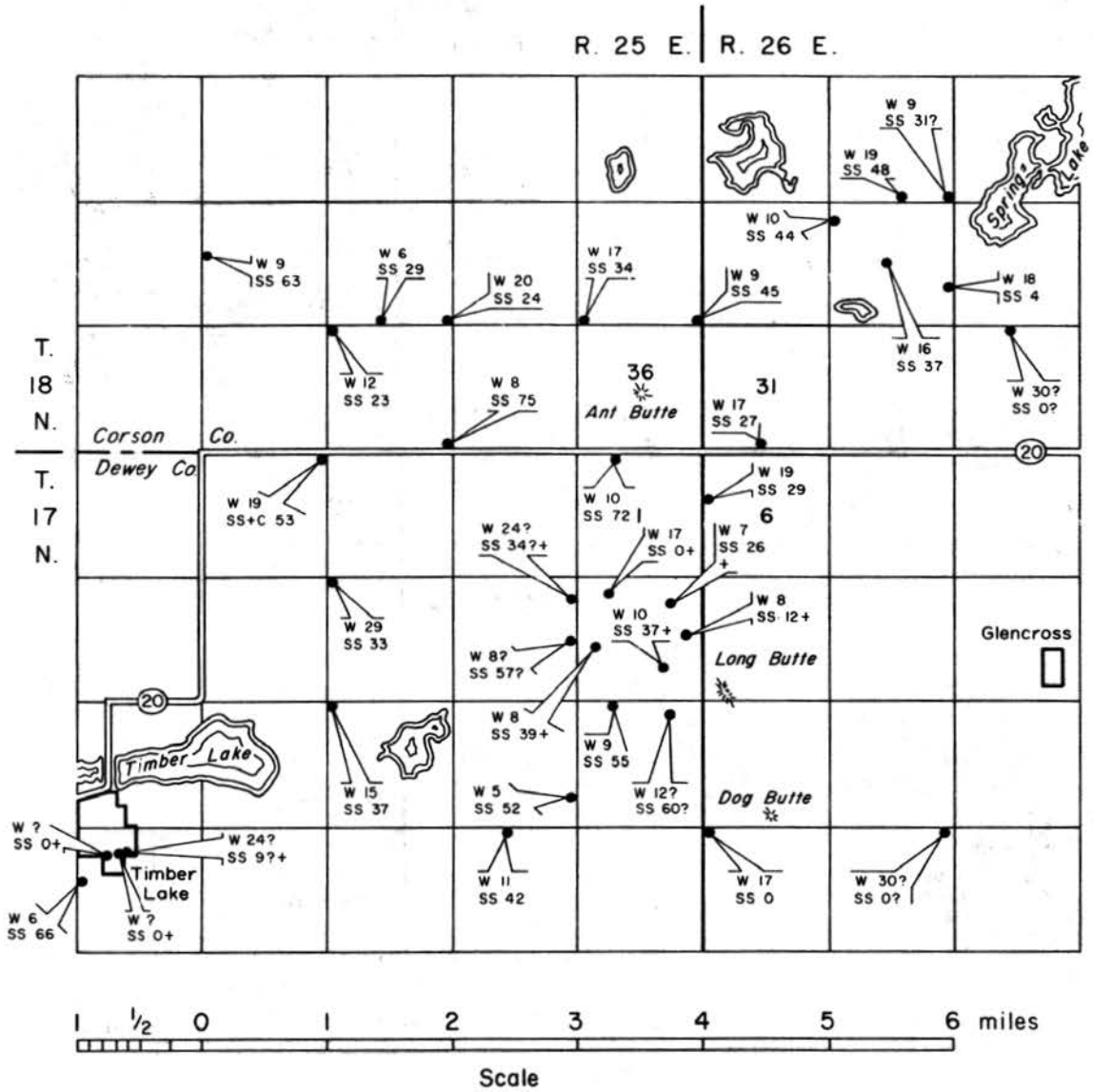
EXPLANATION

• S 0-48? C 48?-60 Sh 60-72 +72 — Test hole,

S = sand
C = clay
Sh shale

The numbers refer to depths in feet below ground level.
A plus indicates drilling was halted due to a cemented layer.

Figure 3. Map showing the summary of logs of test holes drilled in the Trail City and Glencross study area.



EXPLANATION

• W 24? SS 9?+ Test hole, the letter W indicates water table and the letters SS indicate saturated sand. The numbers refer to depths in feet below ground level, and thickness in feet, respectively.

A plus (+) indicates that the full thickness was not penetrated due to a cemented layer. A question mark (?) indicates the water level or thickness of saturated sand was estimated.

by Assad Barari, 1971 drafted by D. W. Johnson

Figure 4. Map showing depth to water table and thickness of saturated sand in test holes drilled in the Trail City and Glencross study area.

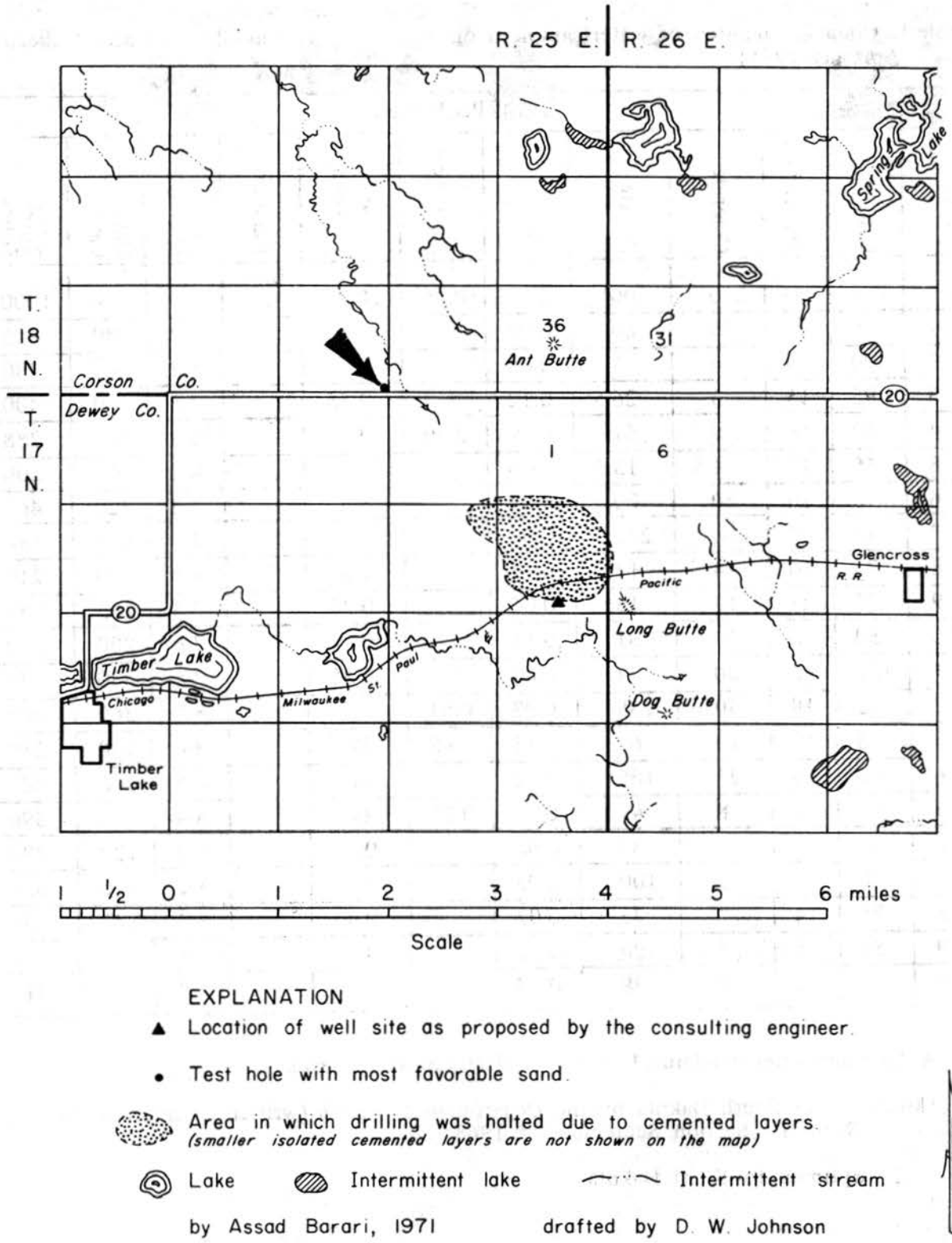


Figure 5. Map showing the location of the well site proposed by the consulting engineering firm and location of the most favorable sand.

Table 1. Chemical analyses of water samples from the Trail City and Glencross area (collected August 1971).

	Parts Per Million										
Sample	Calcium	Magnesium	Chloride	Sulfate	Iron	Manganese	Nitrate Nitrogen	Fluoride	pH	Hardness $CaCO_3$	Total Solids
A	---	---	250	500[1]	0.3	0.05	10.0	0.9-1.7[2]	---	---	1000[1]
W- 1	95	10	15	60	0.03		4.5		7.4	280	425
W- 2	90	10	6	75	0.08		Tr		8.3	260	280
W- 3	95	15	5	26.5	0.12		2.55		7.5	300	400
W- 4	40	16	9	67	0.10	0.20	Tr		8.5	165	288
W- 5	65	10	1.5	13.5	0.16		0.6		8.4	210	200
W- 6	110	10	30	100	0.03		3.0		7.3	320	465
W- 7	145	46	60	245	0.06		7.0		7.9	425	580
W- 8	75	10	4	12.5	0.12		1.0		8.1	230	210
W- 9	75	Tr	10	13	0.06		0.85		7.3	185	255
W-10	80	5	20	31	0.16		0.5		7.6	220	370
W-11	130	2	30	34	0.02		0.35		7.5	330	375
W-12	115	18	50	135	0.03	0.51	4		8.2	360	300
W-13	55	10	10	62	0.13	0.68	Tr		8.4	180	210
W-14	80	5	25	165	0.12		Tr		8.4	220	480
W-15	45	18	8	47	0	0.25	Tr		8.4	185	390
W-16	40	5	5	33	0.08		0.3		8.3	120	380
W-17	40	5	3	100	0.03		Tr		8.2	120	330
W-18	75	14	17	75	0.02		0.4		8.2	245	450
W-19	50	45	25	190	0.02		0.5		7.8	300	620
W-20	55	2	10	38	0.03		0.5		7.8	145	410

A. Drinking water standards, U. S. Public Health Service (1962).

[1] Modified for South Dakota by the Department of Health (written communication, Water Sanitation Section, September 24, 1968).

[2] 1.2 is optimum for South Dakota.

Location of water samples from Trail City and Glencross study area
Collected in August 1971
(For map location, fig. 1.)

A Drinking water standards, U. S. Public Health Service (1962).

W- 1. NE¼SW¼SW¼SE¼ sec. 33, T. 18 N., R. 25 E., R. Hacecky.

W- 2. SW¼SW¼SW¼ sec. 35, T. 18 N., R. 25 E., L. Jung, 32 feet deep, 4 feet to water (stock use).

W- 3. SW¼SW¼SW¼ sec. 35, T. 18 N., R. 25 E., L. Jung, 42 feet deep (domestic use).

W- 4. NE¼SE¼SW¼ sec. 36, T. 18 N., R. 25 E., L. Jung, 60 feet deep (stock use).

W- 5. SE¼NW¼NE¼ sec. 4, T. 17 N., R. 25 E. (stock use).

W- 6. SE¼NW¼NE¼NW¼ sec. 2, T. 17 N., R. 25 E., G. Quinn, 28 feet deep (domestic use).

W- 7. SE¼NW¼NE¼NW¼ sec. 2, T. 17 N., R. 25 E., G. Quinn, 34 feet deep (stock use).

W- 8. SE¼NW¼ sec. 2, T. 17 N., R. 25 E., G. Quinn, 34 feet deep, 10 feet to water (stock use).

W- 9. NE¼NE¼NW¼NE¼ sec. 1, T. 17 N., R. 25 E., J. Tichi, 40 feet deep, 20 feet to water.

W-10. NE¼SW¼SW¼SW¼ sec. 10, T. 17 N., R. 25 E., P. Martian, 60 feet deep.

W-11. NW¼SE¼SW¼SW¼ sec. 10, T. 17 N., R. 25 E., P. Martian, 45 feet deep.

W-12. NW¼NE¼NW¼NW¼ sec. 7, T. 17 N., R. 26 E., D. Lipp, 35-60 feet (stock use).

W-13. NW¼NE¼NW¼NW¼ sec. 7, T. 17 N., R. 26 E., D. Lipp, depth of well 35-60 feet (domestic use).

W-14. SE¼NE¼SE¼SW¼ sec. 15, T. 17 N., R. 25 E., A. Engel, 35 feet deep, depth to water 25? feet.

W-15. SE¼NE¼SE¼SW¼ sec. 15, T. 17 N., R. 25 E., A. Engel, 35 feet deep (stock use).

W-16. SW¼NE¼NW¼NE¼ sec. 13, T. 17 N., R. 25 E. (farm well).

W-17. SW¼NE¼NW¼NE¼ sec. 13, T. 17 N., R. 25 E. (farm well).

W-18. NW¼ sec. 20, T. 17 N., R. 25 E., Timber Lake west city well, 90 feet deep.

W-19. NW¼ sec. 20, T. 17 N., R. 25 E., Timber Lake north city well, 67 feet deep.

W-20. NW¼ sec. 20, T. 17 N., R. 25 E., Timber Lake new city well.

Table 2. Chemical analyses of water samples from the Trail City and Glencross area, collected by the Association prior to the Study.

	Parts Per Million										
Sample	Calcium	Magnesium	Chloride	Sulfate	Iron	Manganese	Nitrate Nitrogen	Fluoride	pH	Hardness $CaCO_3$	Total Solids
A	—	—	250	500[1]	0.3	0.05	10.0	0.9-1.7[2]	—	—	1000[1]
W-105	86.7	18	11.5	200	0.07	0.35	2		8.1	290	640
W-107	110	40.5	35	1480	0.03	0.11	3.5		7.8	440	2404
W-108	140	32	27	1120	0.06	0.25	3.5		8.1	480	2068
W-109	42.1	11.5	14.6	73	0.07	0.13	5		8	152	462
W-110	98.2	38.8	44.7	212	0.02	0.35	28		8.1	404	1026
W-111	393	173	115	3580	0.01	0.11	8.0		7.8	1690	4906
W-139	42.1	20.5	5.6	31	0	0.07	4		7.9	189	268
W-142	32.6	18.7	6.5	138	0.15	0.09	3.5		8.1	158	650

A. Drinking water standards, U. S. Public Health Service (1962).

[1] Modified for South Dakota by the Department of Health (written communication, Water Sanitation Section, September 24, 1968).

[2] 1.2 is optimum for South Dakota.

* * * *

Location of water samples from the Trail City and Glencross area.
Collected by the Association

A. Drinking water standards, U. S. Public Health Service (1962).

W-105. SE¼ sec. 33, T. 19 N., R. 27 E., 41 feet deep.

W-107. SE¼ sec. 15, T. 18 N., R. 27 E.

W-108. SW¼ sec. 22, T. 18 N., R. 27 E., 58 feet deep.

W-109. SE¼ sec. 27, T. 18 N., R. 27 E., 26 feet deep.

W-110. NE¼ sec. 34, T. 18 N., R. 27 E., 40 feet deep.

W-111. SE¼ sec. 34, T. 18 N., R. 27 E., 49 feet deep.

W-139. SE¼ sec. 4, T. 17 N., R. 27 E., 40 feet deep.

W-142. NE¼ sec. 32, T. 18 N., R. 27 E., 82 feet deep.

APPENDIX A

Logs of test holes in the Trail City and Glencross Study Area

(For map location, fig. 2.)

Test Hole 1
Location: SE¼SW¼SW¼SE¼ sec. 20, T. 18 N., R. 26 E.
Depth to water: 19 feet

0- 8	Sand, tan, fine
8- 29	Sand, yellowish-brown, fine to medium; some clay
29- 66	Sand, blue-gray, fine to medium
66- 78	Sandy clay, gray
78- 89	Clay, blue-gray, (shale)

* * * *

Test Hole 2
Location: SE¼SE¼SE¼SE¼ sec. 20, T. 18 N., R. 26 E.
Depth to water: 9 feet

0 - 7	Sandy clay, yellowish-brown, fine
7 - 13	Sand, yellowish-orange, fine to medium
13 - 40?	Sand, grayish-blue, medium
40?- 54	Sandy clay

* * * *

Test Hole 3
Location: NW¼SW¼SW¼NW¼ sec. 28, T. 18 N., R. 25 E.
Depth to water: 9 feet

0- 3	Sand, tan, fine to medium
3- 11	Sand, yellowish-orange, fine to medium, lots of clay
11- 72	Sand, greenish-blue, fine to medium; some clay, well-sorted, compact
72-102	Clay, sandy
102-109	Clay, dark-gray, compact

* * * *

Test Hole 4
Location: SE¼SE¼SE¼SW¼ sec. 27, T. 18 N., R. 25 E.
Depth to water: 6 feet

0- 3	Sand, tan, fine to medium
3- 11	Sand, dark-gray, fine to medium
11- 35	Sand, greenish-gray, fine to medium; lots of clay
35- 58	Clay, gray
58- 64	Clay, dark-gray, (shale)

* * * *

Test Hole 5
Location: SE¼SE¼SE¼SE¼ sec. 27, T. 18 N., R. 25 E.
Depth to water: 20 feet

Test Hole 5 -- continued.

0- 5	Sand, tan, fine
5- 16	Sandy clay, brown
16- 21	Sand, yellowish-brown, fine to medium
21- 44	Sand, blue-gray, fine to medium
44- 52	Clay, gray, (shale)

* * * *

Test Hole 6
Location: SE¼SW¼SW¼SW¼ sec. 25, T. 18 N., R. 25 E.
Depth to water: 17 feet

0- 7	Sand, tan, fine
7- 22	Sand, brown, fine to medium; some clay
22- 35	Sand, blue-gray, fine to medium
35- 51	Sand, blue-gray, fine to medium, compact
51- 67	Sandy clay, blue-gray
67- 89	Clay, blue-gray, (shale)

* * * *

Test Hole 7
Location: SE¼SE¼SE¼SE¼ sec. 25, T. 18 N., R. 25 E.
Depth to water: 9 feet

0- 2	Sand, tan, fine
2- 17	Sand, yellowish-orange, fine to medium
17- 54	Sand, blue-gray, fine to medium, compact
54- 79	Sandy clay, gray

* * * *

Test Hole 8
Location: SW¼NW¼NW¼NW¼ sec. 29, T. 18 N., R. 26 E.
Depth to water: 10 feet

0- 4	Sand, grayish-tan, fine
4- 13	Sand, yellowish-orange, fine to medium
13- 28	Sand, blue-gray, fine to medium; some clay
28- 54	Sand, gray, fine to medium
54- 83	Sandy clay, compact
83- 86	Clay, dark-gray, (shale)

* * * *

Test Hole 9
Location: SE¼SE¼SE¼NW¼ sec. 29, T. 18 N., R. 26 E.
Depth to water: 16 feet

0- 8	Sand, tan, fine
8- 25	Sand, yellowish-brown, fine to medium
25- 38	Sand, blue-gray, fine to medium
38- 53	Sand, dark-gray, medium; some clay
53- 62	Sandy clay
62- 69	Clay, blue-gray, (shale)

Test Hole 10
Location: NE¼SE¼NE¼SE¼ sec. 29, T. 18 N., R. 26 E.
Depth to water: 18 feet

0- 2	Sand, fine
2- 13	Sand, yellowish-orange, fine to medium
13- 22	Sand, yellowish-brown, fine to medium; some clay, compact
22- 30	Sandy clay, gray, compact
30- 49	Clay, dark-gray, (shale)

* * * *

Test Hole 11
Location: NW¼NW¼NW¼NW¼ sec. 34, T. 18 N., R. 25 E.
Depth to water: 24 feet

0- 2	Sand, tan, fine
2- 21	Sandy clay, yellowish-brown
21- 31	Sand, yellowish-brown, fine to medium
31- 47	Sand, blue-gray, fine to medium
47- 63	Clay, blue-gray
63- 70	Clay, dark-gray, (shale)

* * * *

Test Hole 12
Location: SE¼SE¼SE¼SE¼ sec. 34, T. 18 N., R. 25 E.
Depth to water: 8 feet

0- 8	Sand, tan, fine, well-sorted
8- 17	Sand, yellowish-brown, fine to medium, compact
17- 38	Sand, greenish-gray, fine to medium, compact
38- 83	Sand, gray, fine; some clay; more clay from 70-83 feet
83- 95	Clay, dark-gray, very compact, (shale)

* * * *

Test Hole 13
Location: SE¼SE¼SE¼SW¼ sec. 31, T. 18 N., R. 26 E.
Depth to water: 17 feet

0- 4	Sand, yellowish-orange, fine to medium
4- 22	Sand, yellow, fine to medium; some clay
22- 44	Sand, gray, fine to medium; cemented layer at 43 feet
44- 54	Sandy clay, gray

* * * *

Test Hole 14
Location: NE¼NE¼NE¼NW¼ sec. 33, T. 18 N., R. 26 E.
Depth to water: 30? feet

0- 5	Sand, tan, fine
5- 18	Sandy clay, yellowish-brown
18- 35	Sandy clay, blue-gray
35- 54	Clay, dark-gray, (shale)

* * * *

Test Hole 15
Location: NE¼NE¼NE¼NE¼ sec. 4, T. 17 N., R. 25 E.
Depth to water: 19 feet

0- 20	Sand, yellowish-orange, fine to medium
20- 32	Sand, brownish-orange, fine
32- 92	Sand, gray, fine to medium; lots of clay; more clay from 77-92 feet
92- 99	Clay, dark-gray, (shale)

* * * *

Test Hole 16
Location: NE¼NW¼NE¼NW¼ sec. 1, T. 17 N., R. 25 E.
Depth to water: 10 feet

0- 4	Sand, brown, fine to medium
4- 28	Sand, yellowish-orange, fine to medium; some clay
28- 52	Sand, gray, fine to medium; cemented layer at 51 feet
52- 82	Sand, blue-gray, fine to medium, very compact
82- 89	Clay, dark-gray, compact, (shale)

* * * *

Test Hole 17
Location: NW¼SW¼SW¼NW¼ sec. 6, T. 17 N., R. 26 E.
Depth to water: 19 feet

0- 8	Sand, tan, fine to medium
8- 24	Sand, yellowish-orange, fine to medium, very compact, lots of clay
24- 32	Sand, greenish-gray, fine to medium
32- 48	Sand, blue-gray, fine to medium; some clay, compact
48- 58	Sandy clay; cemented layer at 53 feet

* * * *

Test Hole 18
Location: NW¼NW¼NW¼NW¼ sec. 10, T. 17 N., R. 25 E.
Depth to water: 29 feet

0- 7	Sand, brown, fine to medium
7- 32	Sand, tan, fine to medium, compact; some cemented layers
32- 40	Sand, yellowish-brown, fine to medium, compact
40- 62	Sand, blue-gray, fine to medium, compact
62- 70	Sandy clay, blue-gray
70- 78	Clay, dark-gray, (shale)

* * * *

Test Hole 19
Location: NE¼NE¼NE¼SE¼ sec. 11, T. 17 N., R. 25 E.
Depth to water: 8? feet

0 - 2	Sand, tan, fine
2 - 17	Sand, yellowish-brown, fine; some clay
17 - 30	Sand, gray; some clay, compact

Test Hole 19 – continued.

30 - 65?	Sand, gray, fine; some clay, compact
65?- 84	Sandy clay?, very compact
84 - 89	Clay, dark-gray, compact, (shale)

* * * *

Test Hole 20
Location: SW¼SE¼NE¼NE¼ sec. 11, T. 17 N., R. 25 E.
Depth to water: 24? feet

0- 3	Sand, tan, fine
3- 17	Sand, yellowish-brown, fine, compact
17- 58	Sand, fine to medium; some clay
58-	Cemented sand

* * * *

Test Hole 21
Location: SW¼NW¼NE¼NW¼ sec. 12, T. 17 N., R. 25 E.
Depth to water: 17 feet

0- 10	Sand, yellowish-brown, fine to medium, well-sorted
10- 17	Sand, yellowish-brown, fine to medium, well-sorted, compact
17-	Cemented sand

* * * *

Test Hole 22 (Observation Well)
Location: NW¼NE¼NW¼SW¼ sec. 12, T. 17 N., R. 25 E.
Depth to water: 8 feet

0- 7	Sand, yellowish-orange, fine, compact
7- 47	Sand, blue-gray, fine to medium; some clay, compact
47- 69	Sandy clay?, gray; cemented layer at 69 feet

* * * *

Test Hole 23
Location: SE¼SE¼NW¼SE¼ sec. 12, T. 17 N., R. 25 E.
Depth to water: 10 feet

0- 4	Sand, tan, fine to medium
4- 17	Sand, yellowish-orange, fine to medium, compact
17- 33	Sand, blue-gray, fine to medium
33- 48	Sand, blue-gray, fine to medium; some clay
48-	Cemented sand

* * * *

Test Hole 24
Location: SW¼SE¼SE¼NE¼ sec. 12, T. 17 N., R. 25 E.
Depth to water: 8 feet

0- 2	Sand, dark-gray, fine to medium
2- 9	Sand, yellowish-orange, fine to medium, well-sorted; some clay, compact

Test Hole 24 -- continued.

9- 20	Sand, blue-gray, fine to medium, well-sorted; some clay, compact
20-	Cemented sand

* * * *

Test Hole 25
Location: SW¼SW¼NE¼NE¼ sec. 12, T. 17 N., R. 25 E.
Depth to water: 7 feet

1- 13	Sand, tan, fine to medium
13- 33	Sand, blue-gray, fine to medium; some clay, compact, well-sorted
33-	Cemented sand

* * * *

Test Hole 26
Location: NW¼NW¼NW¼NW¼ sec. 15, T. 17 N., R. 25 E.
Depth to water: 15 feet

0- 15	Sand, yellowish-orange, fine to medium; some clay, compact
15- 52	Sand, blue-gray, fine to medium; some clay, compact
52- 68	Sandy clay, blue-gray
68- 74	Clay, blue-gray, compact, (shale)

* * * *

Test Hole 27
Location: NE¼NE¼SE¼SE¼ sec. 14, T. 17 N., R. 25 E.
Depth to water: 5 feet

0- 2	Sand, tan, fine
2- 12	Sand, yellowish-brown; some clay, compact
12- 57	Sand, gray, very fine; some clay, more clay from 45-57, cemented layer at 52 feet
57- 69	Clay, blue-gray, compact, (shale)

* * * *

Test Hole 28
Location: NW¼NE¼NW¼NW¼ sec. 13, T. 17 N., R. 25 E.
Depth to water: 9 feet

0- 2	Sand, fine
2- 7	Sand, yellow, fine
7- 42	Sand, gray, very fine; some clay
42- 43	Sand, cemented
43- 64	Sand, gray; some clay; more clay from 54-64 feet
64- 69	Clay, blue-gray, compact, (shale)

* * * *

Test Hole 29
Location: SE¼NE¼NW¼NE¼ sec. 13, T. 17 N., R. 25 E.
Depth to water: 12? feet

Test Hole 29 – continued.

0- 8	Sand, light-brown, very fine
8- 18	Sand, yellowish-brown; some clay
18- 72	Sand, greenish-gray, very fine; some clay
72- 79	Clay, dark-gray, (shale)

* * * *

Test Hole 30
Location: SW¼SW¼SW¼NW¼ sec. 20, T. 17 N., R. 25 E.
Depth to water: 6 feet

0- 2	Sand, tan, fine to medium
2- 6	Sand, yellowish-orange, fine to medium, compact, cemented
6- 33	Sand, blue-gray, fine to medium; some clay, compact
33- 72	Sand, blue-gray, fine to medium, well-sorted
72-101	Clay, gray
101-109	Clay, gray, compact, (shale)

* * * *

Test Hole 31
Location: NE¼NE¼SW¼NW¼ sec. 20, T. 17 N., R. 25 E.
(50 feet west of Timber Lake South City Well)
Depth to water: not measured

0- 6	Sand, tan, fine
6- 22	Sand, yellowish-brown, fine, compact; some clay
22-	Cemented sand

* * * *

Test Hole 32
Location: SE¼SE¼NE¼NW¼ sec. 20, T. 17 N., R. 25 E.
(50 feet west of Timber Lake East City Well)
Depth to water: not measured

0- 5	Sand, tan, fine
5- 23	Sand, yellowish-brown, fine, very compact
23- 34	Sand, blue-gray, fine, compact
34-	Cemented sand

* * * *

Test Hole 33
Location: SE¼SE¼NE¼NW¼ sec. 20, T. 17 N., R. 25 E.
(50 feet south of Timber Lake East City Well)
Depth to water: 24? feet

0- 2	Sand, tan, fine
2- 9	Sand, yellow; some clay
9- 33	Sand, brownish-orange, fine, compact
33-	Cemented sand

* * * *

Test Hole 34
Location: NE¼NE¼NE¼NW¼ sec. 23, T. 17 N., R. 25 E.
Depth to water: 11 feet

0- 26	Sand, yellowish-brown, fine; some clay
26- 53	Sand, gray, very fine, compact
53- 59	Clay, dark-gray

* * * *

Test Hole 35
Location: NW¼NW¼NW¼NW¼ sec. 19, T. 17 N., R. 26 E.
Depth to water: 17 feet

0- 3	Sand, tan, fine to medium
3- 14	Sand, yellowish-orange, fine to medium
14- 17	Sandy clay, brown
17- 28	Sandy clay, blue-gray
28- 39	Clay, blue-gray, (shale)

* * * *

Test Hole 36
Location: NW¼NE¼NE¼NE¼ sec. 20, T. 17 N., R. 26 E.
Depth to water: 30? feet

0- 18	Clay, yellowish-brown, sandy
18- 34	Clay, gray
34- 44	Clay, blue-gray, (shale)

* * * *

APPENDIX B

Well Records in the Trail City and Glencross Area

Use: D, domestic; S, stock.

Corson County data was obtained from the United States Geological Survey.

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Kraft, F.	NW¼NW¼SW¼NE¼ sec. 7, T. 18 N., R. 28 E.	55		S
Kraft, F.	NW¼NW¼SW¼NE¼ sec. 7, T. 18 N., R. 28 E.	60		S
Kraft, F.	NW¼NW¼SW¼NE¼ sec. 7, T. 18 N., R. 28 E.	80		D
Kelley, J.	SE¼SW¼SW¼ sec. 31, T. 18 N., R 28 E.	24	18	D
Kelley, J.	SE¼SW¼SE¼ sec. 31, T. 18 N., R. 28 E.	25	18	S
Hacecky, R.	NE¼SW¼SW¼SE¼ sec. 33, T. 18 N., R. 28 E.			D,S
Holzer, K.	SW¼SE¼SW¼SW¼ sec. 12, T. 18 N., R. 27 E.	80		D
Holzer, J.	NE¼SE¼SE¼SE¼ sec. 13, T. 18 N., R. 27 E.	57	50	S
Holzer, K.	SW¼NW¼NE¼NW¼ sec. 13, T. 18 N., R. 27 E.	75		S
Holzer, J.	NE¼SE¼SE¼SE¼ sec. 13, T. 18 N., R. 27 E.	30	19	D
Reinbolt, J.	SE¼SW¼SE¼SE¼ sec. 14, T. 18 N., R. 27 E.	82		D,S
Melhoff, C.	NE¼SW¼SW¼NW¼ sec. 16, T. 18 N., R. 27 E.	250		D,S
Melhoff, C.	SW¼SW¼SW¼NW¼ sec. 16, T. 18 N., R. 27 E.	80		D
Melhoff, C.	NE¼SW¼SW¼NW¼ sec. 16, T. 18 N., R. 27 E.	60		
Balliett, W.	SW¼SW¼NE¼NE¼ sec. 17, T. 18 N., R. 27 E.	30		

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Balliett, W.	SW¼SW¼NE¼NE¼ sec. 17, T. 18 N., R. 27 E.	40		S
Bieber, R.	NE¼SW¼SW¼NW¼ sec. 18, T. 18 N., R. 27 E.	35		
Hommel, J.	SW¼NE¼NE¼SW¼ sec. 22, T. 18 N., R. 27 E.	58		S
Hommel, J.	SW¼NE¼NE¼SW¼ sec. 22, T. 18 N., R. 27 E.	58	10	D
Hommel, J.	SW¼NE¼NE¼SW¼ sec. 22, T. 18 N., R. 27 E.	30		S
Reinbolt, J.	NW¼NE¼NE¼NE¼ sec. 23, T. 18 N., R. 27 E.	82		S
Holzer, F.	SW¼SW¼NE¼NE¼ sec. 24, T. 18 N., R. 27 E.	40		D
Holzer, F.	SW¼SW¼NE¼NE¼ sec. 24, T. 18 N., R. 27 E.	28	12	S
Keller, V.	SW¼SE¼SE¼ sec. 25, T. 18 N., R. 27 E.	22		D
Keller, V.	SW¼SE¼SE¼ sec. 25, T. 18 N., R. 27 E.	60		
Keller, V.	SE¼NW¼SE¼ sec. 25, T. 18 N., R. 27 E.	160	20	
Keller, B.	SW¼SW¼SE¼ sec. 27, T. 18 N., R. 27 E.	32		S
Keller, B.	SW¼SW¼SE¼ sec. 27, T. 18 N., R. 27 E.	26		D,S
Keller, B.	SW¼SW¼SE¼ sec. 27, T. 18 N., R. 27 E.	55		S
Keller, B.	SW¼SW¼SE¼ sec. 27, T. 18 N., R. 27 E.	20		D
Roshau, L.	NE¼NE¼NE¼NE¼ sec. 30, T. 18 N., R. 27 E.	36		D,S
Roshau, L.	NE¼NE¼NE¼NE¼ sec. 30, T. 18 N., R. 27 E.	41		D,S
Mastel, G.	SE¼SE¼NE¼ sec. 32, T. 18 N., R. 27 E.	60		

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Mastel, G.	SE¼SE¼NE¼ sec. 32, T. 18 N., R. 27 E.	50	15	D,S
Mastel, G.	SE¼SE¼NE¼ sec. 32 T. 18 N., R. 27 E.	22	20	D
Aberle, P.	SW¼NE¼ sec. 34, T. 18 N., R. 27 E.	45	14	D
Glatt, S.	SW¼SE¼ sec. 34, T. 18 N., R. 27 E.	49		D
Aberle, P.	SW¼NE¼ sec. 34, T. 18 N., R. 27 E.	42		S
Aberle, P.	SW¼NE¼ sec. 34, T. 18 N., R. 27 E.	42		S
Yukor, L.	NE¼ sec. 9, T. 18 N., R. 26 E.	60		S
Meyer, J.	NE¼NE¼NW¼SE¼ sec. 9, T. 18 N., R. 26 E.	80		S
Meyer, J.	SE¼SW¼SW¼SW¼ sec. 9, T. 18 N., R. 26 E.	50		S
Meyer, J.	NW¼SW¼SW¼SW¼ sec. 9, T. 18 N., R. 26 E.	50		S
Meyer, J.	SW¼SW¼SW¼SW¼ sec. 9, T. 18 N., R. 26 E.	50		S
Meyer, J.	SW¼SW¼SW¼SW¼ sec. 9, T. 18 N., R. 26 E.	50		D
Martian, J.	NE¼NW¼NW¼SE¼ sec. 10, T. 18 N., R. 26 E.	50		S
Martian, J.	NE¼SW¼NE¼NW¼ sec. 11, T. 18 N., R. 26 E.	50		S
Keller, V.	NW¼NW¼NW¼SE¼ sec. 12, T. 18 N., R. 26 E.	40		S
Bieber, R.	NE¼NE¼SE¼NE¼ sec. 13, T. 18 N., R. 26 E.	35		S
Bieber, R.	SE¼SE¼NE¼NE¼ sec. 13, T. 18 N., R. 26 E.	85		D
Martian, G.	SW¼SW¼SW¼NE¼ sec. 14, T. 18 N., R. 26 E.	50		D

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Martian, G.	NW¼NW¼NW¼SE¼ sec. 14, T. 18 N., R. 26 E.	45	13	S
Martian, G.	SW¼SW¼SW¼NE¼ sec. 14, T. 18 N., R. 26 E.			
Martian, G.	SW¼SW¼SW¼NE¼ sec. 15, T. 18 N., R. 26 E.	20		S
Marshall, G.	SW¼SW¼NW¼SW¼ sec. 19, T. 18 N., R. 26 E.	35	6	S
Selzler, A.	NW¼SW¼SW¼NW¼ sec. 21, T. 18 N., R. 26 E.	75	30	D,S
Keller, V.	SW¼NW¼NW¼SE¼ sec. 24, T. 18 N., R. 26 E.	63		S
Keller, V.	NW¼NW¼SW¼SW¼ sec. 25, T. 18 N., R. 26 E.	33		S
Keller, V.	NW¼NW¼SW¼NE¼ sec. 25, T. 18 N., R. 26 E.	35		S
Keller, V.	NW¼SW¼SW¼NE¼ sec. 25, T. 18 N., R. 26 E.	52		S
Keller, V.	SE¼NW¼SW¼SW¼ sec. 25, T. 18 N., R. 26 E.	62		S
Keller, D.	SE¼SW¼SW¼ sec. 25, T. 18 N., R. 26 E.	62		S
Keller, V.	NE¼NW¼SW¼ sec. 25, T. 18 N., R. 26 E.	30		D
Schweitzer, P.	NE¼SE¼SE¼NE¼ sec. 25, T. 18 N., R. 26 E.	45	20	S
Keller, V.	NE¼NE¼NW¼NE¼ sec. 25, T. 18 N., R. 26 E.	100		S
Keller, L.	SE¼SW¼SW¼ sec. 26, T. 18 N., R. 26 E.	80		
Keller, L.	SW¼SW¼SW¼ sec. 26, T. 18 N., R. 26 E.	80		
Keller, L.	SE¼SW¼SW¼ sec. 26, T. 18 N., R. 26 E.			
Schweitzer, P.	SW¼SW¼SW¼ sec. 30, T. 18 N., R. 26 E.	45		D,S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Schweitzer, P.	NW¼SW¼SW¼NW¼ sec. 30, T. 18 N., R. 26 E.	45	20	D,S
Voller, J.	SW¼NE¼SE¼NE¼ sec. 32, T. 18 N., R. 26 E.	20	15	D
Voller, J.	SW¼NE¼SE¼NE¼ sec. 32, T. 18 N., R. 26 E.	40	15	S
Voller, J.	SW¼NE¼SE¼NE¼ sec. 32, T. 18 N., R. 26 E.	20	15	S
Voller, J.	SW¼NE¼SE¼NE¼ sec. 32, T. 18 N., R. 26 E.	20	15	S
Voller, J.	NE¼NE¼SW¼SW¼ sec. 33, T. 18 N., R. 26 E.	65	15	S
Keller, E.	SW¼SE¼SW¼ sec. 34, T. 18 N., R. 26 E.	50		S
Keller, P.	SE¼SW¼SW¼SE¼ sec. 35, T. 18 N., R. 26 E.	28	24	S
Keller, E.	SW¼SE¼SE¼SW¼ sec. 36, T. 18 N., R. 26 E.	68	16	S
Keller, E.	SW¼SE¼SE¼SW¼ sec. 36, T. 18 N., R. 26 E.	26	3	S
Keller, E.	SW¼SE¼SE¼SW¼ sec. 36, T. 18 N., R. 26 E.	167	70	S
Enright, B.	SW¼SE¼SE¼SW¼ sec. 12, T. 18 N., R. 25 E.	40		S
Enright, B.	SW¼SW¼SW¼NW¼ sec. 13, T. 18 N., R. 25 E.	58		D
Enright, B.	SW¼SW¼SW¼NW¼ sec. 13, T. 18 N., R. 25 E.	35		S
Marshall, G.	SE¼SE¼ sec. 13, T. 18 N., R. 25 E.	78	60	S
Enright, B.	SW¼SW¼SW¼NW¼ sec. 13, T. 18 N., R. 25 E.	33		S
Enright, B.	SE¼SE¼SE¼NE¼ sec. 14, T. 18 N., R. 25 E.	50		D
Enright, B.	SE¼SE¼SE¼NE¼ sec. 14, T. 18 N., R. 25 E.	33		S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Enright, L.	NW¼SE¼NE¼NE¼ sec. 23, T. 18 N., R. 25 E.	22	10	D
Enright, L.	NW¼SE¼NE¼NE¼ sec. 23, T. 18 N., R. 25 E.	22	10	S
Marshall, G.	NE¼NE¼NE¼NE¼ sec. 24, T. 18 N., R. 25 E.	104	35	D,S
Marshall, G.	NE¼NE¼NE¼NE¼ sec. 24, T. 18 N., R. 25 E.	44	35	D,S
Marshall, G.	SW¼NW¼ sec. 24, T. 18 N., R. 25 E.	44	35	S
Marshall, G.	NE¼SE¼ sec. 24, T. 18 N., R. 25 E.	35	9	S
Schweitzer, P.	SE¼SE¼SE¼ sec. 25, T. 18 N., R. 25 E.	45		
Switzer, J.	SW¼NW¼NW¼ sec. 25, T. 18 N., R. 25 E.	60		
Gill, L.	SW¼NW¼NE¼ sec. 26, T. 18 N., R. 25 E.	30		S
Gill, L.	SW¼NW¼NE¼ sec. 26, T. 18 N., R. 25 E.	60	20	D
Chapel, E.	SE¼SW¼NW¼SW¼ sec. 33, T. 18 N., R. 25 E.	55	12	D,S
Chapel, E.	SE¼SW¼NW¼SW¼ sec. 33, T. 18 N., R. 25 E.	85	25	S
Jung, L.	SW¼SW¼SW¼ sec. 35, T. 18 N., R. 25 E.	32	4	S
Jung, L.	SW¼SW¼SW¼ sec. 35, T. 18 N., R. 25 E.	60		S
Jung, L.	SW¼SW¼SW¼ sec. 35, T. 18 N., R. 25 E.	42	16	D
Jung, L.	SW¼SW¼SW¼ sec. 35, T. 18 N., R. 25 E.	42	4	S
Fritz, E.	NW¼NW¼NW¼SE¼ sec. 1, T. 17 N., R. 27 E.	65		S
Fritz, E.	NW¼NW¼NW¼SE¼ sec. 1, T. 17 N., R. 27 E.	58		S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Hulm, H.	SE¼SE¼SW¼SE¼ sec. 4, T. 17 N., R. 27 E.	40	25	D,S
Hulm, H.	SE¼SE¼SW¼SE¼ sec. 4, T. 17 N., R. 27 E.	70	50	S
Reiss, L.	NW¼NW¼NW¼SW¼ sec. 8, T. 17 N., R. 27 E.	69	45	D,S
Reiss, L.	NW¼NW¼NW¼SW¼ sec. 8, T. 17 N., R. 27 E.	96	60	D,S
Reiss, L.	NW¼NW¼NW¼SW¼ sec. 8, T. 17 N., R. 27 E.	25		D,S
Rice, C.	NW¼NW¼NW¼NE¼ sec. 8, T. 17 N., R. 27 E.	78	28	D,S
Silbernagel, F.	SE¼SE¼NW¼NE¼ sec. 10, T. 17 N., R. 27 E.	63	40	S
Silbernagel, F.	SE¼SE¼NW¼NE¼ sec. 10, T. 17 N., R. 27 E.	40	16	S
Silbernagel, F.	SE¼SE¼NW¼NE¼ sec. 10, T. 17 N., R. 27 E.	100	16	S
Aberle, L.	SE¼SE¼NW¼SE¼ sec. 19, T. 17 N., R. 27 E.	80	60	D,S
Aberle, L.	SE¼SE¼NW¼SE¼ sec. 19, T. 17 N., R. 27 E.	125	115	D,S
Aberle, L.	SE¼SE¼NW¼SE¼ sec. 19, T. 17 N., R. 27 E.	60	40	S
Jones, L.	NE¼NE¼NE¼NE¼ sec. 1, T. 17 N., R. 26 E.	56	35	D,S
Keller, P.	SE¼NE¼NW¼NE¼ sec. 2, T. 17 N., R. 26 E.	156	20	D
Keller, P.	SE¼NE¼NW¼NE¼ sec. 2, T. 17 N., R. 26 E.	40	12	S
Keller, E.	SE¼NW¼NW¼NW¼ sec. 3, T. 17 N., R. 26 E.	50		S
Keller, E.	SE¼NW¼NW¼NW¼ sec. 3, T. 17 N., R. 26 E.	90		D
Keller, E.	SE¼NW¼NW¼NW¼ sec. 3, T. 17 N., R. 26 E.	90		S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Yukor, L.	SW¼SW¼SW¼SW¼ sec. 4, T. 17 N., R. 26 E.	143		D,S
Yukor, L.	SW¼SW¼SW¼SW¼ sec. 4, T. 17 N., R. 26 E.	40		S
Lipp, D.	NW¼NE¼NW¼NW¼ sec. 7, T. 17 N., R. 26 E.	40	25	D,S
Schweitzer, T.	NW¼ sec. 7, T. 17 N., R. 26 E.	9		S
Leibel, A.	SW¼SE¼NE¼SE¼ sec. 8, T. 17 N., R. 26 E.	30		S
Leibel, A.	SW¼SE¼NE¼SE¼ sec. 8, T. 17 N., R. 26 E.	50		S
Leibel, A.	SW¼SE¼NE¼SE¼ sec. 8, T. 17 N., R. 26 E.	120		D
Leibel, L.	NE¼NE¼NW¼SE¼ sec. 9, T. 17 N., R. 26 E.	45	36	S
Leibel, L.	NE¼NE¼NW¼SE¼ sec. 9, T. 17 N., R. 26 E.	110	50	D
Leibel, L.	NE¼NE¼NW¼SE¼ sec. 9, T. 17 N., R. 26 E.	60	50	S
Schweitzer, F.	NW¼NW¼NW¼SW¼ sec. 10, T. 17 N., R. 26 E.	150		S
Schweitzer, F.	NW¼NW¼NW¼SW¼ sec. 10, T. 17 N., R. 26 E.	150		D,S
Franks, D & P	SE¼SW¼SW¼SW¼ sec. 13, T. 17 N., R. 26 E.	56	17	S
Franks, D & P	SE¼SW¼SW¼SW¼ sec. 13, T. 17 N., R. 26 E.	100	15	D,S
Leibel, El.	NW¼NW¼SW¼NW¼ sec. 14, T. 17 N., R. 26 E.	80	30	D,S
Senger, R.	SE¼SE¼NW¼SE¼ sec. 15, T. 17 N., R. 26 E.	70	15	S
Senger, R.	NE¼NE¼NW¼NE¼ sec. 16, T. 17 N., R. 26 E.	110	95	D,S
Senger, R.	NE¼NE¼NW¼NE¼ sec. 16, T. 17 N., R. 26 E.	65	55	S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Schweitzer, T.	NE¼NE¼NE¼NE¼ sec. 17, T. 17 N., R. 26 E.	75	50	S
Schweitzer, T.	SE¼SE¼SE¼NE¼ sec. 17, T. 17 N., R. 26 E.	21		S
Schweitzer, T.	NE¼NE¼NE¼NE¼ sec. 17, T. 17 N., R. 26 E.	130	55	D
Schweitzer, T.	NE¼NE¼NE¼NE¼ sec. 17, T. 17 N., R. 26 E.	23	19	S
Welder, M.	SW¼SW¼SE¼SE¼ sec. 22, T. 17 N., R. 26 E.	25		S
Welder, M.	SW¼SW¼SE¼SE¼ sec. 22, T. 17 N., R. 26 E.	100		S
Welder, M.	SW¼SW¼SE¼SE¼ sec. 22, T. 17 N., R. 26 E.	25		D,S
Lenling, M.	NW¼NW¼NE¼NW¼ sec. 24, T. 17 N., R. 26 E.	150	75	D,S
Merkel, L.	NW¼NW¼NE¼NE¼ sec. 25, T. 17 N., R. 26 E.	100	80	S
Merkel, L.	SE¼NE¼NE¼NW¼ sec. 25, T. 17 N., R. 26 E.	60	20	D,S
Jewett, J.	NE¼NW¼SW¼SW¼ sec. 28, T. 17 N., R. 26 E.	120		D
Jewett, J.	NE¼NW¼SW¼SW¼ sec. 28, T. 17 N., R. 26 E.	45	10	S
Tichi, J.	NE¼NE¼NW¼NE¼ sec. 1, T. 17 N., R. 25 E.	70	20	D,S
Tichi, J.	NE¼NE¼NW¼NE¼ sec. 1, T. 17 N., R. 25 E.	40	20	D,S
Quinn, G.	SE¼NW¼NE¼NW¼ sec. 2, T. 17 N., R. 25 E.	34	10	D,S
Quinn, G.	SE¼NW¼NE¼NW¼ sec. 2, T. 17 N., R. 25 E.	34	10	S
Quinn, G.	SE¼NW¼NE¼NW¼ sec. 2, T. 17 N., R. 25 E.	28		D
Dickoff, J.	NE¼SE¼SE¼SW¼ sec. 4, T. 17 N., R. 25 E.			D,S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Milliken, J.	SE¼SW¼NW¼NW¼ sec. 4, T. 17 N., R. 25 E.	74		D
Milliken, J.	SE¼SW¼NW¼NW¼ sec. 4, T. 17 N., R. 25 E.	66		S
Wilcox, H.	NW¼SW¼NW¼ sec. 8, T. 17 N., R. 25 E.	33		D,S
Gill, L.	NE¼NE¼NE¼NE¼ sec. 8, T. 17 N., R. 25 E.	80	25	D,S
Wilcox, H.	NW¼SW¼NW¼ sec. 8, T. 17 N., R. 25 E.	27		D,S
Schweitzer, M.	SE¼SW¼NW¼NW¼ sec. 9, T. 17 N., R. 25 E.	33		D,S
Martian, P.	SW¼SW¼SW¼SW¼ sec. 10, T. 17 N., R. 25 E.	45		S
Martian, P.	SW¼SW¼SW¼SW¼ sec. 10, T. 17 N., R. 25 E.	60		D
Engel, A.	SE¼NE¼SE¼SW¼ sec. 15, T. 17 N., R. 25 E.	35	27	D,S
Keller, T. J.	NW¼NW¼SW¼SW¼ sec. 16, T. 17 N., R. 25 E.	58	40	S
Keller, T. J.	NW¼NW¼SW¼SW¼ sec. 16, T. 17 N., R. 25 E.	25	10	D,S
Hulm, A.	NW¼NW¼SE¼NW¼ sec. 17, T. 17 N., R. 25 E.	60	30	D,S
Robley, L.	SW¼SE¼NE¼NE¼ sec. 18, T. 17 N., R. 25 E.	40		S
Robley, L.	SW¼SE¼NE¼NE¼ sec. 18, T. 17 N., R. 25 E.	36		S
Robley, L.	SW¼SE¼NE¼NE¼ sec. 18, T. 17 N., R. 25 E.	42		D
Robley, L.	SW¼SE¼NE¼NE¼ sec. 18, T. 17 N., R. 25 E.	22		D
Robley, L.	SW¼SE¼NE¼NE¼ sec. 18, T. 17 N., R. 25 E.	22	6	S
Hodgman, H.	SW¼NW¼NW¼NE¼ sec. 20, T. 17 N., R. 25 E.	70	25	D,S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Springer, H.	SW¼NW¼NE¼NW¼ sec. 21, T. 17 N., R. 25 E.	50	30	D,S
Maciejewski, J.	NW¼SW¼SW¼NE¼ sec. 25, T. 17 N., R. 25 E.	200	10	D,S
Maciejewski, J.	NW¼SW¼SW¼NE¼ sec. 25, T. 17 N., R. 25 E.	40	10	D,S
Maciejewski, J.	NW¼SW¼SW¼NE¼ sec. 25, T. 17 N., R. 25 E.	40	10	D,S
Maciejewski, J.	SW¼SW¼SW¼NE¼ sec. 26, T. 17 N., R. 25 E.	40	10	D,S
Kraft, J.	NW¼NW¼NW¼NW¼ sec. 29, T. 17 N., R. 25 E.	50	20	D,S
Kraft, J.	NW¼NW¼NW¼NW¼ sec. 29, T. 17 N., R. 25 E.	75	25	S
Kraft, J.	NE¼ sec. 30, T. 17 N., R. 25 E.	90	25	S
Kraft, J.	SE¼NE¼NE¼ sec. 30, T. 17 N., R. 25 E.	90	30	S
Long, K.	NW¼NW¼NW¼NE¼ sec. 33, T. 17 N., R. 25 E.	55	40	D,S

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Appendix C
Hydraulic Modeling Results

Project Inventory: Base(10-20-14).wtg

Title	
Engineer	
Company	
Date	10/22/2014
Notes	

Scenario Summary

ID	57
Label	Base
Notes	
Active Topology	Base-Active Topology
Physical	Base-Physical
Demand	Base-Demand
Initial Settings	Base-Initial Settings
Operational	Base-Operational
Age	Base-Age Alternative
Constituent	Base-Constituent
Trace	Base-Trace Alternative
Fire Flow	Base-Fire Flow
Energy Cost	Base-Energy Cost
Transient	Base Transient
Pressure Dependent Demand	Base Pressure Dependent Demand
Failure History	Base Failure History
User Data Extensions	Base-User Data
Steady State/EPS Solver Calculation Options	Base
Transient Solver Calculation Options	Base Calculation Options

Network Inventory

Pipes	36	-Constant Speed - No Pump Curve	2
Junctions	31	-Constant Speed - Pump Curve	0
Hydrants	0	-Shut Down After Time Delay	0
Tanks	1	-Variable Speed/Torque	0
-Circular	1	-Pump Start - Variable Speed/Torque	0
-Non-Circular	0	Pump Stations	0
-Variable Area	0	Variable Speed Pump Batteries	0
Reservoirs	1	PRV's	0
Pumps	2	PSV's	0
-Constant Power	0	PBV's	0
-Custom Extended	0	FCV's	0
-Design Point (1 Point)	0	TCV's	0
-Multiple Point	0	GPV's	0
-Standard (3 Point)	2	Isolation Valves	0
-Standard Extended	0	Spot Elevations	67

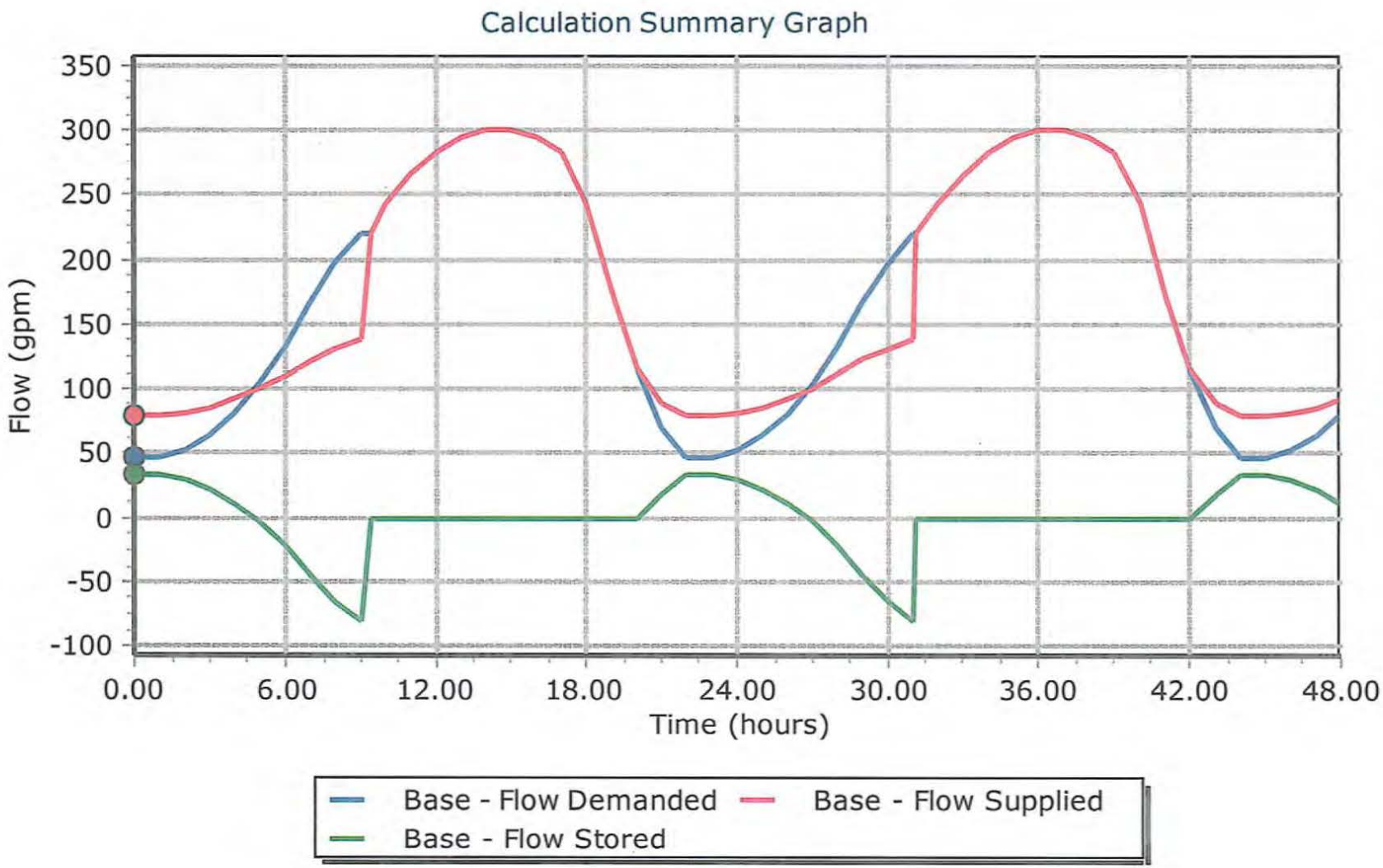
Transient Network Inventory

Turbines	0	Rupture Disks	0

Project Inventory: Base(10-20-14).wtg

Transient Network Inventory			
Periodic Head-Flows	0	Discharges to Atmosphere	0
Air Valves	0	Orifices Between Pipes	0
Hydropneumatic Tanks	0	Valves With Linear Area Change	0
Surge Valves	0	Surge Tanks	0
Check Valves	0		

Pressure Pipes Inventory			
1.5 (in)	10,160 ft	5.0 (in)	27,027 ft
2.0 (in)	40,762 ft	6.0 (in)	8,535 ft
2.5 (in)	54,295 ft	24.0 (in)	50 ft
3.0 (in)	35,705 ft	60.0 (in)	50 ft
4.0 (in)	50,428 ft	All Diameters	227,012 ft


Calculation Summary Graph
Flow (gpm)
350
300
250
200
150
100
50
0
-50
-100
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
Time (hours)
Base - Flow Demanded
Base - Flow Supplied
Base - Flow Stored

Calculation Summary (65: Additional Pipe)

Time (hours)	Balanced?	Trials	Relative Flow Change	Flow Supplied (gpm)
All Time Steps(49)	True	121	0.0008772	116
0.00	True	6	0.0005957	104
1.00	True	2	0.0001494	104
2.00	True	2	0.0000532	104
3.00	True	2	0.0000329	104
4.00	True	2	0.0000311	103
5.00	True	2	0.0000226	103
6.00	True	3	0.0000248	117
7.00	True	3	0.0000703	145
8.00	True	3	0.0000811	169
9.00	True	3	0.0000712	190
10.00	True	3	0.0000271	200
11.00	True	2	0.0000355	200
12.00	True	3	0.0000305	188
13.00	True	3	0.0001951	162
14.00	True	3	0.0000582	141
15.00	True	3	0.0000250	123
16.00	True	2	0.0008772	112
17.00	True	2	0.0002072	106
18.00	True	2	0.0000478	103
19.00	True	2	0.0000241	102
20.00	True	2	0.0000307	102
21.00	True	2	0.0000306	102
22.00	True	2	0.0000295	102
23.00	True	2	0.0000242	101
24.00	True	2	0.0000344	101
25.00	True	2	0.0000245	101
26.00	True	2	0.0000235	101
27.00	True	2	0.0000286	101
28.00	True	3	0.0000340	115
29.00	True	3	0.0000909	142
30.00	True	3	0.0001121	166
31.00	True	3	0.0001028	185
32.00	True	3	0.0000346	195
33.00	True	2	0.0000375	195
34.00	True	3	0.0000463	184
35.00	True	3	0.0002593	159
36.00	True	3	0.0000810	138
37.00	True	3	0.0000241	121
38.00	True	4	0.0000269	109
39.00	True	2	0.0002130	103
40.00	True	2	0.0000554	100
41.00	True	2	0.0000186	100
42.00	True	2	0.0000348	100
42.36	True	5	0.0001308	26
43.00	True	1	0.0001769	26
44.00	True	1	0.0001677	26
45.00	True	1	0.0001946	26

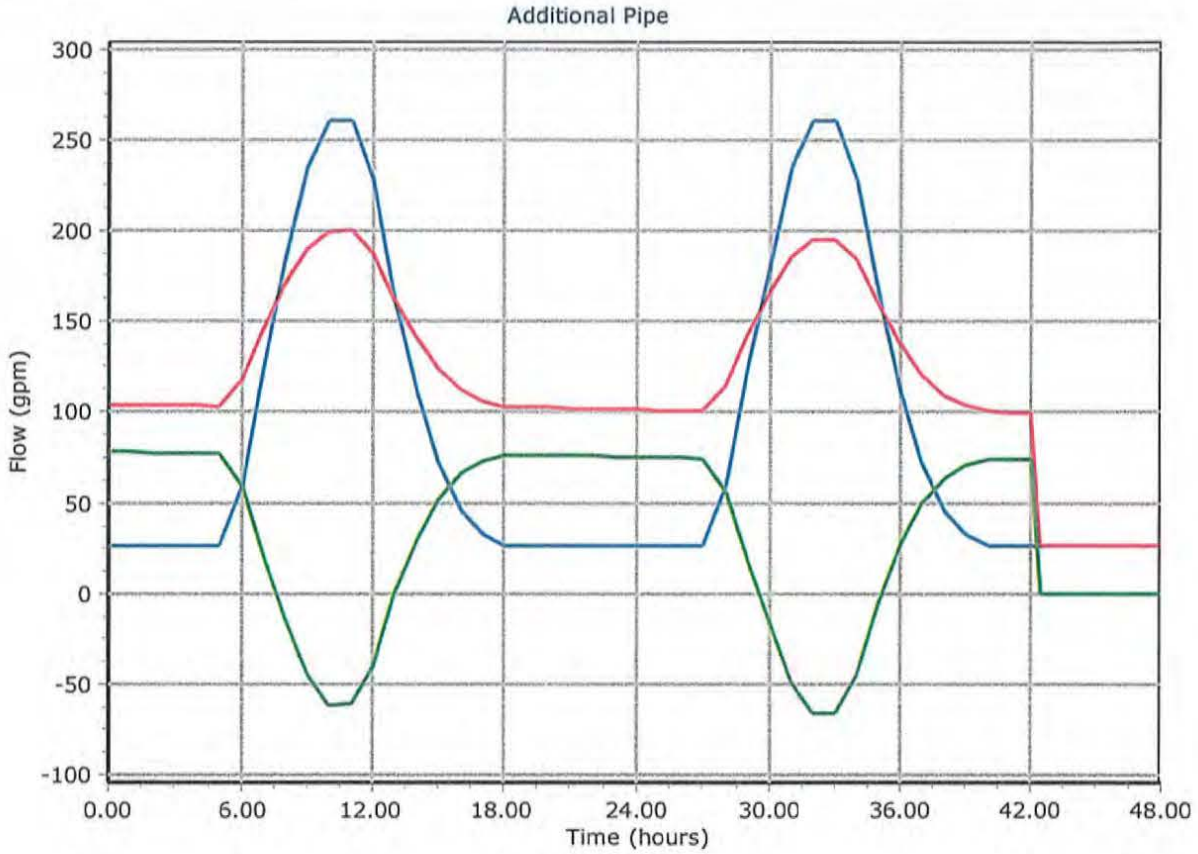
Calculation Summary (65: Additional Pipe)

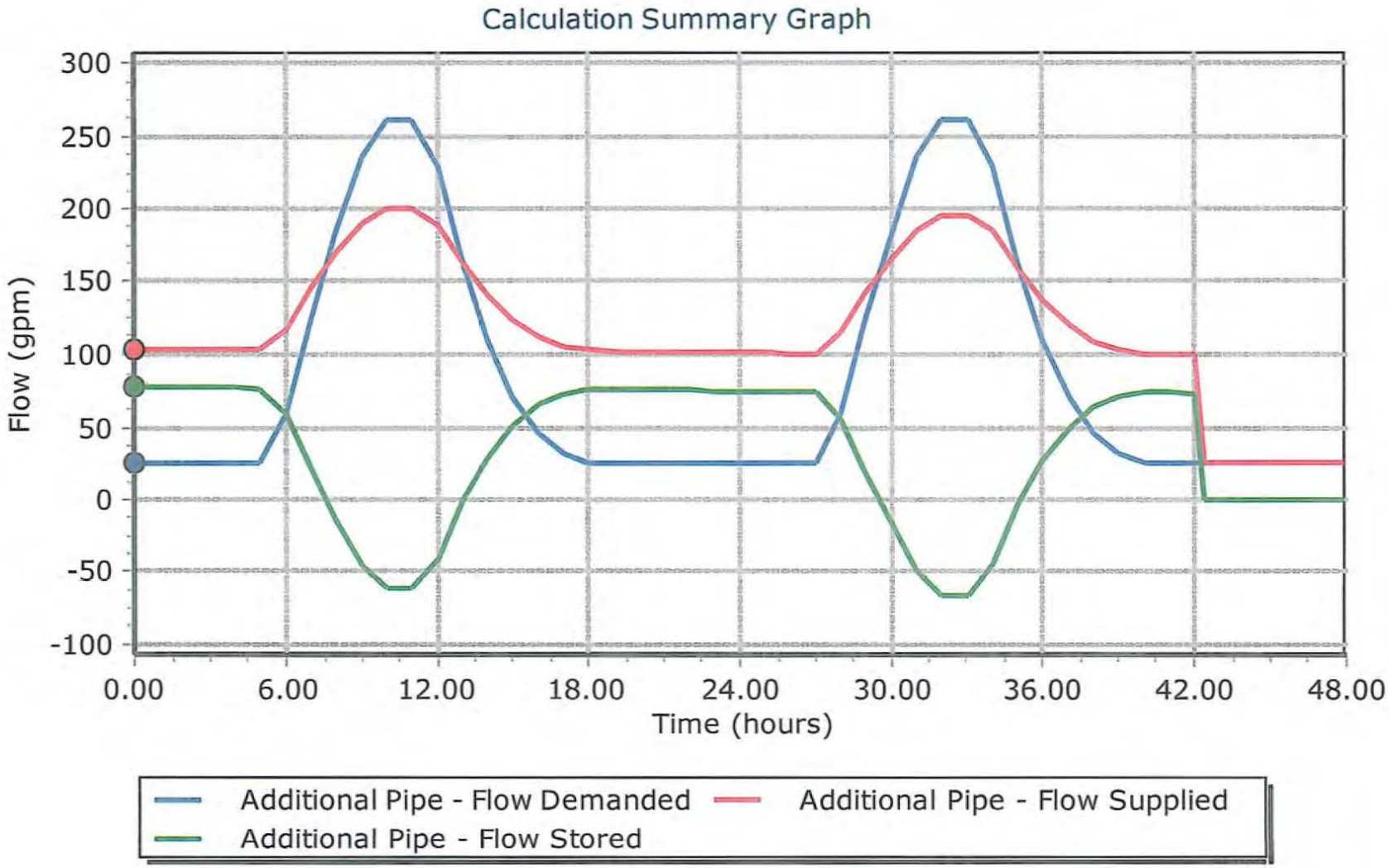
Time (hours)	Balanced?	Trials	Relative Flow Change	Flow Supplied (gpm)
46.00	True	1	0.0001171	26
47.00	True	1	0.0001532	26
48.00	True	1	0.0001772	26

Flow Demanded (gpm)	Flow Stored (gpm)
85	31
26	78
26	78
26	78
26	77
26	77
26	77
59	59
124	21
183	-13
235	-45
261	-61
261	-61
228	-40
163	-1
111	30
72	52
46	66
33	73
26	77
26	76
26	76
26	76
26	76
26	75
26	75
26	75
26	75
26	74
59	56
124	18
183	-17
235	-49
261	-66
261	-66
228	-44
163	-4
111	27
72	49
46	64
33	71
26	74
26	74

Calculation Summary (65: Additional Pipe)

Flow Demanded (gpm)	Flow Stored (gpm)
26	74
26	0
26	0
26	0
26	0
26	0
26	0
26	0




Calculation Summary Graph
300
250
200
150
100
50
0
-50
-100
Flow (gpm)
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
Time (hours)
Additional Pipe - Flow Demanded
Additional Pipe - Flow Supplied
Additional Pipe - Flow Stored

Calculation Summary (64: Additional Pump)

Time (hours)	Balanced?	Trials	Relative Flow Change	Flow Supplied (gpm)
All Time Steps(49)	True	146	0.0007824	102
0.00	True	6	0.0007824	80
1.00	True	2	0.0001849	80
2.00	True	2	0.0000667	80
3.00	True	2	0.0000421	79
4.00	True	2	0.0000393	79
5.00	True	2	0.0000350	79
6.00	True	3	0.0000371	91
7.00	True	3	0.0004296	113
8.00	True	3	0.0002916	130
9.00	True	3	0.0001796	143
10.00	True	3	0.0000495	149
11.00	True	2	0.0000752	150
12.00	True	3	0.0000705	144
12.22	True	6	0.0000224	228
13.00	True	4	0.0000213	163
14.00	True	2	0.0000503	111
15.00	True	21	0.0005456	97
16.00	True	3	0.0000437	88
17.00	True	2	0.0007135	82
18.00	True	2	0.0001716	80
19.00	True	2	0.0000380	80
20.00	True	2	0.0000271	79
21.00	True	2	0.0000411	79
22.00	True	2	0.0000450	79
23.00	True	2	0.0000295	79
24.00	True	2	0.0000374	79
25.00	True	2	0.0000321	79
26.00	True	2	0.0000345	78
27.00	True	2	0.0000378	78
28.00	True	3	0.0000421	90
29.00	True	3	0.0004536	112
30.00	True	3	0.0002975	129
31.00	True	3	0.0001963	142
32.00	True	3	0.0000395	147
33.00	True	2	0.0000666	148
34.00	True	3	0.0000772	142
35.00	True	3	0.0006235	126
36.00	True	3	0.0002320	110
37.00	True	3	0.0000772	97
38.00	True	3	0.0000482	87
39.00	True	2	0.0007370	82
40.00	True	2	0.0001820	79
41.00	True	2	0.0000231	79
42.00	True	2	0.0000315	79
43.00	True	2	0.0000340	79
44.00	True	2	0.0000242	79
45.00	True	2	0.0000336	78

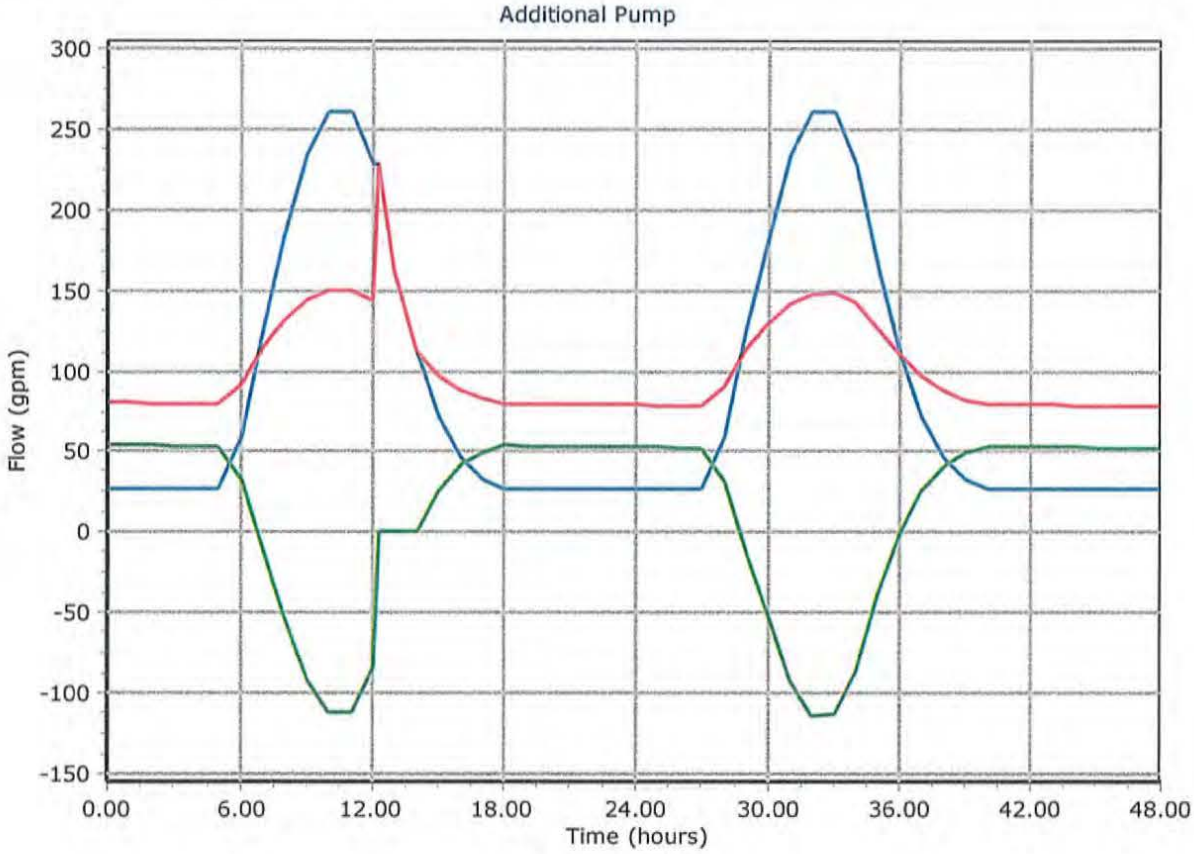
Calculation Summary (64: Additional Pump)

Time (hours)	Balanced?	Trials	Relative Flow Change	Flow Supplied (gpm)
46.00	True	2	0.0000371	78
47.00	True	2	0.0000494	78
48.00	True	2	0.0000351	78

Flow Demanded (gpm)	Flow Stored (gpm)
89	13
26	54
26	54
26	54
26	53
26	53
26	53
59	33
124	-11
183	-52
235	-92
261	-112
261	-111
228	-85
228	0
163	0
111	0
72	25
46	42
33	50
26	54
26	53
26	53
26	53
26	53
26	53
26	53
26	52
26	52
26	52
59	32
124	-12
183	-54
235	-93
261	-114
261	-113
228	-86
163	-37
111	-1
72	25
46	41
33	49
26	53

Calculation Summary (64: Additional Pump)

Flow Demanded (gpm)	Flow Stored (gpm)
26	53
26	53
26	53
26	52
26	52
26	52
26	52
26	52



Appendix D

TC&G Soils Map and Data

U.S. Fish and Wildlife Service

National Wetlands Inventory

TC&G Water Association

Jan 27, 2015

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Distribution System and Service Area

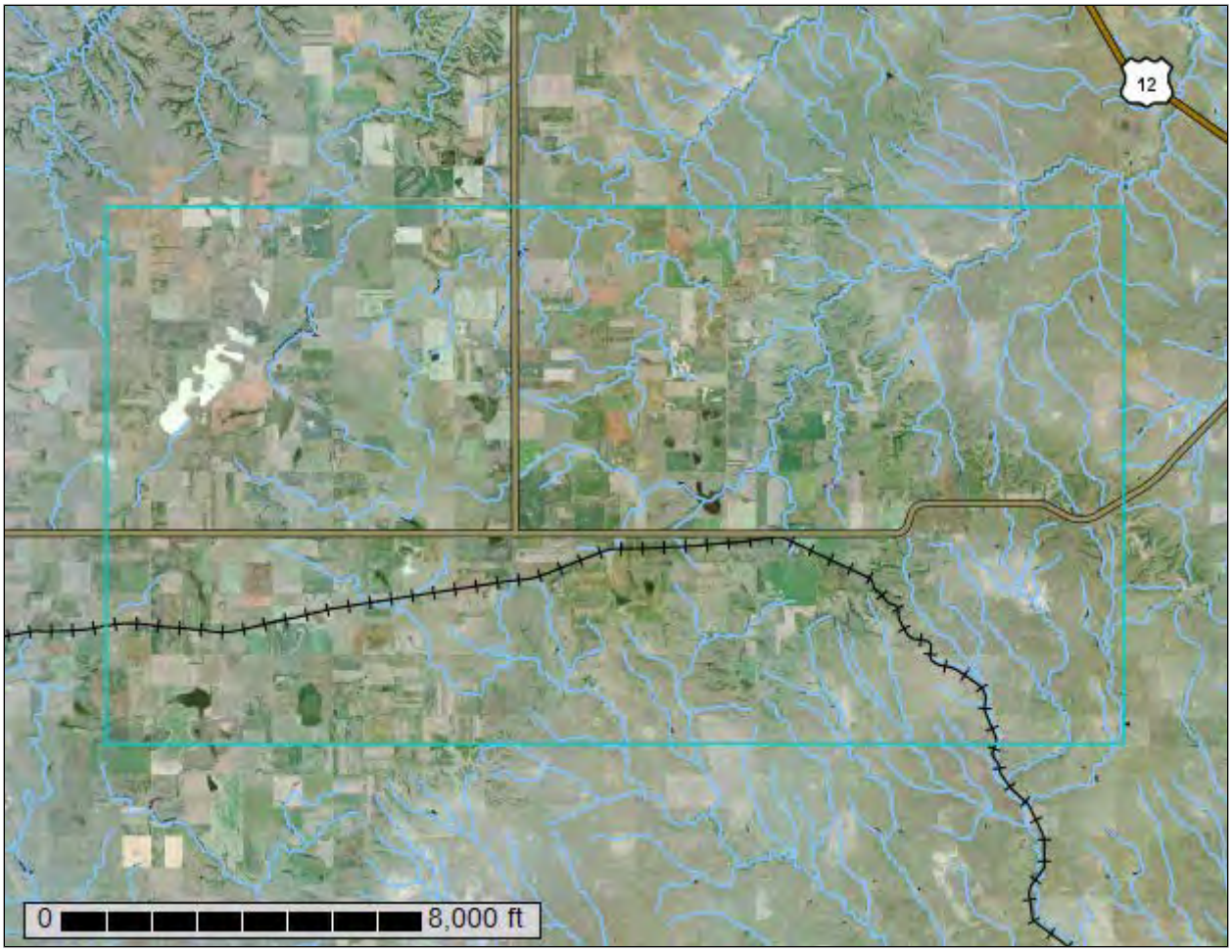
United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Corson County, South Dakota, and Dewey County, South Dakota

TC&G Water System



July 23, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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RaC—Reeder loam, 6 to 9 percent slopes.....200
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RpB—Regent-Ridgeview silty clay loams, 2 to 6 percent slopes.....203
RtB—Rhoades-Daglum complex, 2 to 6 percent slopes.....206
SbC—Sansarc-Opal clays, 6 to 15 percent slopes.....208
SbE—Sansarc-Opal clays, 15 to 25 percent slopes.....210
Sw—Bullcreek clay.....213
Sy—Bullcreek-Slickspots complex.....214
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

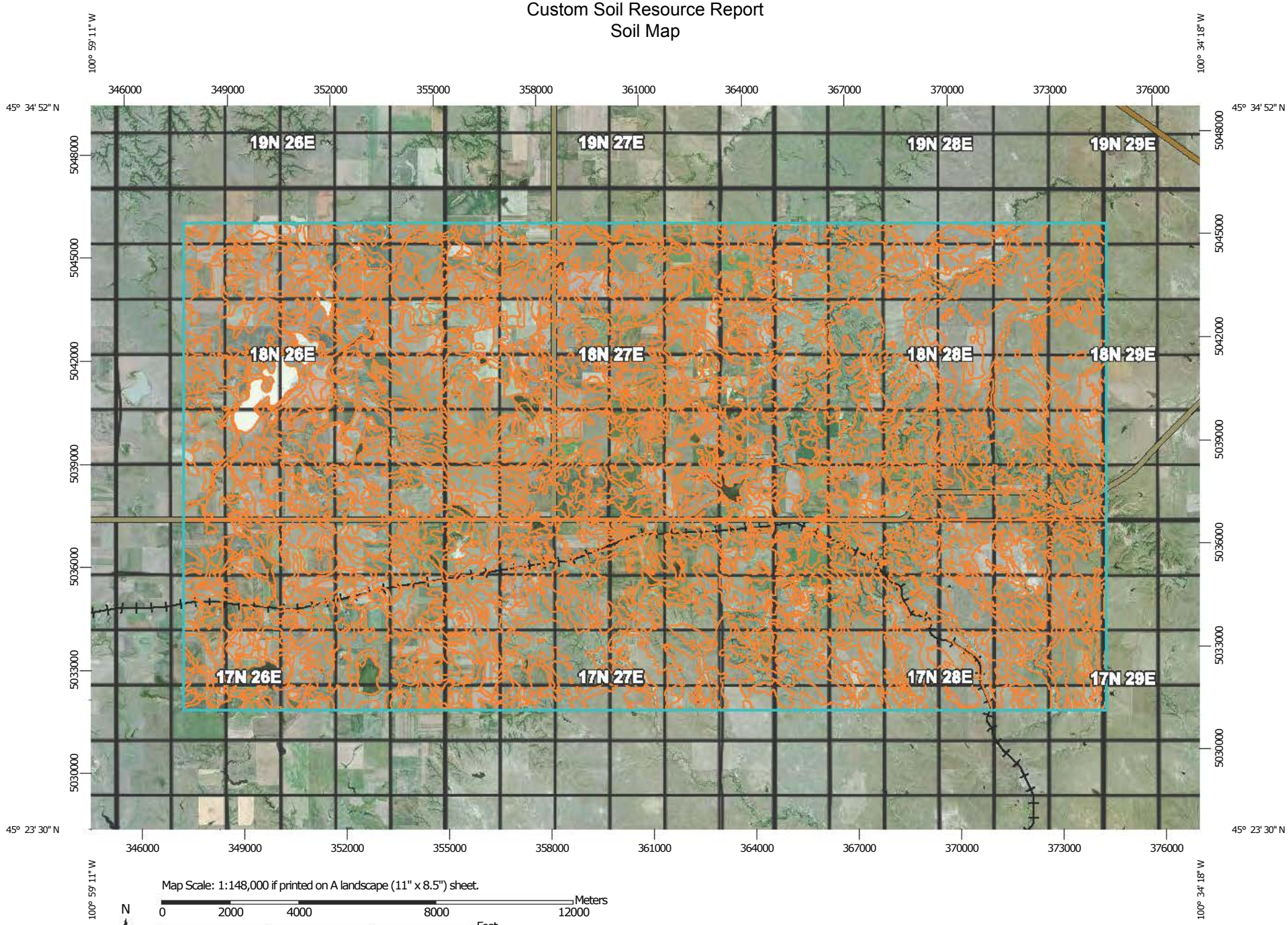
While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


100° 59' 11" W
100° 34' 18" W
45° 34' 52" N
45° 23' 30" N
346000
349000
352000
355000
358000
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367000
370000
373000
376000
5048000
5045000
5042000
5039000
5036000
5033000
5030000
19N 26E
19N 27E
19N 28E
19N 29E
18N 26E
18N 27E
18N 28E
18N 29E
17N 26E
17N 27E
17N 28E
17N 29E
N
Map Scale: 1:148,000 if printed on A landscape (11" x 8.5") sheet.
Meters
0
2000
4000
8000
12000
Feet
0
5000
10000
20000
30000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Political Features

- PLSS Township and Range
- PLSS Section

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Corson County, South Dakota
Survey Area Data: Version 16, Mar 27, 2014

Soil Survey Area: Dewey County, South Dakota
Survey Area Data: Version 16, Mar 27, 2014

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 6, 2010—Aug 20, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Corson County, South Dakota (SD031)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
An	Arnegard loam	1,648.5	1.7%
BeA	Belfield-Daglum complex, 0 to 3 percent slopes	423.2	0.4%
BfB	Bryant silt loam, 2 to 6 percent slopes	9.7	0.0%
BlA	Bullcreek clay, 0 to 4 percent slopes	50.9	0.1%
BmA	Bullcreek-Slickspots complex, 0 to 4 percent slopes	953.4	1.0%
CaF	Cabba-Amor loams, 15 to 60 percent slopes	696.1	0.7%
CbD	Cabba-Reeder loams, 6 to 25 percent slopes	2,742.1	2.9%
CvD	Cohagen-Vebar fine sandy loams, 6 to 25 percent slopes	252.5	0.3%
DaA	Daglum loam, 0 to 3 percent slopes	1,757.7	1.9%
DuD	Dupree-Rock outcrop complex, 6 to 30 percent slopes	2,431.6	2.6%
EkA	Ekalaka very fine sandy loam, 0 to 6 percent slopes	204.9	0.2%
EpB	Ekalaka-Parshall complex, 0 to 6 percent slopes	87.4	0.1%
FtF	Flasher-Telfer complex, 15 to 40 percent slopes	14.0	0.0%
Ge	Glenross fine sandy loam	630.3	0.7%
Gk	Glenross-Ekalaka fine sandy loams	261.5	0.3%
Gr	Grail silty clay loam	298.1	0.3%
Hd	Harriet loam	90.9	0.1%
Hg	Havrelon loam, channeled	171.6	0.2%
Hs	Heil silt loam	1,242.6	1.3%
HuB	Hurley silt loam, 0 to 9 percent slopes	173.1	0.2%
HwA	Hurley-Slickspots complex, 0 to 6 percent slopes	194.5	0.2%
Kc	Korchea loam, channeled	342.5	0.4%
La	Lallie silty clay loam	104.6	0.1%
Mc	McKenzie clay	146.3	0.2%
OaB	Opal clay, 3 to 6 percent slopes	361.9	0.4%
OdC	Opal-Dupree clays, 2 to 9 percent slopes	1,934.0	2.0%

Corson County, South Dakota (SD031)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
OhB	Opal-Hurley complex, 0 to 9 percent slopes	455.4	0.5%
OsC	Opal-Sansarc clays, 6 to 15 percent slopes	625.2	0.7%
PeA	Parshall fine sandy loam, 0 to 6 percent slopes	360.6	0.4%
Pg	Pits, gravel	0.3	0.0%
PrA	Promise clay, 0 to 3 percent slopes	13.0	0.0%
RaA	Reeder loam, 0 to 2 percent slopes	1,398.3	1.5%
RaB	Reeder loam, 2 to 6 percent slopes	15,266.7	16.1%
RaC	Reeder loam, 6 to 9 percent slopes	309.3	0.3%
RcB	Reeder-Cabba loams, 3 to 6 percent slopes	2,732.7	2.9%
RcC	Reeder-Cabba loams, 6 to 9 percent slopes	2,815.5	3.0%
RhB	Reeder-Rhoades loams, 2 to 9 percent slopes	285.9	0.3%
RnA	Regent silty clay loam, 0 to 2 percent slopes	20.3	0.0%
RnB	Regent silty clay loam, 2 to 6 percent slopes	392.5	0.4%
RpC	Regent-Wayden silty clay loams, 6 to 15 percent slopes	1,011.7	1.1%
RrA	Rhoades loam, 0 to 6 percent slopes	127.4	0.1%
RsB	Rhoades-Daglum loams, 0 to 9 percent slopes	3,510.3	3.7%
RuB	Rhoades-Slickspots complex, 0 to 6 percent slopes	10.5	0.0%
SbE	Sansarc-Opal clays, 15 to 40 percent slopes	390.6	0.4%
SdD	Sansarc-Opal-Dupree clays, 9 to 25 percent slopes	2,268.8	2.4%
SeE	Sansarc-Wabek complex, 15 to 40 percent slopes	120.0	0.1%
SgB	Savage silt loam, 3 to 6 percent slopes	36.2	0.0%
ShC	Shambo loam, 6 to 9 percent slopes	7.5	0.0%
TdA	Telfer loamy sand, 0 to 6 percent slopes	2.2	0.0%
TeB	Telfer-Ekalaka complex, 0 to 6 percent slopes	14.2	0.0%
Th	Trembles fine sandy loam	21.4	0.0%

Corson County, South Dakota (SD031)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
VeA	Vebar fine sandy loam, 0 to 2 percent slopes	103.1	0.1%
VeB	Vebar fine sandy loam, 2 to 6 percent slopes	3,190.3	3.4%
VhB	Vebar-Cohagen fine sandy loams, 2 to 9 percent slopes	2,137.6	2.3%
W	Water	994.9	1.0%
WcE	Wayden-Cabba complex, 9 to 40 percent slopes	1,601.0	1.7%
WdE	Wayden and Cabba soils, 6 to 40 percent slopes, extremely stony	253.2	0.3%
Wt	Wendte silty clay, channeled	123.2	0.1%
Subtotals for Soil Survey Area		**57,823.2**	**60.9%**
Totals for Area of Interest		**94,941.0**	**100.0%**

Dewey County, South Dakota (SD041)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AbA	Rhoades silt loam, 0 to 2 percent slopes	198.1	0.2%
AgB	Agar silt loam, 2 to 6 percent slopes	275.3	0.3%
AsA	Capa-Slickspots complex, 0 to 3 percent slopes	91.7	0.1%
BdA	Belfield-Daglum silt loams, 0 to 2 percent slopes	617.0	0.6%
BrA	Belfield-Reeder loams, 0 to 2 percent slopes	1,599.8	1.7%
BrB	Belfield-Reeder loams, 2 to 6 percent slopes	1,845.1	1.9%
BrC	Belfield-Reeder loams, 6 to 9 percent slopes	48.7	0.1%
CbE	Cabba-Lantry silt loams, 15 to 25 percent slopes	1,164.7	1.2%
CbF	Cabba-Lantry silt loams, 25 to 40 percent slopes	1,049.3	1.1%
DaA	Daglum silt loam, 0 to 2 percent slopes	1,619.3	1.7%
DoB	Dupree-Opal clays, 2 to 9 percent slopes	1,441.1	1.5%
DsE	Dupree-Sansarc clays, 9 to 25 percent slopes	2,095.9	2.2%
EkA	Ekalaka fine sandy loam, 0 to 6 percent slopes	94.8	0.1%
FvD	Flasher-Vebar complex, 6 to 15 percent slopes	29.9	0.0%
Gb	Glenross fine sandy loam	608.5	0.6%

Dewey County, South Dakota (SD041)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Gr	Glenross-Regan fine sandy loams	49.7	0.1%
Hc	Heil soils	1,140.3	1.2%
HsB	Hurley-Slickspots complex, 2 to 9 percent slopes	754.5	0.8%
LmD	Lantry-Morton silt loams, 6 to 15 percent slopes	1,064.6	1.1%
MbD	Moreau-Wayden silty clays, 9 to 25 percent slopes	2,181.4	2.3%
McB	Morton silt loam, 2 to 6 percent slopes	637.0	0.7%
MfA	Morton-Farland silt loams, 0 to 2 percent slopes	15.2	0.0%
MgB	Morton-Lantry silt loams, 2 to 9 percent slopes	915.9	1.0%
OaB	Opal clay, 3 to 9 percent slopes	654.2	0.7%
OhB	Opal-Hurley complex, 0 to 9 percent slopes	573.9	0.6%
OsC	Opal-Sansarc clays, 6 to 15 percent slopes	633.3	0.7%
Pa	Parshall fine sandy loam	161.9	0.2%
Pe	Parshall-Ekalaka fine sandy loams	28.3	0.0%
R507E	Sansarc-Opal clays, 6 to 25 percent slopes	374.0	0.4%
R511E	Sansarc-Dupree, acid, clays, 6 to 25 percent slopes	244.9	0.3%
RaA	Reeder loam, 0 to 2 percent slopes	867.7	0.9%
RaB	Reeder loam, 2 to 6 percent slopes	7,218.5	7.6%
RaC	Reeder loam, 6 to 9 percent slopes	594.8	0.6%
RmB	Regent-Moreau complex, 2 to 9 percent slopes	135.5	0.1%
RpB	Regent-Ridgeview silty clay loams, 2 to 6 percent slopes	35.2	0.0%
RtB	Rhoades-Daglum complex, 2 to 6 percent slopes	154.1	0.2%
SbC	Sansarc-Opal clays, 6 to 15 percent slopes	1,769.4	1.9%
SbE	Sansarc-Opal clays, 15 to 25 percent slopes	1,669.0	1.8%
Sw	Bullcreek clay	0.7	0.0%
Sy	Bullcreek-Slickspots complex	996.2	1.0%
VeB	Vebar fine sandy loam, 0 to 6 percent slopes	768.4	0.8%

Dewey County, South Dakota (SD041)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
VfB	Vebar-Flasher complex, 2 to 9 percent slopes	186.1	0.2%
W	Water	124.6	0.1%
WaF	Wayden-Moreau silty clays, 25 to 40 percent slopes	389.1	0.4%
Subtotals for Soil Survey Area		**37,117.8**	**39.1%**
Totals for Area of Interest		**94,941.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Appendix E

TC&G Water System Photos

Booster Pump
Station #1
(West)

Well House
Station #1
(West)

Well House
Station #1
(West)

Well House
Station #1 (West)
Control Panel

3030 Airport Rd. Box 23
Pierre, SD 57501
PH: 605.224.1123
Brosz
ENGINEERING, INC.
ARCHITECTURE ENGINEERING SURVEYING

Project Pictures

West Tank

Well House
Station #2

Booster Pump
Station #3

East Tank

3030 Airport Rd. Box 23
Pierre, SD 57501
PH: 605.224.1123
Brosz Engineering, Inc.
Architecture Engineering Surveying

Project Pictures

East Tank
Meter Pit

East Tank
Meter Pit

Well House
Station #3

Booster Pump
Station #2

3030 Airport Rd. Box 23
Pierre, SD 57501
PH: 605.224.1123
Brosz
ENGINEERING, INC.
ARCHITECTURE ENGINEERING SURVEYING

Project Pictures

Well House
Station #4

Well House
Station #4

Well House
Station #5

Well House
Station #5

3030 Airport Rd. Box 23
Pierre, SD 57501
PH: 605.224.1123
Brosz Engineering, Inc.
Architecture Engineering Surveying

Project Pictures

Well House
Station #6

Well House
Station #6

3030 Airport Rd. Box 23
Pierre, SD 57501
PH: 605.224.1123
Brosz Engineering, Inc.
Architecture Engineering Surveying

Project Pictures

WRAP Review Sheet
Drinking Water Facilities Funding Application
Applicant: Town of Florence

Project Title:	Water System Improvements
Funding Requested:	$2,255,000 ($1,567,000 Pledge by Water Surcharge Revenue & $688,000 Pledge by Sales Tax Revenue)
Other Proposed Funding:	$100,000 - Local Cash
Total Project Cost:	$2,355,000
Project Description:	The town of Florence is proposing to replace and install approximately 17,000 feet of water lines, services, hydrants and appurtenances. The town will also construct a 105,000-gallon ground water storage tank and booster station.
Alternatives Evaluated:	The town evaluated several alternatives, including, the "no action" alternative. This alternative was not selected as it would not correct the water pressure problems the town is experiencing. The "no action" alternative would also not address the deteriorated condition of the water lines. The town considered several alternatives for water storage; 1) a new 105,000-gallon ground water storage tank with booster pumps, 2) a new 55,000-gallon ground water storage tank with booster pumps and a new -0,000 elevated storage tank, and 3) a new 100,000-gallon elevated storage tank. The town selected the 105,000-gallon ground water storage tank with booster pumps. The town selected replacing all the 2-inch, 3-inch and 4-inch water lines with 6-inch water lines over the "no action" alternative.
Implementation Schedule:	Florence anticipates bidding the project in march 2016 with a project completion date of November 2016.
Service Population:	374
Current Domestic Rate:	$32.00 per 5,000 gallons

Interest Rate:	3.25%	Term:	30 years	Security:	Sales Tax - $688,000
Interest Rate:	3.25%	Term:	30 years	Security:	Water Surcharge - $1,567,000

DEBT SERVICE CAPACITY – Sales Tax Revenue Loan of $688,000

Coverage at $688,000 Loan Amount:	If $688,000 is provided as loan, the town of Florence would have 208.56% coverage based upon sales tax receipts from 2014.

DEBT SERVICE CAPACITY – Water Surcharge Revenue Loan of $1,567,000

Coverage at Maximum Loan Amount:	If $1,567,000 is provided as loan, the town of Florence would have to establish a surcharge of approximately $50.43. When added to current rate of $32.00/5,000 gallons residents would be paying $82.43/5,000 gallons.

25% Funding Subsidy:	$391,750 subsidy with a loan of $1,175,250.
Coverage at 25% Subsidy:	Based on a 25% subsidy and a loan of $1,175,250, Florence would have to establish a surcharge of approximately $37.82 thereby paying a rate of $69.82/5,000 gallons.

50% Funding Subsidy:	$783,500 subsidy with a loan of $783,500.
Coverage at 50% Subsidy:	Based on a 50% subsidy and a loan of $783,500, Florence would have to establish a surcharge of approximately $25.20 thereby paying a rate $57.20/5,000 gallons.

75% Funding Subsidy:	$1,175,250 subsidy with a loan of $391,750.
Coverage at 75% Subsidy:	Based on a 75% subsidy and a loan of $391,750, Florence would have to establish a surcharge of approximately $12.59 thereby paying a rate $44.59/5,000 gallons.

ENGINEERING REVIEW COMPLETED BY: JIM ANDERSON

FINANCIAL REVIEW COMPLETED BY: JON PESCHONG

FD

Drinking Water Facilities Funding Application

Consolidated Water Facilities Construction Program (CWFCP)
Drinking Water State Revolving Fund Program (DWSRF)

Applicant	Proposed Funding Package	
Town of Florence	CWFCP / DWSRF	$2,255,000
Address	Local Cash	$100,000
PO Box 137 Florence, SD 57235-0137	Other	
	Other	
Subapplicant	Other	
DUNS Number 017186243	**TOTAL**	$2,355,000

Project Title: Florence Water System Improvements

Description:

Florence is proposing to construct improvements to the water system. The project will replace and install approximately 17,000 LF of water main with six inch pipe, 7,250 LF of service line, install 145 meters, install 25 hydrants, construct a new 105,000 gallon ground storage tank and booster pump station, street repairs and fencing plus all of the other necessary appurtenances to complete the project. The Town's existing water distribution system consists of smaller PVC water lines that have reached the end of their useful life. The older water lines are cracking and breaking causing significant water losses. Clark Rural Water System provides the drinking water to the Town of Florence. Water losses are a major expense for the water system. The cracks and breaks in the water lines also create a potential for contamination to enter the water distribution system. The system is mostly dead-end lines with little looping. Dead-end lines allow a longer water retention time in the pipe that can be detrimental to water quality. Portions of the system are experiencing low pressure problems. Deficiencies in the water system need to be corrected. Helms and Associates provided the preliminary engineering and cost estimates for the project. Florence's water rate for 5,000 gallons of usage is $32/month. The city does not have an established reserve account for the water fund.

The Applicant Certifies That:

I declare and affirm under the penalties of perjury that this application has been examined by me and, to the best of my knowledge and belief, is in all things true and correct.

Patrick Callan, President — Patrick S Callan — 3/19/15

Name & Title of Authorized Signatory (Typed) — Signature — Date

Professional Consultants

Application Prepared By: First District

Contact Person: Gregory J. Maag

Mailing Address: PO Box 1207

City, State, and Zip: Watertown, SD 57201

Telephone Number: 605-882-5115 Fax: 605-882-5049

Email address: greg@1stdistrict.org

Consulting Engineering Firm: Helms and Associates

Contact Person: Bob Babcock

Mailing Address: 221 Brown County Highway 19

City, State, and Zip: Aberdeen, SD 57402

Telephone Number: 605-225-1212 Fax: 605-225-3189

Email address: bobb@helmsengineering.com

Legal Counsel's Firm: Austin, Hinderacker, Hopper, Strait and Benson LLP

Legal Counsel: Arthur M. Hopper

Mailing Address: PO Box 966

City, State, and Zip: Watertown, SD 57201

Telephone Number: 605-886-5823 Fax: 605-886-7553

Email address: amhopper@austin-hinderacker.com

This section applies only to political subdivisions

Bond Counsel's Firm: Meierhenry Sargent LLP

Bond Counsel: Todd Meierhenry

Mailing Address: 315 S. Phillips Avenue

City, State, and Zip: Sioux Falls, SD 57104-0718

Telephone Number: 605-336-3075 Fax: 605-336-2593

Email address: todd@meierhenrylaw.com

BUDGET SHEET

Cost Classification	A CWFCP / DWSRF	B Local Funds	C	D	E Local Funds	Total Funds
1. Administrative Expenses						
A. Personal Services						
B. Travel						
C. Legal including Bond Counsel	$38,300.00	$1,700.00				$40,000.00
D. Other						
2. Land, Structure, Right-of-Way						
3. Engineering						
A. Bidding and Design Fees	$160,100.00	$7,100.00				$167,200.00
B. Project Inspection Fees	$160,770.00	$7,130.00				$167,900.00
C. Other Bid & Contract Documents	$10,535.00	$465.00				$11,000.00
4. Construction and Project Improvement	$1,637,650.00	$72,625.00				$1,710,275.00
5. Equipment						
6. Contractual Services						
7. Other						
8. Other						
9. Subtotal (Lines 1-8)	$2,007,355.00	$89,020.00				$2,096,375.00
10. Contingencies	$247,645.00	$10,980.00				$258,625.00
11. Total (Lines 9 and 10)	$2,255,000.00	$100,000.00				$2,355,000.00
12. Total %	95.75%	4.25%	0.00%	0.00%	0.00%	100.00%

Columns A - E: Identify each funding source and enter the amounts budgeted by cost category.

Comments:

Method of Financing

Source Header		Secured Funds	Unsecured Funds (Date Anticipated)
Local Cash (Identify Source)	sales tax revenues	$100,000.00	
Other (Explain)	CWFCP/DWSRF - Surcharge		$1,567,000.00 Jun 26, 2015
Other (Explain)	CWFCP/DWSRF - Sales Tax		$688,000.00 Jun 26, 2015
Other (Explain)			
Other (Explain)			
Other (Explain)			
TOTAL		$100,000.00	$2,255,000.00

Comments:
The Town of Florence is proposing to secure a $688,000 DWSRF loan utilizing sales tax revenue and a second DWSRF loan for the remaining requested amount of $1,567,000 that will be secured by project surcharge revenue.

7.3.1 Repayment Information

Interest rate and term you are applying for: 3.25 %, 30 years.

What security is being pledged toward the repayment of this loan?
(Political Subdivisions Only)

- ☐ 1. General Obligation bond (requires bond election)
- ☐ 2. Water Revenue bond
- ☒ 3. Project Surcharge Revenue bond
- ☒ 4. Sales Tax Revenue bond

7.3.2 Documents That Must Be Submitted With The Application

Financial Documents

1. Most recent audit or unaudited financial statement to include specific accounting of pledged funds.
2. Current year's budget.

Planning and Legal Documents

1. Governing user charge ordinance or resolution and its effective date.
2. Resolution of authorized signatory for submission of the Drinking Water SRF application and signing of payment requests. This resolution must also include the maximum loan amount requested, interest rate and term being applied for, description of proposed project, and security pledged towards repayment of the loan.
3. Facilities Plan (8.3.18).
4. Capacity Assessment Worksheets (section 8.3.16).

Items 5-7 apply to Nonprofit Entities only

5. By-laws
6. Articles of Incorporation
7. Certificate of Good Standing from Secretary of State

7.3.3 General Information

The month and day your fiscal year begins: January 1

Population Served

Current 374 2000 299 1990 192

Top Five Employers Within 30 Miles	Number of Employees	Type of Business
Watertown School District	887	Education
Prairie Lakes Healthcare	533	Healthcare
Terex Utilities	525	Manufacturing
Worthington Industries	475	Manufacturing
Premier Bankcard	354	Call Center

Please indicate employers within boundary of issuing entity with an asterisk (*).

7.3.4 Drinking Water Utility Information

Current Water Utility Debt

Year	Not Applicable					
Purpose						
Security Pledged						
Amount						
Maturity Date (mo/yr)						
Debt Holder						
Debt Coverage Requirement						
Avg. Annual Required Payment						
Outstanding Balance						

Use additional sheets if more room is required to list all current water utility debt.

Drinking Water Utility Cash Flow

	Prior Year	Prior Year	Current Year	Future Year #
Fiscal Year	2013	2014	2015	2017
OPERATING CASH FLOW				
Water Sales	$50,036	$55,198.00	$53,000.00	$173,430.00
Surcharge Fee				
Other (Explain) Bulk water sales	$1,373	$2,105.00	$2,000.00	$2,000.00
OPERATING PAYMENTS				
Personal Services	($4,048)	($1,119.00)	($2,600.00)	($2,660.00)
Chemical, Material & Supplies	($899)	($816.00)	($850.00)	($850.00)
Electric & Other Utilities	($5,584)	($5,425.00)	($4,520.00)	($5,500.00)
Other (Explain) water purchase	($32,736)	($25,458.00)	($35,265.00)	($30,600.00)
O&M costs 2014 Engineering Study	($9,593)	($14,645.00)	($20,310.00)	($2,270.00)
NET CASH FROM OPERATIONS	($1,451)	$9,840.00	($8,545.00)	$133,550.00
NONOPERATING CASH FLOW				
Interest Income				
Other Revenue (Explain) SCPG grant		$8,000.00		
Project Loan/Grant Funds			$100,000.00	
Transfers In (Explain) from sewer to pay	$10,993.00			
for water meters				
Fixed Asset Sale (Explain)				
Transfers Out (Explain)				
Fixed Asset Purchases (Explain) purchase	($5,110.00)			
new water meters				
Debt Payment (Principal Only)				($47,850.00)
Debt Payment (Interest Only)				($70,105.00)
Other Expenses (Explain)				
Project Design			($100,000.00)	
NET CASH FROM NONOPERATING	$5,883	$8,000.00	$0.00	($117,955.00)
Net Increase (Decrease) in Cash	$4,432	$17,840.00	($8,545.00)	$15,595.00
Beginning Cash Balance	$1,640	$6,072.00	$23,912.00	$30,257.00
Ending Cash Balance	$6,072	$23,912.00	$15,367.00	$45,852.00
RESTRICTED BALANCE	$0	$0.00	$0.00	$0.00
UNRESTRICTED BALANCE	$6,072	$23,912.00	$15,367.00	$45,852.00

Future Year: First full year after project completion.

Restricted Funds Breakdown:

Amount	Anticipated Expense	Method Used to Encumber
	Not Applicable	

Water Fees:

Attach current and proposed rate ordinances or resolutions and rate schedules.

Municipal or Sanitary District - monthly rates at 5,000 gallons (670 cubic feet)

Other Community Water System - monthly rates at 7,000 gallons (935 cubic feet)

Check one: ✓ Incorporated Municipality or Sanitary District

or

___ Other Community Water System

Monthly:	Current Rate	Proposed Rate	# of Accounts	Average use gallons/cubic feet
Domestic	$32.00	$103.60	141	3000
Business	$32.00	$103.60	8	14000
Other:				

Are fees based on usage or flat rate? usage

When is proposed fee scheduled to take effect? September 1, 2016

When did the current fee take effect? 11/1/2008

What was the fee prior to the current rate? $20/5,000 gallons

Attach current and proposed rate ordinances or resolutions and rate schedules.

Five Largest Customers	Type of Business	% of System Revenues
Florence School	Education	8%
Country View Assisted Living	Assisted Living Facility	3%
Sidetrack	Bar	2%
Florence Farmers Elevator	Agriculture	6%
Residence	Family	2%

7.3.6 Sales Tax Information

(Complete only if sales tax is pledged to repay your loan.)

Sales tax revenue history for the most current fifteen months:

Month/Year	Amount Collected
January 2015	3,781.93
December 2014	14,049.76
November 2014	1,294.33
October 2014	11,253.99
September 2014	3,090.11
August 2014	4,377.39
July 2014	13,994.44
June 2014	596.08
May 2014	10,943.01
April 2014	5,761.66
March 2014	3,867.71
February 2014	2,481.61
January 2014	3,345.40
December 2013	7,911.25
November 2013	1,267.74

Comments:

Florence will utilize $100,000 from its sales tax capitol improvements reserve account to help fund this project.

List all current debt secured by sales tax:

Year Issued					
Purpose					
Amount					
Maturity Date (mo/yr)					
Debt Holder					
Debt Coverage Requirement					
Avg. Annual Required Payment					
Outstanding Balance					

Use additional sheets if more room is required to list all current sales tax debt.

Comments:
Not applicable

7.3.7 Facilities Plan Checklist.

Before submitting the application, please take a few moments to complete the following checklist. Addressing these items prior to submitting the application will expedite the review process

Checklist of SRF Facilities Plan Requirements	
Have the following items been addressed?	
♦ Submission of a Facilities Plan to the department that addresses those items found in section 8.3.18.	×
♦ A public hearing held discussing the project and the use of an SRF loan to finance the project. (See section 8.3.15)	×
♦ Minutes of the public hearing prepared and submitted to the department for inclusion into the final Facilities Plan.	×
♦ The affidavit of publication of the public hearing received and submitted to the department for inclusion into the final Facilities Plan. (See section 8.3.15)	×
♦ The four review agencies contacted and responses received for inclusion into the final Facilities Plan. (See section 8.3.18)	×
♦ The Cultural Resources Effects Assessment Summary and supporting documentation, such as an archaeological survey or Historic Register database search. (See section 8.3.20)	×

7.3.8 Certification of Drinking Water Needs Categories

Identify the loan amount associated with the needs category or categories described below. If the loan addresses needs in more than one category, please break down the total amount into estimated amounts for each category.

Definition	Loan Amount
Transmission/Distribution	$1,707,907.00
Treatment	
Storage	$547,093.00
Source	
System Purchase	
Restructuring	
1452(k) Loan Activities	
1. To acquire land or a conservation easement for source water protection.	
2. To implement voluntary, incentive-based source water quality protection measures.	
TOTAL	$2,255,000.00

Town of Florence

Name of Applicant

Patricia S. Callan

Signature of Authorized Representative

3/19/15

Date

7.3.10 Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) Have not within a three year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Patrick Callan, President

Name & Title of Authorized Representative

Patrick S Callan MARCH 19, 2015

Signature of Authorized Representative Date

____ I am unable to certify to the above statements. Attached is my explanation

8.3.16 Capacity Assessment Worksheets for Public Water Systems

Department of Environment and Natural Resources

Revised January 2007

Introduction

Because you are in the process of applying for a Drinking Water State Revolving Fund (DWSRF) loan, it is necessary for you to complete the following worksheets. The Safe Drinking Water Act requires that a system applying for a DWSRF loan must demonstrate that it has financial, managerial, and technical capacity. What exactly does that mean?

- ***Technical capacity*** - the physical infrastructure of the water system, including but not limited to the source water adequacy, infrastructure adequacy, and technical knowledge. In other words, does your treatment system work the way it is supposed to? Are you providing the safest and cleanest water possible and required by law to your customers right now, and will you be able to in the future?

- ***Managerial capacity*** - the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages. In simpler terms, do you have a capable and trained staff? Do you have an effective management structure?

- ***Financial capacity*** - the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness, and fiscal controls. Basically, does your system have a budget and enough revenue coming in to cover costs, repairs, and replacements?

If it is determined that your system does NOT have the required capacity, you may still qualify for a DWSRF loan if it is going to be used to ensure that your system will have the necessary capacity. If you have questions while completing the following worksheets, please call our office at **(605) 773-3754** , and we will be happy to help.

After DENR receives these worksheets, we will study them and other information located in our files to make a determination whether or not your public water system has the technical, financial, and managerial capacity to be eligible to apply for a DWSRF loan. A final report will be available upon completion of the analysis.

Applicant: Town of Florence

Prepared by: David Wick EIT
Helms & Associates
Aberdeen, SD

Phone #: 605-225-1212

Date: 2-12-2015

Glossary of Terms

Contaminant: Any physical, chemical, biological, or radiological substance or matter in water;

Disinfectant: Any oxidant, including chlorine, chlorine dioxide, chloramine, and ozone, that is added to water in any part of the treatment or distribution process and that is intended to kill or inactivate pathogenic microorganisms;

Disinfectant contact time: The time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration is measured;

Filtration: A process for removing particulate matter from the water by passing the water through porous media;

Ground Water: The supply of fresh water found beneath the surface of the ground, usually in aquifers, which is often used for supplying wells and springs;

Ground Water Under the Direct Influence of Surface Water: Any water beneath the surface of the ground with a significant occurrence of insects, macroorganisms, algae, or large-diameter pathogens such a *Giardia lamblia* ; or any water with significant and relatively rapid shifts in water quality characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions;

Maximum Contaminant Level (MCLs): The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards;

mg/L: milligrams per liter - equivalent to parts per million;

µg/L: micrograms per liter - equivalent to parts per billion;

NTU: nephelometric turbidity unit;

psi: pounds per square inch

Surface Water: All water that is open to the atmosphere and subject to surface runoff;

Turbidity: A cloudy condition in water due to suspended silt or organic matter; and

Waiver: A process used by the Department of Environment and Natural Resources that allows a public water system to reduce or eliminate monitoring for a particular chemical.

The Technical Portion of your System

Your Water Supply

Please check the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section or question does not apply to your system, please check NA for not applicable.***

Water Supply and Existing Demands	**Yes**	**No**	**Unknown**	**NA**
Do you know how much water you pump on an average day? ***Amount:*** 25,679	☑	☐	☐	☐
Do you know how much water you pump on a peak day? ***Amount:*** 35,473	☑	☐	☐	☐
Do you know the maximum amount of water you can pump from your source? ***Amount:*** 50,400 supplied by Clark Rural Water System, 35 gpm	☑	☐	☐	☐
Is your source capacity higher than your peak day demand? ***Percentage higher or lower:*** 29% Higher	☑	☐	☐	☐
Can you meet peak demand without pumping at peak capacity for extended periods? ***Longest time pumping at peak demand:***	☐	☑	☐	☐
Have you been able to provide adequate volumes of water during drought cycles?	☐	☑	☐	☐
Have you had to restrict usage at any time for any reason? ***Please specify:*** During very dry summers.	☑	☐	☐	☐
Does your system have an emergency or supplemental water supply? ***Please specify:*** Only connected to CRWS, have one well for fire fightin	☐	☑	☐	☐
Do you have an Emergency Response Plan that will allow you to meet system demand during a drought or shortage, such as the loss of the largest source? ***If yes, please attach.***	☐	☐	☑	☐
Water Demand	**Yes**	**No**	**Unknown**	**NA**
Do you know whether your system demands will be growing, declining, or remain stable over the next ten years? ***Please check:*** ☑ ***growing,*** ☐ ***declining, or*** ☐ ***stable.***	☑	☐	☐	☐
Does your source have additional water available for appropriation?	☐	☐	☑	☐
Do you have a water right? ***Water right permit number(s):*** 4051-3, for the Well used to fill Fire Trucks, water quality poor for drinking	☑	☐	☐	☐
If you have large commercial, industrial, or irrigation users, do you know their long-term plans and understand their needs?	☐	☑	☐	☐
Purchased Water	**Yes**	**No**	**Unknown**	**NA**
If you purchase water from another system or a wholesaler, do you know their long-term plans?	☐	☐	☑	☐
Do you have a contract to purchase water? ***If yes, with whom?*** Clark Rural Water System, No Contract	☐	☑	☐	☐
Are you currently staying within your contract?	☑	☐	☐	☐
Are you knowledgeable about other demands being placed on the same water source that you are using?	☐	☐	☑	☐

Alternative Sources	Yes	No	Unknown	NA
Are alternative water sources possibly available to you?	☑	☐	☐	☐
Are you knowledgeable of the characteristics and costs of using alternative sources?	☑	☐	☐	☐
Water Source	**Yes**	**No**	**Unknown**	**NA**
Do you know the depth of your well? ***Depth*** 120 feet	☑	☐	☐	☐
Do you know the geologic name of the aquifer system from which your water is drawn? ***If yes, geologic name:*** _____	☐	☑	☐	☐
Are all abandoned water sources properly managed and disconnected to prevent accidental contamination or problems with current water system facilities?	☐	☐	☑	☐

Treatment - Microbiological Contamination

Is your system using surface water or ground water under the influence of surface water? ☐ **yes** ☑ **no**

(If you checked "no", skip to the next section - Ground Water Systems – unless your water system requires treatment other than just disinfection.)

Surface Water Systems

Filtration Plant Condition	Yes	No	Unknown	NA
Is your filter plant in good physical condition (free from spalling concrete, peeling paint)?	☐	☐	☐	☐
If constructed more than 20 years ago, have treatment processes been upgraded to meet current standards?	☐	☐	☐	☐
Are repair parts available?	☐	☐	☐	☐
Do you have redundancy (back-ups/automatic switch-overs) for all major mechanical units? ***If no, list units you do NOT have redundancy for:*** _____	☐	☐	☐	☐
Can your plant achieve a filtered water turbidity of 0.3 NTU?	☐	☐	☐	☐
Do you have on-line continuous turbidimeters on each filter?	☐	☐	☐	☐
Have you adopted a turbidity goal lower than the standard? ***If yes, list goal:*** _____	☐	☐	☐	☐
Do you have the capability to add coagulant before the filter?	☐	☐	☐	☐

Ground Water Systems

Ground Water Under the Influence of Surface Water	Yes	No	Unknown	NA
Is your water free from variations in turbidity and temperature after storm events?	☐	☐	☐	☑
Well Construction and Protection				

Do you know when your well was constructed? ***List year:*** 1907	☑	☐	☐	☐
Is your well(s) constructed according to current South Dakota regulations?	☐	☐	☑	☐
Do you have a source water protection plan?	☐	☐	☑	☐
Is your wellhead finished with a pitless adapter that will prevent contamination from surface water?	☑	☐	☐	☐

Disinfection

Do you disinfect? ☐ **yes** ☑ **no** ***(If "no", skip to the Infrastructure - Pumping section)***

Disinfection	**Yes**	**No**	**Unknown**	**NA**
Do you regularly inspect and maintain your disinfection / chlorination equipment? ***Type of Equipment:*** _____ ***How often?*** _____ ***Disinfectant used:*** _____	☐	☐	☐	☐
Do you have back-up equipment? ***Type:*** _____	☐	☐	☐	☐
Do you have adequate contact time following disinfection and before the first user in the distribution system (30 minutes for ground water systems)? ***Contact time:*** _____	☐	☐	☐	☐
Can you detect a chlorine residual at taps at the ends of the distribution system? ***Free Chlorine Residual:*** _____ ***Total Chlorine Residual:*** _____ (if using chloramines)	☐	☐	☐	☐

Disinfection By-Products

Treatment for the Control of Disinfection By-Products	**Yes**	**No**	**Unknown**	**NA**
If you treat surface water, are you already practicing or could you adopt "enhanced coagulation" in your current plant?	☐	☐	☐	☐
If you treat surface water, could you still meet current contact-time requirements if disinfection were not allowed before sedimentation?	☐	☐	☐	☐

Treatment - Security

Treatment Security	**Yes**	**No**	**Unknown**	**NA**
Has the system implemented procedures to improve security of its facilities? (i.e. limiting access to sensitive sites, protecting computer and control equipment etc.)	☑	☐	☐	☐
Are chemicals used for treatment properly stored and secure?	☐	☐	☐	☑
Does the water system track chemical usage? (i.e. a sudden	☐	☐	☐	☑

increase in usage may signal potential contamination or tampering.

Infrastructure - Pumping

Condition of Pumping Equipment	Yes	No	Unknown	NA
Do you routinely inspect for signs of pump or pump motor problems? ***How often:*** Every 6 months	☑	☐	☐	☐
Once diagnosed, are problems corrected in a timely enough manner to avoid crisis financing, costly repairs, and unscheduled downtime?	☑	☐	☐	☐
Do you hire a qualified pump contractor to perform an inspection of all pumping equipment, identify potential problems, and perform maintenance, on an annual basis?	☑	☐	☐	☐
Standby/Emergency Power Equipment	**Yes**	**No**	**Unknown**	**NA**
Is there sufficient standby/emergency power capacity to supply 100% of the average daily demand of the system (excluding fire demand)?	☑	☐	☐	☐
Are any existing standby/emergency power equipment, controls and switches tested or exercised routinely under load conditions, for at least 30 minutes at a time?	☑	☐	☐	☐
Has the local electric utility been made aware of the standby/emergency power provisions made by the water system, so that they can reinforce and safeguard the electrical facilities serving the water operations?	☑	☐	☐	☐

Infrastructure - Storage

Storage Capacity	Yes	No	Unknown	NA
Does the system have sufficient gravity-flow (non-pumped) or emergency generator-supported pumping capability to ensure adequate distribution storage to provide safe and adequate service for up to 24 hours without power? ***If no, how long:*** Approximately 12 hours	☐	☑	☐	☐
Is there reserve capacity in the tank for fire protection support? ***Amount:*** _____	☐	☑	☐	☐
Security Measures	**Yes**	**No**	**Unknown**	**NA**
Are any openings, such as vent pipes, screened to protect against the entrance of small animals, birds, and small insects?	☑	☐	☐	☐
Are access hatches locked?	☑	☐	☐	☐
Is the tank and the immediate surrounding area fenced?	☐	☑	☐	☐
Control Systems				
Is there a high and low water level signal system to control the pumps?	☑	☐	☐	☐

Is there a drain valve or hydrant to allow for draining of the tank?	☑	☐	☐	☐
Tank Maintenance				
Is the tank inspected at least every three years by a qualified tank contractor for evidence of corrosion or pitting, leakage, and structural weakness?	☑	☐	☐	☐
Is the tank contractor capable of analyzing the coating of paint on the interior and exterior surfaces of the tank to determine if it contains lead or other hazardous materials?	☑	☐	☐	☐

Infrastructure - Distribution

System Maintenance	**Yes**	**No**	**Unknown**	**NA**
Do you have an accurate map of your distribution system that indicates main sizes and valve locations?	☑	☐	☐	☐
Does the operator routinely flush, test, and maintain the hydrants in the system? ***How often:***	☐	☑	☐	☐
Are the locations of valves in the mains and curb stops on the service lines precisely known?	☐	☑	☐	☐
Does the system keep a log of distribution system breaks to identify weak areas in the system?	☐	☑	☐	☐
Are histories, locations, size, and type of mains and service lines detailed on records in a secure area?	☐	☑	☐	☐
Are all valves exercised and lubricated periodically?	☐	☑	☐	☐
Is the system free of severe "water hammer" problems?	☐	☑	☐	☐
Are meter pits, pressure regulating valves, altitude valves, blow-offs, and other appurtenances maintained on a regular basis?	☐	☐	☑	☐
Unaccounted-for Water	**Yes**	**No**	**Unknown**	**NA**
Is unaccounted-for water in the water system monitored and analyzed each month?	☐	☑	☐	☐
Is the unaccounted-for water less than 15 percent of the total water delivered to the mains? ***List percentage of unaccounted for water:*** 26 %	☐	☑	☐	☐
	Yes	**No**	**Unknown**	**NA**
Are the normal operating pressures in the distribution system between 25 psi and 125 psi? ***Normal operating pressure:*** 40-45 psi	☑	☐	☐	☐
Do you have a routine leak detection and repair program?	☐	☑	☐	☐
Are all sources of supply and customers metered?	☑	☐	☐	☐
Are the meters calibrated and tested routinely to ensure their accuracy and reliability?	☐	☑	☐	☐
Water Quality in Distribution System	**Yes**	**No**	**Unknown**	**NA**
Does your system have an active cross-connection control program?	☐	☑	☐	☐

Are any inspections for cross-connections performed?	☐	☑	☐	☐
Is there a program for installing and testing backflow prevention devices where potential contamination is present?	☐	☑	☐	☐
Is there a program to eliminate "dead-ends" in the mains, where feasible?	☐	☑	☐	☐
Construction Standards	**Yes**	**No**	**Unknown**	**NA**
Are the majority of your mains 6 inches in diameter or larger? ***List percentage:*** _____	☐	☑	☐	☐
Is there a program to gradually replace sub-standard sized mains?	☐	☑	☐	☐
Are there suitable rights-of-way and easements provided to the water system for expansion, maintenance, and replacement of mains and services?	☑	☐	☐	☐
Is there sufficient earth cover (six feet) to protect the mains from frost damage or heavy loads, if driven over?	☑	☐	☐	☐
Are materials of mains designed and selected to resist corrosion, electrolysis, and deterioration?	☐	☐	☑	☐
Distribution System Problems	**Yes**	**No**	**Unknown**	**NA**
Do you receive any complaints regarding water quality (taste, odor, color, etc.)? ***List number of complaints/year:*** _____ ***Most common complaint:*** Water Distribution Class I, W	☐	☐	☑	☐
Can you maintain adequate pressure in the distribution system under all conditions of flow?	☐	☑	☐	☐

The Management Portion of your System

Please mark the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Operation & Maintenance

Operations Staff	**Yes**	**No**	**Unknown**	**NA**
Does the person operating your system have current water treatment plant and water distribution operator certification credentials from DENR? ***If yes, list classification(s):*** Water Distribution Class I, Waste Water Collection Class I, Operator #3151	☑	☐	☐	☐
Does your operator receive additional training on an ongoing basis to keep current on new developments in the field?	☑	☐	☐	☐
Future Operational Demands	**Yes**	**No**	**Unknown**	**NA**
Does your water system obtain any regular or occasional technical assistance from outside sources, such as DENR, your engineer, other utilities or organizations specifically dedicated to providing technical assistance? ***If yes, who*** SD DENR, CRWS, Helms & Associates	☑	☐	☐	☐

Management & Administration

Who's in Charge?	**Yes**	**No**	**Unknown**	**NA**
Is there a clear plan of organization and control among the people responsible for management and operation of the system?	☑	☐	☐	☐
Does your system have written personnel policies and job descriptions signed by the employees?	☐	☑	☐	☐
Are the limits of the operator's authority clearly known?	☑	☐	☐	☐
Does everyone involved in operations know who is responsible for each area?	☑	☐	☐	☐
Is someone responsible for scheduling work?	☑	☐	☐	☐
Security	**Yes**	**No**	**Unknown**	**NA**
Does the system have procedures for handling new and terminated employees (i.e. collecting keys, changing locks and computer passwords)?	☐	☑	☐	☐
Rules and Standards	**Yes**	**No**	**Unknown**	**NA**
Do you have explicit rules and standards for system modifications?	☐	☑	☐	☐
Do you have rules governing new hook-ups?	☐	☑	☐	☐
Do you have a water main extension policy?	☑	☐	☐	☐
Do you have standard construction specifications to be followed?	☑	☐	☐	☐

	Yes	No	Unknown	NA
Do you have measures to assure cross-connection control and backflow prevention?	☐	☑	☐	☐
Do you have policies or rules describing customer rights and responsibilities?	☐	☑	☐	☐
Regulatory Compliance Program	**Yes**	**No**	**Unknown**	**NA**
Do you fully understand monitoring requirements and have a scheduling mechanism to assure compliance?	☐	☐	☐	☑
Do you know how to obtain clarification or explanation of requirements?	☐	☑	☐	☐
Do you have a mechanism to obtain the most recent information on regulatory requirements?	☐	☑	☐	☐
Do you maintain adequate records to document compliance? ***If yes, for how long?*** _____	☐	☑	☐	☐
Did your system have any violations of the primary drinking water standards in the last year?	☐	☑	☐	☐
Did your system have any monitoring or reporting violations in the last year?	☐	☑	☐	☐
Do you know what to do in the event of a violation?	☐	☑	☐	☐
Emergencies	**Yes**	**No**	**Unknown**	**NA**
Do you have an Emergency Response Plan?	☐	☑	☐	☐
Is there a contingency for making emergency interconnections to neighboring systems, and do you know they will work if needed?	☐	☑	☐	☐
Does everyone involved in operations know what they are to do in the event of contamination from a toxic hazardous waste spill in your source water or a main break or a tank failure?	☐	☑	☐	☐
Do you have a clear chain-of-command protocol for emergency action?	☐	☑	☐	☐
Is someone responsible for emergency operations, for communications with state regulators, for customer relations, for media relations? ***If yes, who (title):*** _____	☐	☑	☐	☐
Safety	**Yes**	**No**	**Unknown**	**NA**
Do you have a safety program defining measures to be taken if someone is injured?	☐	☑	☐	☐
Has the entire staff been properly trained in the location and use of safety equipment?	☐	☑	☐	☐
Does everyone understand the risks and safety measures involved in handling water treatment chemicals?	☐	☐	☐	☑
Do you have written operating procedures for both routine and emergency system operations?	☐	☑	☐	☐
Are you fully aware of Occupational Safety and Health Administration (OSHA) confined space (such as trenches/manholes) regulations?	☐	☑	☐	☐
Does the system work with customers to promote their awareness of security?	☐	☐	☑	☐
Does the system have a communication plan to alert customers of a natural or intentional threat to public health?	☐	☑	☐	☐

Maintenance	Yes	No	Unknown	NA
Do you have a planned maintenance management system -- a system for scheduling routine preventive maintenance (line flushing, pumps, meters, storage tanks, etc.)?	☑	☐	☐	☐
Do you have a system for assuring adequate inventory of essential spare parts and back-up equipment?	☑	☐	☐	☐
Do you have relationships with contractors and equipment vendors to assure prompt priority service?	☑	☐	☐	☐
Do you have records and data management systems for system operating and maintenance data, for regulatory compliance data, and for system management and administration?	☐	☐	☑	☐
Management Capability	**Yes**	**No**	**Unknown**	**NA**
Are you getting the outside services and technical assistance you need? Do you have adequate legal counsel, insurance, engineering advice, technical/operations assistance, rate case preparation, and financial advice?	☑	☐	☐	☐

The Financial Portion of your System

Please mark the appropriate box: *Yes*, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Financial Planning Mechanisms	**Yes**	**No**	**Unknown**	**NA**
Does your system develop and follow an annual budget that is approved by the governing body?	☑	☐	☐	☐
Does the governing body review a monthly summary of revenues and expenses of the utility system?	☑	☐	☐	☐
Do you have within the annual budget separate reserve accounts for equipment replacement, capital improvement, depreciation or security upgrades? ***If so, list accounts:*** 433 Water-Sewer	☑	☐	☐	☐
Does the system have reserve funds available in the event of an emergency?	☑	☐	☐	☐
Do you have a capital budget or capital improvement plan that projects future capital investment needs some distance (at least five years) into the future?	☑	☐	☐	☐
Do you have a process for scheduling and committing to capital projects?	☐	☑	☐	☐
Does your planning process take account of all the potential capital needs suggested by your answers to the technical questions in these worksheets?	☐	☐	☐	☑
Does your long-term planning incorporate analysis of alternative strategies that might offer cost saving to customers, such as consolidation with other nearby systems or sharing of operations and management expenses with other nearby systems?	☐	☐	☐	☑
Rates/Billing - Are they Adequate?	**Yes**	**No**	**Unknown**	**NA**
Do you regularly review your rates? ***How often?***	☐	☑	☐	☐
Do you have a plan in place for periodic increases in rates?	☑	☐	☐	☐
Is the rate structure based on metered watered use? ***List rates per 1000 gallons:*** $12.00 per 1,000 gallons (i.e. $22 minimum plus $2.50/1000 gallons)	☑	☐	☐	☐
Does the rate per 1000 gallons change as consumption increases? ***If so, please describe***: $32.00 per 5,000 gallons, $57.00 per 10,000 gallons. rates vary per 1K	☑	☐	☐	☐
Does the rate structure assure proportionality among users?	☑	☐	☐	☐
Do you have procedures for billing and collection?	☑	☐	☐	☐
Is your billing collection rate greater than 95%?	☑	☐	☐	☐
Do you have collection procedures specifically for delinquent accounts?	☑	☐	☐	☐

Financial Planning Mechanisms - Are they Adequate?	Yes	No	Unknown	NA
Does your system have audited financial statements prepared by a certified public accountant (CPA)?	☐	☑	☐	☐
Does your water system income exceed operating expenses (including debt service)?	☑	☐	☐	☐
Does your water utility support other enterprise funds or the general fund?	☐	☑	☐	☐
Does your system require revenues from other enterprise funds or the general fund for normal operations?	☐	☑	☐	☐
Do you employ standardized accounting and tracking systems?	☑	☐	☐	☐
Do you track budget performance?	☑	☐	☐	☐
Do you keep records to substantiate depreciation of fixed assets and accounting for reserve funds?	☐	☑	☐	☐
Are financial management recordkeeping systems organized?	☑	☐	☐	☐
Are controls exercised over expenditures?	☑	☐	☐	☐
Are controls exercised to keep from exceeding your budget?	☑	☐	☐	☐
Are there purchasing procedures?	☑	☐	☐	☐
Did your system's governing body review this assessment before returning it to the South Dakota Department of Environment and Natural Resources?	☑	☐	☐	☐

Financial Spreadsheet

Applicant: Town of Florence
Completed by: Peggy Lindahl/Greg Maag
Date: 2/12/15

4 Year Projections	Last Year Actual	Current Year Budget Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected
Enter Year:	2014	2015	2016	2017	2018
1. Beginning Cash on Hand	$44,848	$53,138	$38,873	$63,498	$79,153
2. Cash Receipts:					
a. Unmetered Water Revenue					
b. Metered Water Revenue	$45,647	$50,000	$80,000	$173,430	$173,430
c. Other Water Revenue	$2,106	$2,000	$2,000	$2,000	$2,000
d. Total Water Revenues (2a through 2c)	$47,753	$52,000	$82,000	$175,430	$175,430
e. Connection Fees					
f. Interest and Dividend Income					
g. Other Income					
h. Total Cash Revenues (2d through 2g)	$47,753	$52,000	$82,000	$175,430	$175,430
i. Transfers in/Additional Rev Needed					
j. Loans, Grants or other Cash	$8,000	$100,000	$2,254,375		
Please specify					
3. Total Cash Receipts (2h through 2j)	$55,753	$152,000	$2,336,375	$175,430	$175,430
4. Total Cash Available (1+3)	$100,601	$205,138	$2,375,248	$238,928	$254,583
5. Operating Expenses					
a. Salaries and wages	$873	$2,530	$2,130	$2,240	$1,915
b. Employee Pensions and Benefits	$46	$130	$120	$110	$95
c. Purchased Water	$25,458	$35,265	$35,265	$30,600	$30,600
d. Purchased Power	$2,715	$2,750	$2,750	$2,750	$2,800
e. Fuel for Power Production	$2,710	$2,750	$2,750	$2,750	$2,800
f. Chemicals					
g. Materials and Supplies	$75	$100	$110	$120	$130
h. Engineering Services	$10,013				
i. Contractual Services – Other		$100,000			
j. Equip. Rent/Real Property					
k. Transportation Expenses					
l. Laboratory	$741	$750	$750	$750	$760
m. Insurance	$200	$240	$250	$250	$260
n. Regulatory Commission Expenses					
o. Advertising					
p. Miscellaneous					
q. Total Cash O&M Expenses (5a through 5p)	$42,831	$144,515	$44,125	$39,570	$39,360
r. Replacement Expenditures	$4,632	$21,750	$13,250	$2,250	$2,250
s. Total OM&R Expenditures (5q+5r)	$47,463	$166,265	$57,375	$41,820	$41,610
t. Loan Principal/Capital Lease Payments				$47,850	$49,424
u. Loan Interest Payments				$70,105	$68,531
v. Transfers Out					
w. Capital Purchases (specify):					
distribution			$1,733,175		
storage			$521,200		
x. Other					
6. Total Cash Paid Out (5s through 5x)	$47,463	$166,265	$2,311,750	$159,775	$159,565
7. Ending Cash Position (4 - 6)	$53,138	$38,873	$63,498	$79,153	$95,018

Financial Spreadsheet

Applicant: Town of Florence
Completed by: Peggy Lindahl/Greg Maag
Date: 2/12/15

4 Year Projections	Last Year Actual	Current Year Budget Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected
8. Number of Customer Accounts	149	149	149	149	149
9. Avg Annual User Charge Account (2d/8)	$320	$349	$550	$1,177	$1,177
10. Coverage Ratio (2h-5s)/(5t+5u)	0.0	0.0	0.0	1.1	1.1
11. Operating Ratio (2d/5s)	1.0	0.3	1.4	4.2	4.2
12. Additions to Reserve Funds for the Year:					
a. Debt Service Reserve					
b. Bond Retirement Reserve					
c. Capital Improvement Reserve					
d. Replacement Reserve					
e. Other					
13. Total Reserves (12a through 12e)					
14. Year End Operating Cash (7 - 13)	$53,138	$38,873	$63,498	$79,153	$95,018

Exhibit I

MUNICIPALITY OF FLORENCE
STATEMENT OF FUND CASH BALANCES
ALL FUNDS
31-Dec-14

				Enterprise Funds					
	General Fund	Fund	Fund	Water Fund	Sewer Fund	Fund	Fund	Fund	Total
Cash Assets:									
Cash in Checking Accounts	152,110.51			17,826.12	38,689.93				208,626.56
Change and Petty Cash									0.00
Passbook Savings									0.00
Savings Certificates	16,399.23			6,086.29	6,086.29				28,571.81
									0.00
									0.00
									0.00
									0.00
101 FUND CASH BALANCES (Note 1)	168,509.74	0.00	0.00	23,912.41	44,776.22	0.00	0.00	0.00	237,198.37

Municipal funds are deposited or invested with the following depositories:

PEOPLES STATE BANK	237,198.37
	237,198.37

Note 1: These amounts must equal the amounts stated on the bottom line of Exhibit II, page 3.

MUNICIPALITY OF FLORENCE
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2014

				Enterprise Funds					
	General Fund	Fund	Fund	Water Fund	Sewer Fund	Fund	Fund	Fund	Total
Receipts (Source):									
311 Property Taxes	8,578.14								8,578.14
313 Sales Tax	75,055.49								75,055.49
316 911 Telephone Surcharge	1,728.37								1,728.37
311-319 Other Taxes (319)	4,492.91								4,492.91
320 Licenses and Permits	80.00								80.00
331 Federal Grants									0.00
335.1 Bank Franchise Tax	602.55								602.55
335.2 Motor Vehicle Commercial	305.85								305.85
Prorate									0.00
335.3 Liquor Tax Reversion	1,614.65								1,614.65
335.4 Motor Vehicle Licenses (5%)	3,209.45								3,209.45
335.6 Fire Insurance Premium	201.70								201.70
Reversion									0.00
335.8 Local Government Highway	3,266.45								3,266.45
and Bridge Fund									0.00
338.1 County Road Tax (25%)	50.00								50.00
338.2 County Highway and Bridge									0.00
Reserve Tax (25%)									0.00
338.3 County Wheel Tax	172.32								172.32
331-339 Other Intergovernmental									0.00
Revenue (339)									0.00
341-349 Charges for Goods and	13,278.83								13,278.83
Services (341)									0.00
351-359 Fines and Forfeits (351)									0.00
361 Investment Earnings	278.14								278.14
362 Rentals	4,514.00								4,514.00
363-369 Other Revenues (369)	19,105.81								19,105.81

MUNICIPALITY OF FLORENCE
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2014
(continued)

				Enterprise Funds					
	General Fund	Fund	Fund	Water Fund	Sewer Fund	Fund	Fund	Fund	Total
ENTERPRISE FUNDS									
380 Enterprise Operating Revenue				65,304.07	37,113.49				102,417.56
Surcharge as Security for Debt									0.00
380.05 Lottery Revenues									0.00
330 Operating Grants									0.00
Total Receipts	136,534.66	0.00	0.00	65,304.07	37,113.49	0.00	0.00	0.00	238,952.22
Disbursements (Function):									
411-419 General Government (414)	27,145.75								27,145.75
421 Police	0.00								0.00
422 Fire	2,197.00								2,197.00
423-429 Other Public Safety (429)	19,980.36								19,980.36
431 Highways and Streets (includes									0.00
snow removal & street lights)	9,968.63								9,968.63
432 Sanitation (includes garbage & rubble sites)	19,869.62								19,869.62
437 Cemeteries	0.00								0.00
433-439 Other Public Works (435)									0.00
441-449 Health and Welfare (441)									0.00
451-459 Culture-Recreation (451)	14,462.13								14,462.13
461-469 Conservation and Development (465)									0.00
470 Debt Service									0.00
480 Intergovernmental Expenditures									0.00
490-492 Miscellaneous (492)	105.54								105.54

MUNICIPALITY OF FLORENCE
STATEMENT OF RECEIPTS, DISBURSEMENTS AND CHANGES IN FUND CASH BALANCES
ALL FUNDS
For the Year Ended December 31, 2014
(continued)

				Enterprise Funds					
	General Fund	Fund	Fund	Water Fund	Sewer Fund	Fund	Fund	Fund	Total
ENTERPRISE FUNDS									
410 Personal Services									0.00
420 Other Expenses									0.00
426 Supplies and Materials				47462.89	27953.30				75,416.19
Total Disbursements	93729.03	0.00	0.00	47462.89	27953.30	0.00	0.00	0.00	169145.22
391.01 Transfers In									0.00
51100 Transfers Out	( )	( )	( )	( )	( )	( )	( )	( )	0.00
391.03 Sale of Municipal Property									0.00
391.04 Compensation for Loss or Damage to Capital Assets									0.00
391.2 Money Received From Borrowing									0.00
391.07 Capital Contributions (Grants)									0.00
									0.00
									0.00
Subtotal of Receipts, Disbursements and Transfers	42805.63	0.00	0.00	17841.18	9160.19	0.00	0.00	0.00	69807.00
Fund Cash Balance, January 1, 2014	125704.11			6071.23	35616.03				167,391.37
Adjustments:									
									0.00
									0.00
									0.00
Restated Fund Cash Balance, January 1, 2014	125704.11	0.00	0.00	6071.23	35616.03	0.00	0.00	0.00	167391.37
FUND CASH BALANCE, DECEMBER 31, 2014	168509.74	0.00	0.00	23912.41	44776.22	0.00	0.00	0.00	237,198.37

ORDINANCE NO. 451
2015 APPROPRIATION ORDINANCE

AN ORDINANCE BEING THE ANNUAL APPROPRIATION ORDINANCE FOR THE YEAR COMMENCING JANUARY 1, 2015, AND THE LEVYING OF THE PROPERTY TAX FOR THE YEAR 2015.

SECTION 1.

BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF FLORENCE, CODINGTON COUNTY, SOUTH DAKOTA, THAT THE FOLLOWING SUMS ARE APPROPRIATED TO MEET THE OBLIGATIONS OF THE MUNICIPALITY.

	GENERAL FUND		PUBLIC ENTERPRISE	TOTAL
410 GENERAL GOV'T				
411 LEGISLATIVE	6000			
413 ELECTIONS	1500			
414 FINANCIAL ADM	19812			
419 OTHER	11020			
TOTAL	**38332**			**38332**
420 PUBLIC SAFETY				
422 FIRE	4650			
TOTAL	**4650**			**4650**
430 PUBLIC WORKS				
431 STREETS	27530			
432 SANITATION	24475			
TOTAL	**52005**			**52005**
450 CULTURE-RECREATION				
452 PARKS	10000			
TOTAL	**10000**			**10000**
SELF SUPPORTING FUNDS				
433 WATER-SEWER			87428	
TOTAL				**87428**
TOTAL APPROPRIATIONS	**104987**		**87428**	**192415**

SECTION II

THE FOLLOWING IS A SUMMARY BY FUND OF THE APPROPRIATED AMOUNTS AND THE MEANS OF FINANCING THEM.

TAX SUPPORTED FUNDS:	GENERAL FUND
APPROPRIATION:	104987
MEANS OF FINANCE:	
ESTIMATED UNENCUMBERED	
CASH BALANCE	69231
ESTIMATED REVENUE	12000
TAX LEVY	23756
	104987
SELF SUPPORTING FUNDS:	WATER-SEWER
	FUND
ESTIMATED UNENCUMBERED	
CASH BALANCE	6718
ESTIMATED REVENUE	87428
TOTAL ESTIMATED REVENUE	
AND REVENUE	**94146**
LESS APPROPRIATIONS	87128
ESTIMATED SURPLUS	**7018**
LESS ESTIMATED SURPLUS	
RETAINED	7018

SECTION III

THAT THERE IS HEREBY LEVIED UPON THE TAXABLE PROPERTY WITHIN THE SAID TOWN OF FLORENCE, SD, FOR THE PURPOSE OF PROVIDING FUNDS TO MEET THE LAWFUL EXPENSE AND LIABILITIES OF THE TOWN AS HEREIN BEFORE SET FORTH FOR THE CALENDAR YEAR 2015. A TAX SUFFICIENT ENOUGH TO RAISE THE ABOVE AMOUNTS WHICH AS RECEIVED BY THE FINANCE OFFICER SHALL BE CREDITED TO THE FOLLOWING FUND TO WIT: 100: **GENERAL FUND.....501478**

SECTION IV.

THE FINANCE OFFICER IS DIRECTED TO CERTIFY THE DOLLAR AMOUNT OF TAX LEVIES MADE IN THIS ORDINANCE TO THE COUNTY AUDITOR.

_____

PRESIDENT, TOWN BOARD

FIRST READING: September 8, 2014

SECOND READING:

APPROVED-ADOPTED:

_____

FINANCE OFFICER

410 GENERAL GOVERNMENT			**432 SANITATION**	
			432.3 COLLECTION	$24,475
411 LEGISLATIVE			429 OTHER	
411.1 BOARD			**TOTAL SANITATION**	$24,475
411 SALARIES	$3,640		**TOTAL PUBLIC WORKS**	**$52,005**
412 OASI	$230			
416 UE INS.	$130		**450 CULTURE-RECREATION**	
429 OTHER			**452 PARKS**	
411.3 PROCEEDINGS			452.1 ADMINISTRATION	
423 PUBLISHING	$2,000		411 SALARIES	$1,900
TOTAL LEGISLATIVE	**$6,000**		412 OASI	$155
			429 OTHER	$4,745
413 ELECTIONS			452.6 PARK LIGHTING	
429 OTHER	$1,500		428 UTILITIES	$3,200
TOTAL ELECTIONS	**$1,500**		**TOTAL CULTURE-RECREATION**	**$10,000**
414 FINANCIAL ADM.			**430 PUBLIC WORKS**	
414.1 ATTORNEY			**433 WATER-SEWER**	
422 LEGAL FEES	$5,000		433.4 DISTRIBUTION	
414.2 FINANCE OFFICER			411 SALARIES	$4,700
411 SALARIES	$7,620		412 OASI	$200
412 OASI	$513		416 UE INSURANCE	$24
416 UE INS.	$35		421 INSURANCE	$400
429 OTHER			423 PUBLISHING/MISC	$290
414.6 INSURANCE,BONDS, DUES			425 MAINTENANCE	$42,029
421 INSURANCE, DUES	$6,644		428 UTILITIES	$4,520
TOTAL FINANCIAL ADM.	**$19,812**		429 CRW	$35,265
			441 PRINCIPAL	$0
419 OTHER			442 INTEREST	$0
419.2 GOV'T. BUILDINGS			**TOTAL PUBLIC WORKS**	**$87,428**
428 UTILITIES(OLD FH)	$220			
428 UTILITIES(CC/FH)	$5,800			
429 OTHER	$5,000			
441 PRINCIPAL/INTEREST	$0			
TOTAL OTHER	$11,020			
TOTAL GENERAL GOV'T.	**$38,332**			
420 PUBLIC SAFETY				
422 FIRE				
422.9 VOLUNTEER DEPT.				
422.1 Fire Administration: Truck Ins.	$2,350			
422.3 Dues	$1,500			
422.9 Workman's Comp	$800			
TOTAL FIRE	$4,650			
TOTAL PUBLIC SAFETY	**$4,650**			
430 PUBLIC WORKS				
431 HIGHWAY-STREETS				
431.2 STREETS			**421 INSURANCE-includes all insurance, ML dues	
411 SALARIES	$3,000		**423 WATER-SEWER-phone, misc., dues, testing	
412 OASI	$230		**425 MAINTENANCE-blading, snow, culverts, gravel	
425 MAINTENANCE	$15,000		**429 OTHER-supplies, travel, misc.	
428 UTILITIES	$5,700		**429 PARKS	
429 OTHER(TRUCK)	$3,600		**428 UTILITIES-includes propane contracts	
TOTAL HIGHWAYS-STREETS	**$27,530**			

FLORENCE WATER/SEWER RATE EFFECTIVE 11/01/2008

GALLONS	WATER	SEWER	SANITATION	TOTAL
1000	$12.00	$13.00	$12.00	$37.00
2000	$17.00	$16.00	$12.00	$45.00
3000	$22.00	$19.00	$12.00	$53.00
4000	$27.00	$22.00	$12.00	$61.00
5000	$32.00	$25.00	$12.00	$69.00
6000	$37.00	$28.00	$12.00	$77.00
7000	$42.00	$31.00	$12.00	$85.00
8000	$47.00	$34.00	$12.00	$93.00
9000	$52.00	$37.00	$12.00	$101.00
10000	$57.00	$40.00	$12.00	$109.00

SEWER/WATER/SANITATION IS PAYABLE THE 10TH OF THE MONTH!!!!
WATER METERS ARE TO BE READ THE FIRST OF THE MONTH AND DUE THE 10TH OF THE SAME MONTH.
FEES NOT PAID BY THE 10TH OF THE MONTH WILL BE SUBJECT TO A $10.00 LATE FEE. THIS WILL BE STRONGLY ENFORCED.
IF NOT PAID BY THE 10TH OF THE FOLLOWING MONTH THE SERVICE WILL BE DISCONTINUED AND A $50.00 RECONNECT FEE WILL BE IMPOSED.

Water usage in excess of 10,000 gal. is charged at the rate of $4.60/1000 gal.
Sewer charges stop at the 10,000 gal. rate for all single family outlets.
Public, commercial and multi-family units will be charged sewer at the rate of $3.50/thousand gallons of water used for usage in excess of 10,000 gallons.
The garbage pickup rate is $12.00/month and is payable with the W/S payment.

In figuring your water reading, read by thousands. If the hundreds is less than 500 drop it off. If it is more than 500 move up to the next thousand.

PREVIOUS READING	CURRENT READING	GALLONS USED
314750	325600	10850
315000	326000	11000

You would use the reading of 11,000 gallons used. Your water bill would be $61.60 and your sewer would be $40.00 (unless you are a commercial building).

RESOLUTION NO. 395

RESOLUTION AUTHORIZING AN APPLICATION FOR FINANCIAL ASSISTANCE, AUTHORIZING THE EXECUTION AND SUBMITTAL OF THE APPLICATION, AND DESIGNATING AN AUTHORIZED REPRESENTATIVE TO CERTIFY AND SIGN PAYMENT REQUESTS.

WHEREAS, the Town of Florence (the "Town") has determined it is necessary to proceed with the construction of improvements to its Water System (the "Project"); and

WHEREAS, the Town has determined that financial assistance will be necessary to undertake the Project and an application for financial assistance to the South Dakota Board of Water and Natural Resources (the "Board") will be prepared; and

WHEREAS, it is necessary to designate an authorized representative to execute and submit the Application on behalf of the Town and to certify and sign payment requests in the event financial assistance is awarded for the Project,

NOW THEREFORE BE IT RESOLVED by the Town as follows:

1. The Town hereby approves the submission of an Application for financial assistance in an amount not to exceed $2,400,000 to the South Dakota Board of Water and Natural Resources for the Project.

2. The President is hereby authorized to execute the Application and submit it to the South Dakota Board of Water and Natural Resources, and to execute and deliver such other documents and perform all acts necessary to effectuate the Application for financial assistance.

3. The President is hereby designated as the authorized representative of the Town to do all things on its behalf to certify and sign payment requests in the event financial assistance is awarded for the Project.

Adopted at Florence, South Dakota, this 2nd day of February 2015.

APPROVED:

Patrick S Callen

President Town of Florence

(Seal)
Attest: Peggy Lindau
Town Finance Officer

GREG MAAG

From: Town of Florence [tof@itctel.com]
Sent: Wednesday, March 18, 2015 8:55 AM
To: GREG MAAG
Subject: FW: Registration Complete for Florence, Town Of / 017186243

FYI

Peggy Lindahl
Finance Officer
Town of Florence
605-758-2085
tof@itctel.com

From: notification@sam.gov [mailto:notification@sam.gov]
Sent: Wednesday, March 18, 2015 8:52 AM
To: tof@itctel.com
Subject: Registration Complete for Florence, Town Of / 017186243

This email was sent by an automated administrator. Please do not reply to this message.

Dear Peggy Lindahl,
Congratulations! You have successfully completed the registration process for Florence, Town Of / 017186243 in the U.S. federal government's System for Award Management (SAM).

What happens next?
Your SAM registration will go through an external validation process with the Internal Revenue Service (if applicable) and the Defense Logistics Agency's Commercial and Government Entity (CAGE) Code system.

You will receive another e-mail from SAM.gov once your IRS and/or CAGE validations are complete, which can take as long as 7-10 business days. Until then, you will not be eligible for contracts, assistance awards, or to do business with the Federal government, as determined by your Entity's profile.

Please note:
-- If your registration fails the IRS validation step, you will receive an email from SAM.gov with information on next steps needed from you to complete validation.
-- If you receive a supplemental email from an "@dla.mil" address regarding issues with your entity and CAGE Code, be sure to follow their instructions critical to passing CAGE validation. CAGE will contact your entity's Government Business Point of Contact as listed in your registration.

Checking the Status of your SAM Registration
You may check on the status of your registration at any time by logging into www.sam.gov and clicking on your Entity Record page. In addition, be sure to check your spam email folder for any communications from SAM, IRS and/or DLA related to your entity's registration. Remember CAGE will contact your Government Business POC and not your SAM Entity Administrator.

Additional questions?
If you have not received another email from SAM.gov and it has been more than 10 business days, you may contact the Federal Service Desk (FSD):
-- Submit a question FSD explaining your issue and an agent will respond by email, during normal business

hours - Monday through Friday, 8 a.m. to 8 p.m. ET.
-- Phone toll-free: U.S. callers, 866-606-8220; international callers, 334-206-7828; U.S. military, via DSN: 866-606-8220.

Thank you,
The System for Award Management (SAM) Administrator
https://www.sam.gov/portal/public/SAM

OTHER RELEVANT INFORMATION related to your registration:

What is a CAGE Code?
Learn more about CAGE Codes and how they are assigned here:
https://www.fsd.gov/app/answers/detail/a_id/186/kw/cage

What is CAGE validation?
When you submit your registration in SAM, it is forwarded to CAGE for additional review and validation. If the data you submitted passes all CAGE edits, the registration will be processed automatically and returned to SAM with minimal processing time. This occurs for the majority of registrations. If the CAGE validation process identifies a potential anomaly when matching the key data elements you entered during SAM registration, your registration will be stopped and placed into a manual review process. During the manual review, the CAGE office may need to receive clarification or valid documentation to support the data you entered into the SAM registration. If this is the case, the CAGE office will send an email to the Government Business Point of Contact requesting the needed information. It is important to reply to any emails sent to you by CAGE (coming from an "@dla.mil" e-mail address) within FIVE business days and supply the requested information or documentation. In most instances, if the vendor provides the required information, the CAGE office is able to process registrations that require manual review within 10 business days after receipt from SAM. If you are contacted and do not respond to the email within five business days, your registration will be rejected by the CAGE office and returned to SAM. You will have to access SAM and save/submit on each page of your registration to resubmit to CAGE for processing. Once your registration is active, you can view your CAGE Code on the web by searching the active registrations in SAM, as long as you have not opted out of public display, or by logging in to your account.

Tax Identification Number
The Tax Identification Number (TIN) is a nine-digit number which is either an Employer Identification Number (EIN) assigned by the Internal Revenue Service (IRS) (http://www.irs.gov/businesses/small/article/0,,id=98350,00.html), or a Social Security Number (SSN) assigned by the Social Security Administration (SSA) (http:/www.ssa.gov/replace_sscard.html).
If you do not know your TIN, contact the IRS at 1-866-255- 0654 (Option 4). If you operate as an individual sole proprietorship, you may use your SSN if you do not have an EIN, but you are strongly encouraged to apply for and use an EIN. If you are located outside of the U.S. and do not pay employees within the U.S., you are not required to provide a TIN. When entering your TIN on the web site, enter only the numbers; do not include the dashes (Example: 123456789 not 123-45-6789).

Watertown Public Opinion
AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA

COUNTY OF CODINGTON } ss

Mark S. Roby, being duly sworn says: That Watertown Public Opinion is, and during all the times hereafter mentioned was, a daily legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4, as amended, published at Watertown, Codington County, South Dakota, by Watertown Public Opinion; that affiant is and during all of said times was an employee of the publisher of such newspaper and has personal knowledge of the facts stated in this affidavit; that the notice, order or advertisement, a printed copy of which is attached, was published in said newspaper upon:

Thursday the 15th day of January 2015

that the full amount of the fee charged for publishing the same, including a $5.00 affidavit fee, to-wit, the sum of $55.98 insures solely to the benefit of the publisher of said newspaper; that no agreement or understanding for the division of the fee has been made with any person, and that no part of the fee has been agreed to be paid to any other person.

Subscribed and sworn to before me this 15th day of January A.D. 2015.

CHRISTINE A. CARTER
NOTARY PUBLIC
SOUTH DAKOTA
SEAL

Notary Public, South Dakota

My commission expires January 23, 2020

NOTICE OF HEARING

NOTICE OF PUBLIC HEARING FOR THE TOWN OF FLORENCE WATER AND WASTEWATER IMPROVEMENTS PROJECTS

The Town of Florence is proposing to construct improvements to the water and wastewater systems. The Town of Florence is seeking up to $5,300,000 of funding from the Board of Water and Natural Resources. The funds could be either grants from the State Consolidated Water Facilities Construction Program or loans from the Clean and Drinking Water State Revolving Fund (SRF) Programs. The expected CWSRF loan terms are 3.25 percent for 30 years. The expected DWSRF loan terms are 3 percent for up to 20 years, and the Board of Water and Natural Resources may forgive all or a portion of the loan principals. The amount and source of funds will be determined by the Board of Water and Natural Resources when the applications are presented at a scheduled board meeting.

The Town of Florence expects to be applying to the USDA Rural Development Office for loan and grant funding for the proposed water and wastewater improvements projects. Subject to program eligibility, the Town of Florence expects to submit an application to the State of South Dakota for a Community Development Block Grant to make possible the construction of the improvements projects. The Town expects to apply for up to $500,000 of CDBG funds to be used for the proposed $5,300,000 project.

The purpose of the public hearing is to discuss the proposed projects, the proposed financing, the source of repayment for the loans and to receive comments regarding the applications from members of the community. The meeting is open to the public and interested persons are encouraged to attend.

Public comments will also be taken during this public hearing on the Town of Florence community development and housing needs.

Notice is further given to persons with disabilities that this hearing is being held a physically accessible place. The TDD number is 1 800 877 1113. Disabled individuals wishing assistance should contact the Florence Finance Office for information and/or special assistance -the request should be made 48 hours in advance of the meeting.

The public hearing will be held at the Florence Community Center on February 2, 2015 at 6:00 PM.

Published once at a total approximate cost of $48.36.
(January 15, 2015)
55.98

All legal notices in the Public Opinion and other South Dakota newspapers can be found at www.sdpublicnotices.com

MEETING SIGN-IN SHEET

Date: FEB 2, 2015 WATER/WASTEWATER IMPROVEMENTS

Name (Print)		Phone	
Ed Morrison		758-2507	
JOSEPH F. GIOVANNETTONE		758-2535	
Georgia Kahnke		758-2549	
Neal Schafer		758-2389	
MARCIA Oberauer		758-2710	
Greg Maag		882-5115	
Tony & Elka Wiegmann		231-383-3348	
Kathryn Asfeld		758-2004	
Kim DeVille		690-0842	
Pat Grygiel		758-2223	
Vincent Flemming		758 2350	
Bob Babcock		225-1212	
Shirley Flemming		758-2350	
David Wick		225-1212	
Ed Flemming		758-2340	
Jeremy DeVilk		758-2004	
Peggy Lindahl		758-2085	
PAT CALLAN		758-2156	

MEETING SIGN-IN SHEET

Date: FEB 2, 2015 WATER/WASTEWATER IMPROVEMENTS

Name (Print)		Phone	
Curtiss NEHLICH		758-5621	
Margie Lambert		758-2133	
CURT LINDAHL		758-2085	

MEETING SIGN-IN SHEET

Date: FEB 2, 2015 WATER/WASTEWATER IMPROVEMENTS

Name (Print)		Phone	
Dallas Oberauer		758-2710	

TOWN OF FLORENCE
PO BOX 137
FLORENCE SD 57235

Patrick Callan, Mayor
605-758-2156

Christy Busskohl, Trustee
605-237-9053

Kyle Obenauer, Trustee
605-237-3800

Town Board Special Meeting
February 2, 2015
6:00 p.m.

A special informational meeting was held on February 2, 2015 at 6:00 p.m. at the Community Center. Presiding over the information meeting was Bob Babcock of Helms & Associates of Aberdeen. Also present were David Wick of Helms & Associates and Greg Maag of First District. Mr. Babcock explained the study for the water/wastewater proposed project. Mr. Maag was there to explain the process of obtaining funding for the project.

After each segment of the study there was a question period.

A sign in sheet is provided.

Meeting was adjourned at 7:50 p.m.

Respectfully submitted
Peggy Lindahl
Finance Officer
Town of Florence.

"In accordance with Federal law and U.S. Dept. of Agriculture policy, the Town of Florence is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. "Not all prohibited bases apply to all programs. To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Ave, S.W., Washington D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382.

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& Technical Assistance

FACILITY PLAN
FOR THE
WATER SYSTEM IMPROVEMENTS
FOR THE
TOWN OF FLORENCE, SD

December 2014

A-5785

Helms & ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

221 Brown County Hwy 19
P.O. Box 111
Aberdeen, SD 57402

Phone: (605) 225-1212 Fax: (605) 225-3189
Email: operations@helmsengineering.com

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Division of Financial
& Technical Assistance

FACILITY PLAN

FOR THE

WATER SYSTEM IMPROVEMENTS

FLORENCE, SOUTH DAKOTA

DECEMBER 2014

HELMS # A-5785

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of South Dakota.

By: _____

Bob J. Babcock, P.E.

Registration Number: 4812

Date: 12-9-14

Helms & ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

P.O. Box 111
Aberdeen, South Dakota 57402

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1 INTRODUCTION

1.1 PURPOSE

The Town of Florence has contracted with the engineering firm of Helms and Associates (Helms) to complete an investigation of its existing water and wastewater collection and treatment systems. The intent of the study is to identify and quantify problems that exist within these systems.

The results of the completed investigation are presented in this Facility Plan. The Facility Plan contains the information on which the Town Board of Florence can base cost-effective decisions relating to the necessary improvements to its water collection and treatment systems. The Town Board will, after appropriate public input, determine the best options to make any needed improvements that are identified in the Facility Plan.

Loan and grant funding will undoubtedly be desired to make any of the improvements that are recommended herein. This Facility Plan will be a valuable tool for the community to pursue the funding necessary in its efforts to make needed public improvements.

1.2 WATER SCOPE OF WORK

The scope of work for this Water Evaluation and Study includes:

1) Completion of an analysis of requirements of governmental authorities having jurisdiction to approve the design of the project and participation in consultations with such authorities.
2) Completion of an analysis of the existing water distribution system relating to quantity and quality, compliance with existing and proposed drinking water standards, water losses in the system, identification of system age, evaluation of current water pressures and fire flow capacities and evaluation of current and future needs.
3) Completion of a general economic analysis and comparison of various alternatives.
4) Preparation of a written report, with maps and sketches, setting forth the findings and recommendations of the Preliminary Study, providing Florence with ten (10) copies of said report and meeting with Florence to review said report.

5) Assistance in the presentation of the findings and recommendations of the Preliminary Study at not more than one (1) public hearing.

1.3 AUTHORIZATION

The firm of Helms and Associates was authorized as per a Letter of Agreement dated September 9, 2013, by the governing body of the Town of Florence to proceed with the evaluation of the Town of Florence's water systems. The following report presents the findings and conclusions resulting from the authorized study.

2 COMMUNITY DESCRIPTION

2.1 GENERAL INFORMATION

The Town of Florence is a relatively small community that was incorporated in 1907. According to the 2010 Census Bureau information, Florence has a population of 374. Florence is located in northwestern Codington County, South Dakota. Florence is located in the southwest quarter of Section 4, Township 148 North, Range 54 West. Its primary access is via South Dakota State Highway 20. The Town is located approximately 12 miles northwest of Watertown, SD on South Dakota State Highway 20 as indicated in Figure 2.1-1.

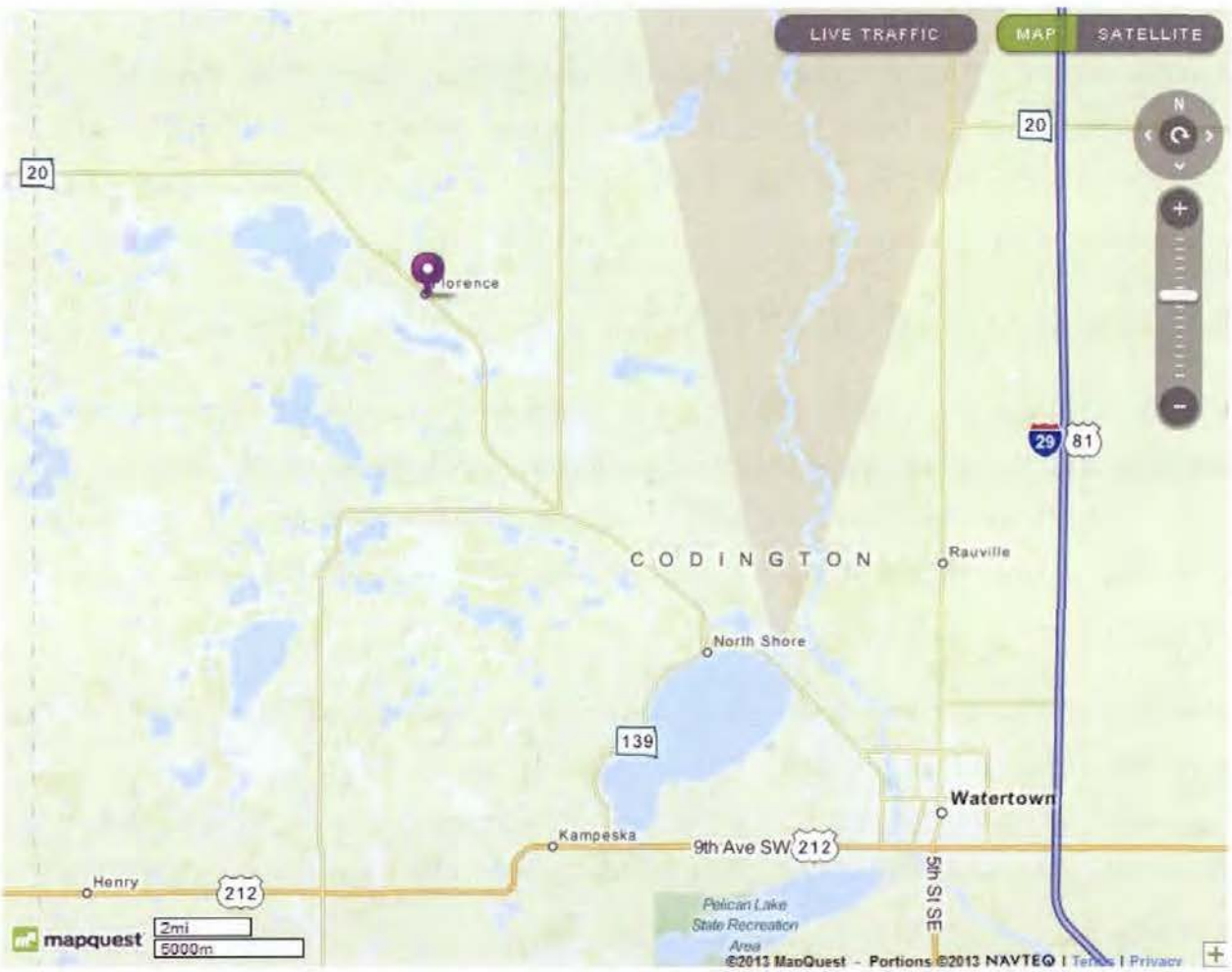


Figure 2.1-1 Location Map of the Town of Florence

Because of its population, the Town of Florence is classified as a third class city. Its government consists of a three-member Board of Trustees. A part-time water/sewer/street superintendent is employed by the Board. This individual provides necessary public utility maintenance within the community. The town also employs a finance officer to assist the board with financial matters.

Florence is primarily a residential community, with limited services available. Most residents are employed in agricultural sector or its related service industry, or commute to jobs in nearby Watertown. There are no major industries located in the town. Retail trade is generally related to goods and services associated with agricultural activities in the area.

Codington County is in the northeastern part of South Dakota. It has a total surface area of approximately 459,008 acres. Communities located within the county include Watertown (the county seat), Henry, Kranzburg, South Shore, and Wallace. Approximately 367,107 acres or 79.9 percent of the total acreage of the county is devoted to crop production. Corn, soybeans, wheat and land used for hay are the main crops (USDA, 2007).

2.2 POPULATION CHARACTERISTICS

Florence's population is 374 according to the 2010 census. The most recent Census Bureau data available at the time of this report indicates that Florence's median age was 34.4 years as compared to the state's median age of 36.9. At the time census data was gathered, 17.8% of its population was over the age of 65. In comparison, the state's population that is over the age of 65 is 14.3%.

Data from the 2010 census indicates that the community's median household income of $44,834 was about $166 lower than the state's median household income of $45,000. At the time the census data was gathered, about 3.7% of the families living in the community had incomes at or below the poverty level while 11.8% of the families living in Codington County fell into this category.

2.3 POPULATION PROJECTIONS

The 2010 Census Bureau data shows the population for Florence to be 374. Table 2.3.1 and Figure 2.3.1 indicate Census Bureau population data from 1910 to 2010 and present the estimated population for the community through the year 2040. As shown by the historical data, the population has fluctuated over the past 60 years. In general the population has been increasing since 1970. The increase in recent years is not a typical trend for rural communities such as Florence. This trend is likely due to the proximity to Watertown, a rapidly growing community. This can be accredited to the number and size of the families moving from larger cities to rural communities and commuting to work. The increase in population will slow down and it is projected that the population will level out.

As with all communities of similar size, there are always efforts to entice new industrial and commercial enterprises into locating in Florence. Even though this possibility exists, it is not anticipated that these would have a significant impact on the projected water flows. As a result, the 2040 census population projection of 452 will be utilized in determining the current and projected water usage. The data shown in Table 2.3.1 is shown graphically in Figure 2.3-1.

Table 2.3-1 Historic and Projected Population

Year	Population	Year	Population
1910	270	1980	190
1920	290	1990	192
1930	298	2000	299
1940	254	2010	374
1950	226	2020 (Est.)	415
1960	216	2030 (Est.)	438
1970	175	2040 (Est.)	452

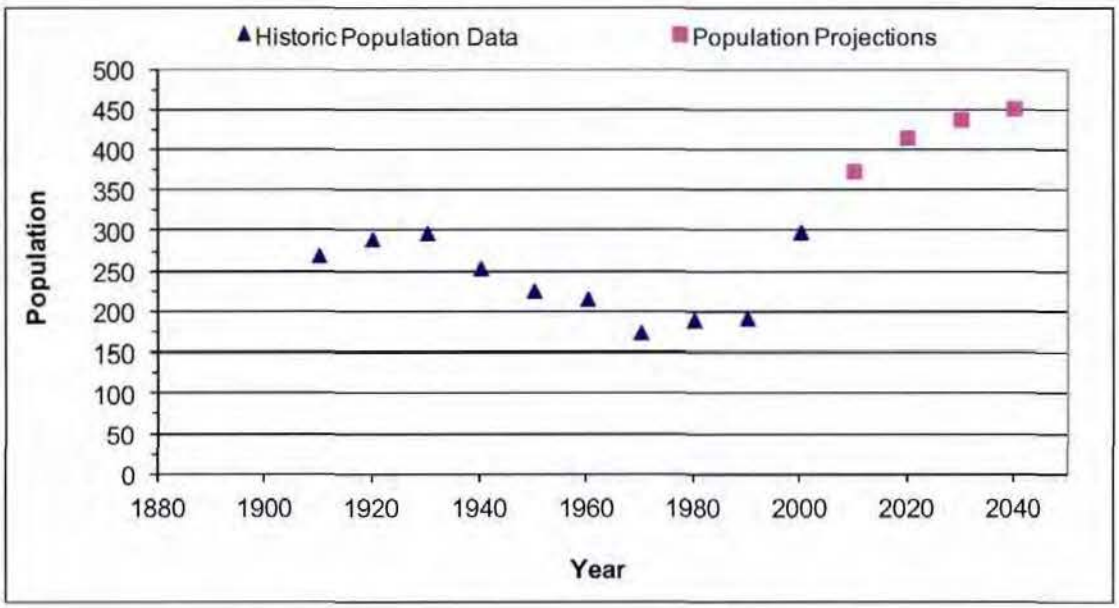


Figure 2.3-1 Historic and Projected Population

2.4 TOPOGRAPHY / CLIMATE

Codington County lies mostly in the Northern Glaciated Plains Ecoregion which is characterized by flat terrain to gently rolling landscapes composed of glacial drift. The major drainage ways in the county are the Big Sioux River and the North Fork Yellow River, both rivers eventually feed into the Mississippi River. Elevations in the county range from 1,500 feet from the surface of the lake plain to 2,010 feet above mean sea level.

The area's climate is generally described as a continental climate. Winters are relatively long and cold while summers are fair and warm. Normal annual precipitation for the area is about 22 inches. Approximately 74 percent (16.5 inches) of the total precipitation generally occurs between April and September, but in two years out of ten, rainfall during this period was less than seven inches. Precipitation received from November through March is generally in the form of snowfall, with the average seasonal amount being 36 inches.

Temperatures range from an average daily temperature of 20° F in winter to an average daily temperature of 83° F in summer. However, temperatures have been as low as -40° F and have exceeded 110° F. Winds average 12 miles per hour in spring with prevailing directions from the south during the summer and northwest during the winter months.

2.5 ENVIRONMENTAL REVIEW INFORMATION

As part of the environmental assessment requirement for the facility planning process, the project sponsor is required to contact various state and federal agencies. Environmental assessment letters have been sent to the following agencies: South Dakota Department of Environment and Natural Resources, United States Department of Interior Fish and Wildlife Service, Natural Resources Conservation Service, South Dakota Department of Game, Fish, and Parks. It is expected that no adverse environmental impacts will occur due to construction taking place on previously disturbed areas.

2.5.1 Floodplains and Wetlands

The US Fish and Wildlife Service, the US Army Corps of Engineers and the South Dakota Department of Game, Fish and Parks were contacted for input related to the proposed improvements. No floodplains or wetlands in the area are expected to be involved in the project. Correspondence related to these contacts is placed in Appendix A.

2.5.1.1 Flood Hazard Evaluation

The U.S. Army Corps of Engineers was contacted for the purpose of soliciting input on the proposed improvements. Correspondence has been received and is included in Appendix A. After their review, the U.S. Army Corps of Engineers has concluded that there will not be a flood hazard.

2.5.1.2 Floodplain Construction Permits

The U.S. Army Corps of Engineers was contacted for the purpose of soliciting its review and comments related to the possible need for permits authorized under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. Correspondence has been received and is included in Appendix A. After their review, the U.S. Army Corps of Engineers has concluded that there will not be a need for permits authorized under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

2.5.1.3 Wetlands

The U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks were contacted for the purpose of soliciting input related to potential impacts on wetlands. Correspondence has been received and is included in Appendix A. After their review, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks have found that this project will have no significant potential impact on wetlands.

2.5.2 Agricultural Lands

The U.S. Department of Agriculture State Soil Scientist was contacted for the purpose of soliciting input on the proposed improvements. The NRCS has indicated that no impacts to prime or important farmlands would result from the proposed projects. Correspondence has been received and is included in Appendix A.

2.5.3 Wild and Scenic Rivers

The U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks were contacted in regards to "Wild and Scenic Rivers" in the area. After their review, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks have found that this project will have no significant potential impact on "Wild and Scenic Rivers". Correspondence has been received and is included in Appendix A.

2.5.4 Fish and Wildlife Protection

2.5.4.1 Endangered Species

The U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks were contacted for the purpose of soliciting input related to potential impacts on endangered species which might result from construction of the proposed improvements. Correspondence has been received and is included in Appendix A. After their review, the U.S. Fish and Wildlife Service have found that this project will have no significant impact on fish and wildlife resources.

2.5.4.2 Critical Habitat

The U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks were contacted for the purpose of soliciting input related to potential impacts on critical wildlife habitats which might result from construction of the proposed improvements. Correspondence has been received and is included in Appendix A. After their review, the U.S. Fish and Wildlife Service have found that this project will have no significant impact on fish and wildlife resources.

2.5.5 Water Quality and Quantity

The South Dakota Department of Environment and Natural Resources was contacted for the purpose of soliciting review and comments related to potential impact on water quality and quantity that could result from the proposed project. Correspondence has been received and is included in Appendix A. After their review, the South Dakota Department of Environment and Natural Resources has found that this project will have no significant impact on the water quality.

2.5.6 Historic and Archaeological Sites

The South Dakota Archeological Research Center was contacted for the purpose of conducting a records search for any potential historic and archaeological sites in the area impacted by the proposed project. Correspondence has been received and is included in Appendix A. Based on the records search information, there doesn't appear to be any historic sites that would be impacted by this project. However, this needs to forwarded to the State Historical Preservation Office by the funding agency for concurrence.

2.6 DIRECT AND INDIRECT IMPACTS

Negative environmental impacts which may be expected during a project of this nature include, but are not necessarily limited to, soil erosion, noise pollution, traffic obstruction, and increased surface runoff due to trench dewatering operations. However, such impacts are temporary and will not significantly affect the environment over the long term.

Positive environmental impacts include enhanced human health and safety and more efficient delivery and treatment of municipal water. Such impacts are of long-term value to the residents of Florence and Codington County.

2.7 MITIGATION ADVERSE IMPACTS

Adverse impacts will be minimized to the greatest extent possible by the implementation of accepted cautionary measures. Temporary and permanent erosion control will be included in construction contracts. Appropriate permits will be secured prior to the discharge of any trench dewatering or storm waters, and protection of public health, safety and welfare will be incorporated into the specifications and contract documents. Additionally, should any permanent adverse impacts result from the project, mitigating measures will be followed to the satisfaction of the appropriate review agency.

3 EVALUATION OF EXISTING WATER SYSTEM

3.1 GENERAL INFORMATION

The Town of Florence currently provides water service to approximately 145 connections within the community. Of the 145 services, 5 of these services provided by the Town are commercial. The water system was originally installed around the 1920's. The Town of Florence currently purchases 100% of its domestic water demand from Clark Rural Water Systems (CRWS). Figure 3.1-1 shows the existing water distribution system.

Some of the original water distribution system is still in place. According to available information, parts of the system were updated in 1970. There are several sizes of water main used throughout the distribution system. The approximate total length of each size of pipe in the water distribution system is listed below:

Table 3.2-1 Florence Water Lines

Water Line Diameter (in)	Pipe Type	Total Length of Water Lines (ft)
2	PVC	5,210
3	PVC	3,480
4	PVC	3,900
Totals		**12,590**

The Town has experienced numerous breaks in the system over the past couple of years, repairs have been made with newer PVC piping, but the Town has not kept a record of the repairs. According to town officials most of the breaks in the water system have been off the saddle connecting the water main to the service line. Also additions to the water distribution system have been completed, like areas in the south east section of town where it is believed that the waterlines in this area are 2 inch PVC placed in the 1970's.

There are currently three different sizes of fire hydrants within the system. Fire Hydrants on a 4 inch line, Fire Hydrants on a 3 inch line and 2 inch flushing hydrants. According to the Town's fire chief, the Hydrants are not useable for firefighting operations. If the fire trucks pump water

from the system they will collapse the water line. It was also stated that there is not enough flow to fight a fire with the current system. Currently the fire department loads fire trucks from the city well.

The approximate location of the current system and Clark Rural Water System water lines are shown in Figure 3.1.1. Field measured pressures and flows are provided in Figure 3.1.2. **The 2 inch water line had little or no pressure when the system was checked in the field.** The system was checked by opening one hydrant and recording a static pressure, the hydrant next in line had a flow meter attached. Readings were taken simultaneously of both the flow of the hydrant and residual pressure of the first hydrant.

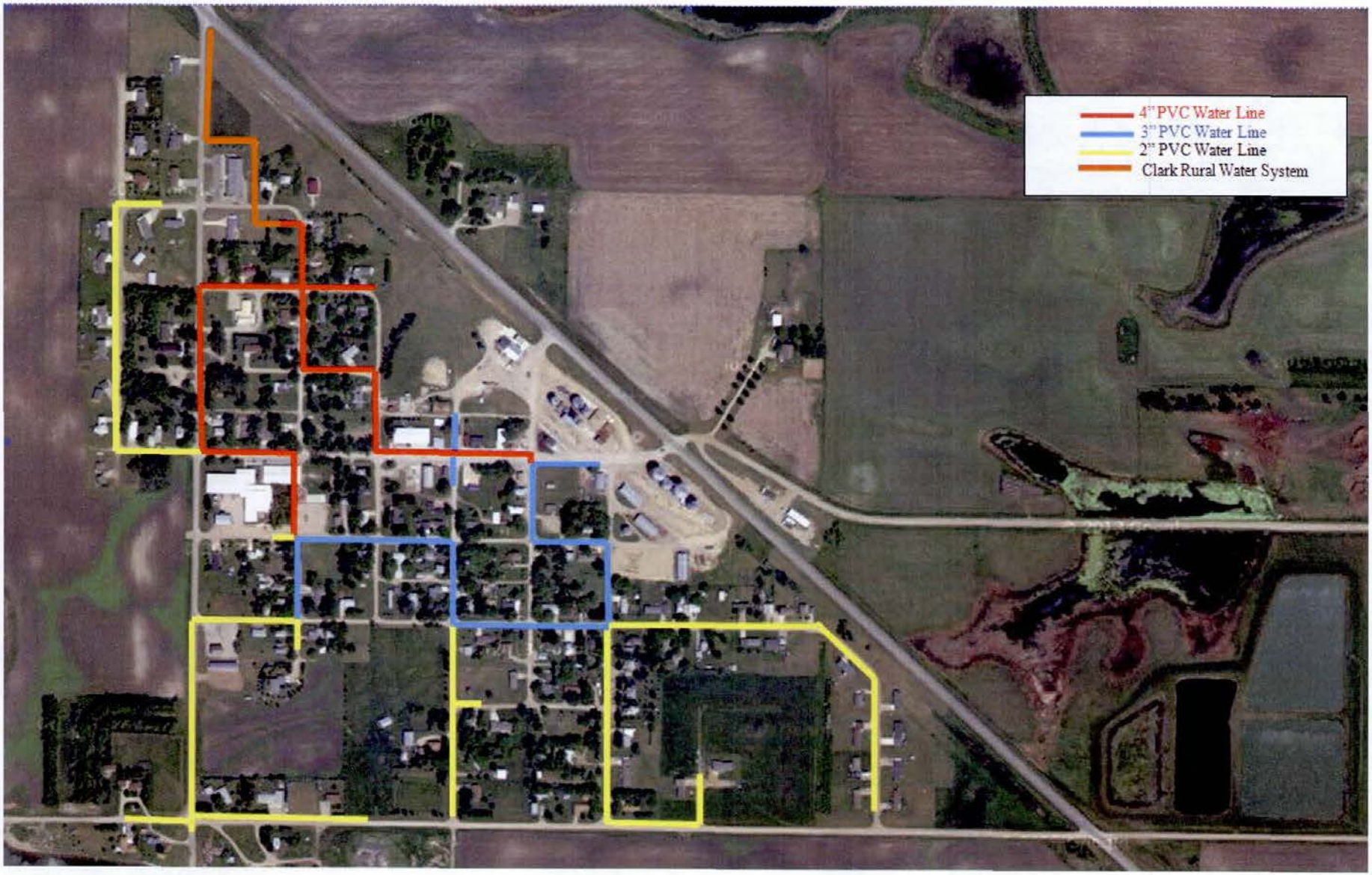
3.2 WATER DEMAND

To evaluate the Town of Florence's potential to meet the needs of the future, a review of past water usage records was completed. The process used to estimate future water demand included a determination of the current average per capita demand combined with a projection of the future population. Records of water usage from March 2011through July 2014 were obtained and utilized to create Table 3.2-1.

The sources and methods used to develop the information presented in Table 3.2-1 are described by the following:

- Water purchased per month is based on data provided by the Town of Florence.
- Water usage billed per month is based on data provided by the Town of Florence.
- The percentage of unaccounted-for water per month and year is calculated by dividing the difference between the water purchased and the water billed.
- Monthly precipitation data for 2011-2014 is from the National Climatic Data Center Watertown Station.
- Per capita per day usage for each month is calculated by dividing the water purchased by the population and the days per month.
- Total sum of water purchased and billed is calculated by summing up the columns.

The daily water purchased and billed for each year was calculated by dividing the sum of the water for each month by the days in that period.



Figue 3.1-1 Existing Water System

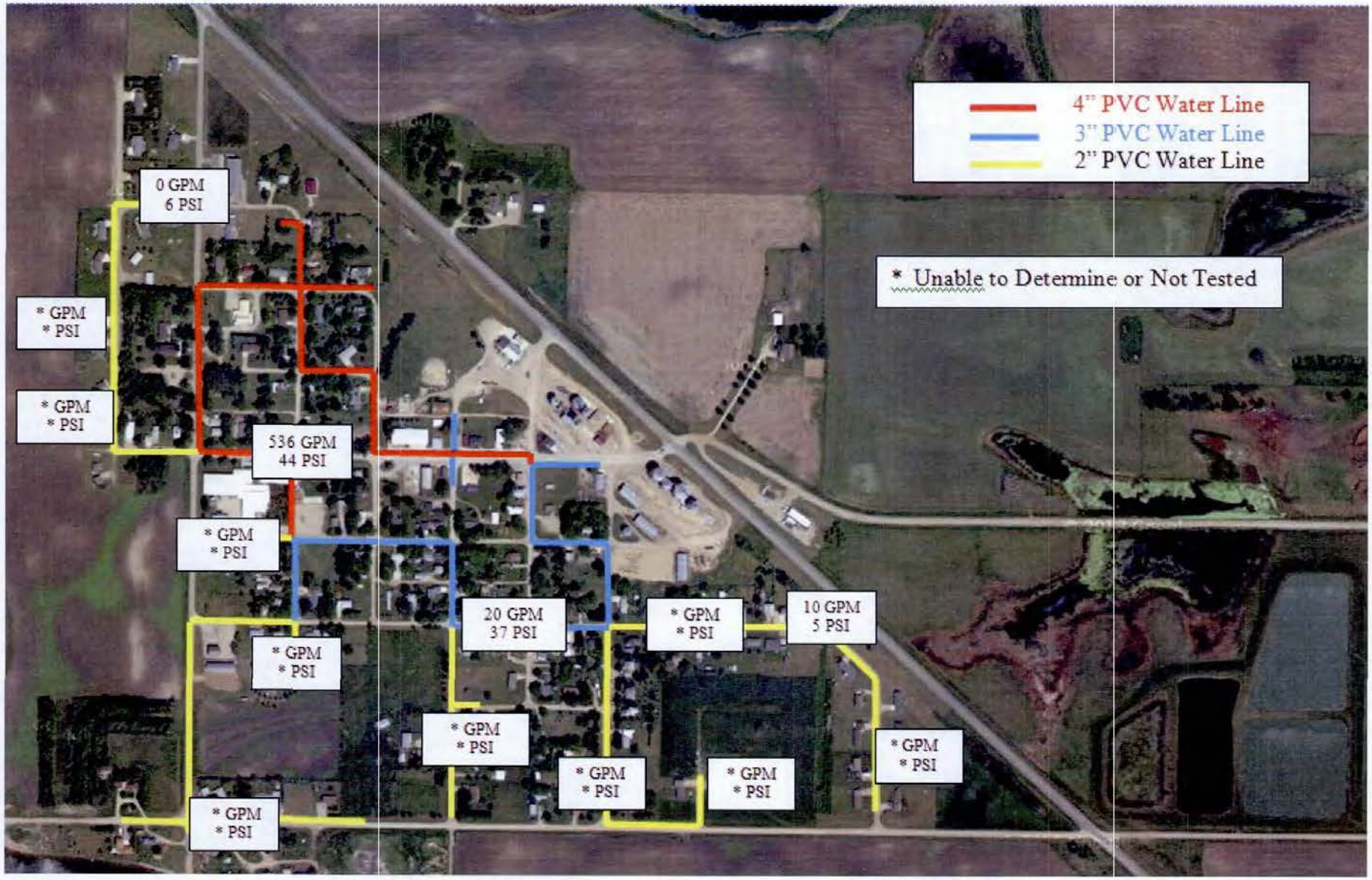


Figure 3.1-2 Existing Water System Field Measured Flows and Pressures

Table 3.2-1 Florence Water Records 2011 to 2014

	2011			2012			2013					2014				
Month	Purchased (Gal)	Precip (in)	Purchased (gpcpd)	Purchased (Gal)	Precip (in)	Purchased (gpcpd)	Purchased (Gal)	Billed (Gal)	Unaacc. for %	Precip (in)	Purchased (gpcpd)	Purchased (Gal)	Billed (Gal)	Unaacc. for %	Precip (in)	Purchased (gpcpd)
January		0.67	0	697,100	0.56	60	752,100	490,000	35%	0.24	65	676,200	588,000	13%	0.11	58
February		0.75	0	758,000	0.63	72	822,300	448,000	46%	0.20	79	676,200	490,000	28%	0.03	65
March	831,100	1.17	72	860,200	1.09	74	805,800	490,000	39%	1.04	70	838,000	574000	32%	0.52	72
April	1,026,100	1.88	89	752,300	1.23	67	774,900	658,000	15%	2.21	69	838,000	448000	47%	1.25	75
May	733,200	3.02	63	814,300	4.13	70	822,300	574,000	30%	3.08	71	776,894	686000	12%	1.88	67
June	829,100	4.13	72	766,600	3.80	68	767,500	686,000	11%	4.55	68	790,106	630000	20%	4.60	70
July	691,400	3.03	60	832,500	3.71	72	802,200	686,000	14%	0.55	69	702,488	630000	10%	1.25	61
August	818,100	3.52	71	948,900	1.18	82	780,800	630,000	19%	1.92	67					
September	886,400	6.08	76	1,064,200	0.35	95	1,039,000	630,000	39%	0.29	93					
October	828,000	0.98	71	915,600	0.25	79	788,300	490,000	38%	1.57	68					
November	870,000	0.08	75	883,200	0.06	79	622,900	490,000	21%	0.16	56					
December	809,700	0.61	70	977,500	0.22	84	747,300	546,000	27%	0.77	64					
		Avg.	72		Avg.	75				Avg.	70				Avg.	67
Total	8,323,100	25.92		10,270,400	17.21		9,525,400	6,818,000		16.58		5,297,888	4,046,000		9.64	
Average Day	27,200			28,138			26,097	18,679				24,990	19,085			
Average (gpcd)	73			75			70	50				67	51			
Average Unacc %									27.9%					23.0%		

Table 3.2-2 Florence Water Records Summary

Average Water Purchased Per Year =	9,372,967	Gal
Average Water Billed Per Year =	6,818,000	Gal
Average Per Capita Usage (Based on Purchased Water) =	69	gpcpd
Average Per Capita Usage (Based on Billed Water) =	50	gpcpd
Average Percentage of Unaccounted for Water	26%	
Maximum Purchased per Month =	1,064,200	gal
Average Day Purchased =	25,679	gal
Population=	374	

Table 3.2-1 indicates that the purchased per capita water usage ranges from 56 gpcpd during November 2013 to 95 gpcpd during September 2012. The average per capita water usage based on purchased water data for the period of January 2013 through July 2014 was determined to be approximately 68 gpcpd which is typical for communities in South Dakota. For the purpose of this report 75 gpcpd will be utilized as the average per capita per day water usage.

Table 3.2-1 indicates that the water losses in the system average 26%. The Town should try to keep the water loss below the generally accepted standard of 15%. The typical reasons for losses in the system are leaks, slow or malfunctioning meters, fire fighting and water used at non-metered locations. The only locations that are not metered within the City are two residents. Based on a recent conversation with Town officials, they have been slowly replacing the water meters. The oldest meters in Town are approximately 15 years old.

A significant increase in water usage is noticeable during the growing months of June through September. It should be noted that above-average precipitation during these months typically lessens the increase in water usage as indicated in August 2011 just as the below-normal precipitation typically magnifies the increase in water usage as indicated in September 2012.

3.3 PROJECTION OF WATER DEMAND

Future water demand projections are the basis for establishing the water distribution system capacity and storage. These projections are based on historical data of per capita water flows and population projections to determine peak day and peak hour demands to ensure that the system is capable of meeting the future demands of the Town. As shown in Section 2.3 the population of Florence is expected to steadily increase its current population. For this reason the estimated population of 452 (2040) residents will used for determining the future water demands and as discussed in Section 3.2. An average demand of 75 gpcd will be utilized and 15% added for water loss in the system. It must be noted at this point that an attempt has been made to determine design flow parameters as accurately as possible but if any error is to be made in the selection, it must be on the high side to ensure an adequate supply of water for the Town throughout the design period.

To meet the peak day water usage that may occur in the future, a peaking factor is generally determined. Smaller cities have a greater fluctuation than larger cities, but these fluctuations generally occur over a shorter period of time. As can be seen in Table 3.2-1, the water use in a Town such as Florence that does not have a significant commercial or industrial user is largely dependent on the climate and the amount of lawn watering. Our experience has shown that the ratio of average day usage to peak day usage ranges from 2.0 to 3.0 average day water usage for communities in South Dakota. It is our opinion that the peaking factor for the peak day water demand should not be less than 2.5 times the average day to cover lawn watering and other summertime uses. This number can be justified by taking the average day of the peak water month of September 2012 which is approximately 35,473 gpd. Knowing that the variance within the peak month is likely to be on the order of 1.25 to 1 an estimated peak day of 44,341 (35,473 x 1.25) gpd is calculated. Dividing 44,341 gpd by an average day of 28,138 gpd (purchased average day for study period) results in a peak day to average day ratio of 1.57 to 1. Since this data is limited at best, utilizing the slightly higher value of 2.5 times the average day water usage is justified in our opinion. The result is a peak day water demand of 97,500 gpd (452 people X 75 gpcpd X 2.5 X 1.15 (water loss)).

The Town of Florence also has some high use businesses that need to be included in the daily water demand. According to information provided by the Town of Florence, the Sidetrack Lounge, Florence School District, Assisted Living, and the Florence Elevator use between 88,000 and 118,000 gallons monthly. An additional 3,850 gpd will be added to the 97,500 gpd for a peak water demand of 101,350 gpd. This number will be used throughout the remainder of the report.

It must be noted at this point that an attempt has been made to determine design flow parameters as accurately as possible but if any error is to be made in the selection, it must be on the high side to ensure an adequate supply of water for the Town throughout the design period.

3.4 WATER SOURCES

3.4.1 Clark Rural Water Systems

The Town of Florence is supplied with water by Clark Rural Water Systems. Clark Rural Water System (CRWS) has approximately 1100 feet of 2" water line feeding the current underground water storage tank. According to CRWS the 2" line flows around an average of 35 gallons per minute. CRWS does not have a contract with the Town of Florence. According to Terry Kaufman of Clark Rural Water System, they do not have a contract with any of the towns that they serve. Clark Rural Water Systems has been able to supply the Town of Florence with an adequate supply of water.

3.4.2 Existing Well

The Town has one well that is not currently used to supply the system with water. The well is only used to fill the fire trucks. The well is located in the west side of the Fire Hall. The Town of Florence currently has Water Right Permit #4051-3. The Water Right Permit gives the Town of Florence the ability to use up to 38 acre-feet, annually, of ground water from the Florence Well Field for municipal use. The 38 acre-feet amounts to 12,382,400 gallons per year, Clark Rural Water Systems currently provides on average 9,372,967 gallons over the past three years (2011 to 2013). Information about the water quality of the wells was not available as the Town of Florence only uses the water for firefighting activities. According to town officials the water would not be suitable for drinking as the water is high in iron and other minerals.

3.5 STORAGE

The Town currently has one 24,455-gallon below ground water reservoir. The below ground water storage tank was built in 1970. The below ground water storage tank is currently under sized for current demands. According to town officials the below ground storage tank works fine, but it has been, an issue to have the below ground storage tank cleaned. The water distribution system is supplied by two pumps from the below ground storage tank.

Water storage establishes the pressure(s) for the distribution system; provides a means for equalizing operating pressures during high demand periods; provides emergency storage to

temporarily offset the effects of downtime for pump repairs, pipeline repairs and power outages; and provides fire protection.

There is not a defined method for determining the volume of storage for water distribution systems. Standards such as the Ten State Standards say that if fire flow is to be provided, the flow guidelines established by the International Standards Organization (ISO) should be met. Thus, at 1,500 gpm, a two-hour fire event requires 180,000 gallons for the downtown area.

Equalization and emergency storage are the other factors in determining the volume of water required or desired. Equalization storage is required to supply the varying demands throughout each day. Figure 3.5-1 illustrates a typical variation of water demand over a peak day. During those times that the water usage is shown to be over 100% of the supply rate, the system's storage must provide the additional water to meet the demands. Mays states that storage for equalization with constant rate pumps typically ranges from 10% to 25% of the peak day water demand. The higher end of the range is for communities with high ratios of average day to peak day water usage. Since the selected peak day to average day ratio for Florence is at the middle of the typical range of 2.0 to 3.0, the mid-point of the required range of equalization storage, or 17.5%, is selected for the desired equalization storage. The projected peak day water demand is 101,350 gallons and results in an equalization storage volume of approximately 17,736 gallons (101,350 gpd x .175).

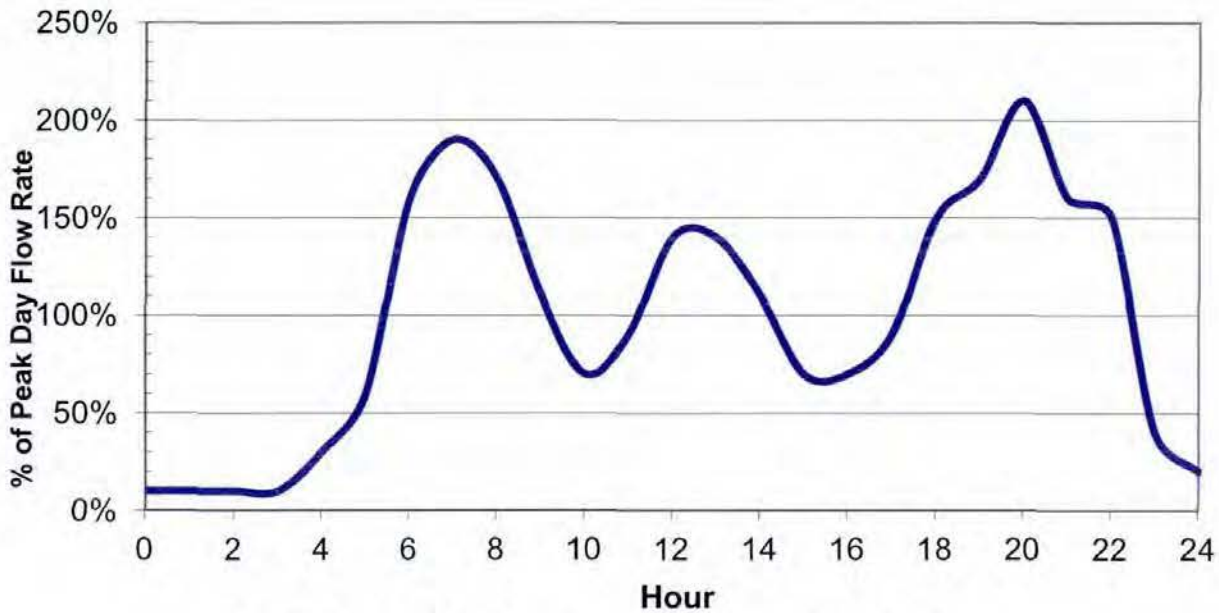


Figure 3.5-1 Water Demand Pattern Used in Model

Emergency storage is essentially the storage that a community feels comfortable with based on the reliability of the power supply and its water system in general. Emergency storage equal to two days of the average day usage is commonly used for the emergency storage volume and is utilized in this report. The current average day water demand is 77,970 gallons (2 * 452 people * 75 gpcd * 1.15 (water loss)).

The total required water storage for a community is generally considered to be the equalization storage plus the larger of fire or emergency storage (Mays 2000). The total storage generally considered as needed for a community would then be 197,736 gallons (17,736 + 180,000); however, the funding agencies currently don't consider fire protection as an eligible expense. As such, the total water storage evaluated for this report is double the average daily use (emergency storage) plus the equalization storage. The Town of Florence should currently have storage of at least 95,706 (77,970 + 17,736) gallons of water.

3.6 DISTRIBUTION SYSTEM

Currently, the existing system is known to have several dead ends. Without looping and multi-directional flow of water in the distribution system, water is supplied, for the most part, through a long single pipeline. In this type of distribution system, total water usage decreases the closer

one gets toward the end of the lines. This results in decreased movement of water in the pipe and the possibility of exceptionally long retention times of the water in various segments of the pipe. Long retention times in a pipe can have a detrimental effect on the quality of the water in the pipe such as:

- A decrease in the disinfection levels in the water;
- An increase in the potential for the formation of carcinogenic disinfection process by-products; and
- An increased potential for the formation of biological growth.

Florence's distribution system consists of approximately fourteen dead ends with two- to four-inch lines. The distribution system is composed of mostly PVC. The PVC is old and brittle. Most of the dead ends do not have a fire hydrant at the end. Fire hydrants allow the lines to be properly flushed to maintain water quality. The Town flushes the water mains yearly.

3.6.1 Hydrants

The SD Department of Environment and Natural Resources (SD DENR), which is the state regulatory agency for public water supplies, requires that fire hydrants be served by water mains with a minimum diameter of six inches. The current system has hydrants that are served by four inch lines because of the large amount of four-inch pipe; there are also hydrants that are served by three inch service lines. The system also contains two inch flushing hydrants serviced by two inch lines. Hydrants used only for flushing dead-end lines may be located on four-inch mains. Figure 3.1.1 shows the current water main sizes of the Town's distribution system. Based on information provided by the Town there are approximately 18 hydrants.

With the new proposed system, fire protection would be available throughout Town. Because of this, home owners insurance is likely to decrease as well.

3.6.2 Hydraulic Evaluation

A hydraulic evaluation of the water system was conducted by the KYPipe 2000 hydraulic computer model. This model utilizes the Hazen-Williams formula and commonly accepted friction factors for the pipeline material being considered to calculate head loss due to pipe friction and resulting flows and pressures. Two types of hydraulic analyses were performed with the KYPipe 2000 hydraulic program to evaluate the Town of Florence's distribution system.

The two types of hydraulic analyses are a general system analysis which provides a snapshot of the system at the set parameters and fire flow analysis. All analyses were utilized to obtain a complete picture of the existing distribution system and to allow proper recommendations to be made that will improve the existing conditions.

Any hydraulic evaluation can find the existing water system to be inadequate by simply making the requirements very stringent. In the same manner, generally all systems are adequate to meet the average day demands. Deficiencies in a system are typically not apparent until system demands increase to provide the peak day and peak hour flows. The reason for this is that the flow rate in a pipeline significantly affects the downstream pressures. The friction loss, or the pressure loss, in a pipe is a function of the square of the velocity. Therefore, as the flow rate and corresponding velocity in a pipe increase, the resulting friction increases exponentially. As the flow rate increases above two feet per second, the corresponding friction loss begins to climb rapidly with a velocity of five feet per second, generally considered the maximum desired flow rate. As a result, it is common practice to evaluate the overall system deficiencies in a distribution system based on peak hour and peak day flows.

3.6.3 Modeled Flow Rates

The total water demand for the Town consists of two main components. First, the non-residential use is modeled by distributing demands that represent the Town's watering of parks and non-residential high-use water users (the school) throughout the water distribution model. The other component consists of a residential flow rate which is modeled at each metered connection. Two sets of modeled system demands are created to place different loading conditions on the model:

- Peak Hour Demand

  Mays states that the peak hour to average day flow ratio typically ranges from 2.0 to 7.0:1. It is our opinion that the peak hour to average day ratio should be modeled as 5.0. This number was obtained by taking the highest usage in Table 3.2-1 of 200% and multiplying that by peak day and dividing it by the minutes in a day and the average usage 50gpcd (2.0 x 101,350 / 1440 / 28.1). Typically, the water demand in a system is concentrated over 16

hours in the day since water use is minimized during the night. Therefore, based on the current average day per capita pumped usage of 75 gpcpd, a 16-hour pumping day and the total population of 452 the total modeled peak hour flow rate is estimated to be 177 gpm (75 x 452 x 5.0 / 16 / 60). This flow will be utilized in the general analysis with the pressure tanks set at 50 psi to evaluate the distribution system's hydraulic capacity to maintain adequate water pressure during this high-use period.

- Peak Day Demand

  The peak day demand in the models was set to approximately 106 gpm (101,350 / 16 / 60) based on the current population, per capita usage, estimated peaking factor and a 16-hour day. An estimated variation of the peak day's usage over the course of the day including the peak hour is utilized in the extended period simulation to evaluate the system's overall hydraulic capacity.

3.6.4 Pressure Analysis

To check the water system for low-pressure problems, hydraulic models are created with the following assumptions made:

- The peak hour demand is placed on the model according to Section 3.6.2.
- The operating elevation of the ground water tank is set to the mid-tank level which is approximately an elevation of 1,779 feet above mean sea level. The base elevation of the tank is assumed to be 1,772 feet above mean sea level. The pumps supplying the pressure tank was set at a minimum pressure of 40 psi and a maximum pressure of 60 psi with the initial pressure of the town set at 50 psi.

SD DENR Recommended Design Criteria states in Section 8.4.2:

> *"A water distribution system shall be designed so as to provide a pressure of 20 pounds per square inch at each service outlet or connection under any or all conditions or demands that can be placed on the system. Under normal conditions, minimum pressures should be approximately 60 psi and not less than 35 psi."*

Section 7.3.1 of the Recommended Standards for Water Works by the Committee of the Great Lakes further recommends a minimum working pressure of 35 psi with a normal working

pressure of 60 to 80 psi. The AWWA Distribution System Handbook by Mays states on page 3.8 that low operating pressures of less than 30 psi can result in annoying reductions in water flow when more than one water-using device is in service. The new minimum desired by many residents is 40 psi as that pressure is typically required to properly operate lawn sprinkler systems. Based on the references above, the recommended pressures for services are shown in Table 3.6.3-1

Table 3.6.3-1 Recommended Pressures

Condition	Service Pressure Criteria (psi)
Maximum Pressure	60-80
Minimum Pressure During Peak Day	40
Minimum Pressure During Peak Hour	40
Minimum Pressure During Fire Flow	20

To check the water system for low-pressure problems, a high demand is simulated. The basis for the model in Figure 3.6.3-1 is that each meter is using an average of 0.51 gpm (75 gpm / 145) connections plus individual node demand of 13 gpm for the school). The model was unable to match the existing conditions in the field due to the small water lines. The model resulted in pressures of near 40 psi which are higher than the actual measured results in the field of 5 psi. The actual measured pressures are below the required minimum pressures.

3.6.5 Fire Flow Simulation

In order to check the water system for low flow problems, hydraulic models are created with the following assumptions made:

- The peak day demand of 0.73 gallons per meter (106 gpm / 145 connections plus individual node demand of 13 gpm for the school) is placed on the model according to Section 3.6.2.
- The operating level of the pressure tank was set to 50 psi.
- The minimum residual pressure is set at 20 psi.

Main pipelines are to deliver the needed fire flow to each hydrant in accordance with the ISO guidelines. The ISO guidelines are based on a number of variables including size of structure,

construction material, occupancy, exposure and connections to other structures. For one- and two-family dwellings not exceeding two stories in height, the following needed fire flows are required:

Distance Between Buildings	Fire Flow Requirement
Over 100 feet	500 gpm
31 to 100 feet	750 gpm
11 to 30 feet	1,000 gpm
10 feet or less	1,500 gpm

As for the business district, the needed fire flow would be variable for each structure and an inspection and analysis of each structure would be required. Rather than performing these inspections and analyses, a minimum needed fire flow of 2,000 gpm is sought for business and school areas.

As can be seen from the modeled fire flow analyses, the flows are below 500 gpm (the minimum by ISO) at every hydrant but one. The low flow can be expected with the large amount of 4-inch and smaller pipe used throughout the system. However, the results are not typical to what was learned from the field results. The two inch lines in the field were unable to get residual pressures above 10 psi, where the modeled results are 35 to 46 psi. Again, the model was not able to match the results obtained in the field. This is due to the smaller diameter waterline within the system.

3.7 FUTURE CONDITIONS

Without some system improvements, the Town will continue to repair broken lines and have major water losses in the system. It could get to the point of overwhelming the Clark Rural Water System to the point of failure within the Town of Florence. The Town needs to make improvements to prevent a water shortage or complete failure in the future.

Specific information on population projections is found in Section 2.3. Land use is not expected to change significantly in the immediate vicinity of the Town. There is some land available for future development and based on the past growth of the community, it is viewed as sufficient to meet community needs.

Due to the importance of conserving water, money and energy, various means for reducing water usage are recommended. By using faucet aerators, reduced flush toilets, and limited flow showerheads, water use can be reduced. However, these improvements would be wasted unless the water system is improved.

4 DEVELOPMENT AND EVALUATION OF WATER ALTERNATIVES

4.1 GENERAL

The alternatives developed for the Town of Florence were composed to demonstrate some options available to fix the identified deficiencies in the water system.

4.2 CAUTIONARY NOTES CONCERNING COST ESTIMATES

The opinions of probable cost provided with the following alternatives reflect the anticipated costs for administration, engineering design, construction, contingencies, construction observation, and other costs related to completion of the project. The costs as presented are based on an analysis and comparison of projects of similar size and scope. The actual construction and project costs will vary on an individual project basis. The actual bid cost will reflect the bidder's evaluation of construction problems, weather, soils and difficulty of work. Thus, the engineer cannot be held responsible for the accuracy of the estimates made in this report as the engineer has no control over the contractors' bid costs.

Changes in materials, equipment and energy costs, as well as availability of other construction work at the time of the bid opening, could substantially influence actual project cost. Construction costs will also vary somewhat based on the quantity of items necessary to construct the project. The quantities and costs contained in this report are preliminary estimates based on our best judgment without field measurements. Final quantities and opinions of probable cost and final construction costs must be based upon final design.

Different funding sources have different requirements for some non-construction items. Therefore, actual costs of non-construction items should be considered tentative at this time and subject to later modifications and adjustments as current situations and funding sources dictate. Further, in as much as the period of construction cannot be accurately predicted, the costs as presented in this report have not been adjusted to reflect projected inflation factors. Therefore, it is important that the estimate of costs as presented be reviewed and updated periodically to reflect construction cost trends.

4.3 EQUIVALENT UNIFORM ANNUAL COST

The alternatives relating to Florence's water system that were evaluated are described in the following sections. In addition to an opinion of cost for each alternative discussed in this section, a breakdown of the estimated equivalent uniform annual cost (EUAC) is also given. The EUAC not only takes the capital costs into account when evaluating the options but also looks at the salvage value of the components and the expected annual operation and maintenance costs. Rural Development has published guidance under Bulletin 1780-3 to analyze life cycle costs:

"Present Worth (life cycle) cost analysis (an engineering economics technique to evaluate present and future costs for comparison of alternatives) should be completed to compare the feasible alternatives. All of the items from the cost estimate should be included in the analysis. The "real" federal discount rate from Appendix C of OMB Circular A-94 should be used for determining the present worth of the uniform series of O & M values (in today's dollars) and the salvage value. This rate may be found at: www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html."

The result is a comparison of the alternatives will be on an overall basis throughout a design life of 20 years. As a result, the EUAC may show that the lowest capital cost alternative is not the lowest cost alternative. This situation would occur when options have a low capital cost but high operation and maintenance costs. The terms and values utilized in performing the EUAC are given in Table 4.3.1.

Table 4.3-1 Equivalent Uniform Annual Cost Terminology and Values Used

Term	Definition	Value Used
Interest = I	Annual interest rate	0.80%
Salvage Value = SV	Value of component at end of 20-year design life	0% or 50%
Present Worth = PW	Present worth (equal to opinion of cost for that item)	Variable
Net Present Worth of Salvage Value = PWSV	Present worth of salvage value	85.3%
Net Present Worth of Capital Costs = NPW	Present worth less the present worth of the salvage value	Variable
Net Present Worth of Annual Costs	Present worth of annual costs over the 20-year design life	1840%
Equivalent Uniform Annual Costs = EUAC	Annual cost of total present worth of capital and annual costs	5.43%
Design Life	Length of time facilities are projected to operate and/or meet design parameters	20 years

4.4 WATER SOURCE

The negative characteristics of Florence's water distribution system are summarized below:

- The PVC is under sized and does not meet the minimum fire flow standards developed by the South Dakota DENR.
- The large amount of 4", 3" and 2" PVC creates a large amount of losses in the system. This reduces the pressure and fire flow in the system especially to the school and the nursing home. A majority of the system has pressures at or above the recommended minimum of 40 psi, however the flows are below 500 gpm.
- The water losses are higher than the acceptable limit of 15%.
- There are approximately 14 dead-end lines.

4.4.1 Water Source Alternative 1: Do Nothing

The first alternative for water source improvements is to do nothing. This alternative is acceptable as Clark Rural Water System has been supplying the Town of Florence for the past several years without any issues. As a result, the "Do Nothing" alternative is considered as an acceptable alternative.

4.4.2 Water Source Alternative 2: New Well

Water Source Alternative 2 considers a new well be constructed to supply the Town of Florence. Currently the Town has one well by the Fire Hall that is used to fill fire trucks. If a well was constructed for drinking water, a treatment system would be required to treat the water to make it safe for consumption. The Town of Florence does have a permit for the water rights. As a result, this "New Well" alternative is an acceptable alternative. Tables 4.4.2.1 and 4.4.2.2 provide the estimated costs of this alternate and the equivalent uniform annual costs for this alternative.

Table 4.4.2-1 Cost Estimate for Water Source Alternative 2

Item	Description	Quantity		Unit Price	Total Cost
1	Mobilization	1	LS	$7,000.00	$7,000.00
2	Well House	1	LS	$15,000.00	$15,000.00
3	Site Work	1	LS	$2,500.00	$2,500.00
4	Electrical	1	LS	$7,500.00	$7,500.00
5	Well Pumps	2	Each	$3,500.00	$7,000.00
6	Training	1	LS	$5,000.00	$5,000.00
7	Disinfection System	1	LS	$10,000.00	$10,000.00
8	Controls	1	LS	$10,000.00	$10,000.00
9	Test / Pilot Hole	50	Ft	$15.00	$750.00
10	Abandonment and Plugging Test/Pilot Hole	50	Ft	$2.00	$100.00
11	Sampling, Analysis and Logging	1	LS	$2,500.00	$2,500.00
12	Drilling Bore Holes	50	Ft	$50.00	$2,500.00
13	Steel Well Casing	70	Ft	$50.00	$3,500.00
14	Stainless Steel Slotted Screen	20	Ft	$150.00	$3,000.00
15	Graded Gravel Pack	20	Ft	$25.00	$500.00
16	Grout Seal	30	Ft	$20.00	$600.00
17	Well Development	12	Hour	$200.00	$2,400.00
18	Furnish, Install and Remove Pump and Discharge Column for Test Pumping	1	Each	$5,000.00	$5,000.00
19	Test Pumping	48	Hour	$150.00	$7,200.00
20	Pitless Discharge Unit	1	LS	$10,000.00	$10,000.00
21	4" PVC Watermain	500	Ft	$20.00	$10,000.00
22	4" Gate Valve W/Box	2	Each	$850.00	$1,700.00
23	Seeding, Fertilizing and Mulching	2.0	Acre	$1,500.00	$3,000.00
	Construction Subtotal				$116,750.00
	Contingencies (15%)				$18,000.00
	Construction Total				**$134,750.00**
	Design Engineering				$13,500.00
	Bidding and Contract Documents				$5,500.00
	Construction Engineering				$13,500.00
	Administration & Legal				$3,000.00
	Total Project Cost				**$170,250.00**

Table 4.4.2-2 EUAC for Water Source Alternative 2

A. Construction Cost				
Item Description	**Cost**	**SV**	**PW SV**	**NPW**
Mobilization	$7,000.00	$0.00	$0.00	$7,000.00
Well House	$15,000.00	$7,500.00	$6,395.15	$8,604.85
Site Work	$2,500.00	$0.00	$0.00	$2,500.00
Electrical	$7,500.00	$0.00	$0.00	$7,500.00
Well Pumps	$7,000.00	$3,500.00	$2,984.40	$4,015.60
Training	$5,000.00	$0.00	$0.00	$5,000.00
Disinfection System	$10,000.00	$5,000.00	$4,263.43	$5,736.57
Controls	$10,000.00	$5,000.00	$4,263.43	$5,736.57
Test / Pilot Hole	$750.00	$0.00	$0.00	$750.00
Abandonment and Plugging Test/Pilot Hole	$100.00	$0.00	$0.00	$100.00
Sampling, Analysis and Logging	$2,500.00	$0.00	$0.00	$2,500.00
Drilling Bore Holes	$2,500.00	$0.00	$0.00	$2,500.00
Steel Well Casing	$3,500.00	$1,750.00	$1,492.20	$2,007.80
Stainless Steel Slotted Screen	$3,000.00	$1,500.00	$1,279.03	$1,720.97
Graded Gravel Pack	$500.00	$0.00	$0.00	$500.00
Grout Seal	$600.00	$0.00	$0.00	$600.00
Well Development	$2,400.00	$0.00	$0.00	$2,400.00
Furnish, Install and Remove Pump and Discharge Column for Test Pumping	$5,000.00	$0.00	$0.00	$5,000.00
Test Pumping	$7,200.00	$0.00	$0.00	$7,200.00
Pitless Discharge Unit	$10,000.00	$5,000.00	$4,263.43	$5,736.57
4" PVC Watermain	$10,000.00	$5,000.00	$4,263.43	$5,736.57
4" Gate Valve W/Box	$1,700.00	$850.00	$724.78	$975.22
Seeding, Fertilizing and Mulching	$3,000.00	$0.00	$0.00	$3,000.00
Capital Costs	$53,500.00	$0.00	$0.00	$53,500.00
Total Construction Cost	$170,250.00	$35,100.00	$29,929.29	$140,320.71
B. Operation and Maintenance Costs for Proposed Construction				
Item	**Annual Cost**			**NPW**
Labor	$1,500.00			$27,621.29
Utilities	$1,000.00			$18,414.19
Miscellaneous	$1,000.00			$18,414.19
Subtotal	$3,500.00			$64,449.68
C. Equivalent Uniform Annual Cost				
NPW Construction Cost				$140,320.71
NPW of O & M Costs				$64,449.68
Total Net Present Worth				**$204,770.39**
Equivalent Uniform Annual Cost				**$11,120.25**

4.5 WATER STORAGE

The Town of Florence currently has a 24,455 gallon ground storage water reservoir. The below ground storage tank is coming to the end of its useful lifecycle as it was installed in 1970. Town officials have stated that the tank functions properly, but they are having difficulty getting someone to clean the ground storage tank. The current below ground storage tank is undersized for current water demands.

4.5.1 Water Storage Alternative 1: Do Nothing

The first Water Storage Alternative that was considered is the "Do Nothing" alternative. This alternative will not address the required storage needed as the population of Florence increases. This alternative will not help to address the low water pressure problem in some parts of Town. As a result, the "Do Nothing" alternative is not considered as an acceptable alternative.

4.5.2 Water Storage Alternative 2: New 105,000-Gallon Ground Water Storage Tank with Booster Pumps

Water Storage Alternative 2 recommends a new ground storage tank and a new booster station. The ground storage tank would provide the storage that the Town needs. It is recommended that the Town construct a 105,000 gallon tank with a recirculation system. A 105,000 gallon ground storage tank would be a minimum size needed. To provide pressure to the distribution system, a pumping system would be required. The pump system would operate off a variable frequency drive (VFD) to eliminate the start stop cycling that a traditional pump setup would have. Since there would not be an elevated tank to equalize pressures, the VFD's will allow the Town to maintain equal pressures on the lines regardless of the flow rates. A couple pressure tanks would be included to eliminate the need for the pumps to run with a low flow i.e. leaking toilet, dripping faucet, etc. Tables 4.5.2-1 and 4.5.2-2 provide the estimated costs of this alternate and the equivalent uniform annual costs for the alternative.

Table 4.5.2-1 Cost Estimate for Storage Alternative 2

Item	Description	Quantity		Unit Price	Total Cost
1	Mobilization	1	LS	$ 31,000.00	$31,000.00
2	105,000-Gallon Ground Storage Tank	1	LS	$165,000.00	$165,000.00
3	Tank Foundation	1	LS	$45,000.00	$45,000.00
4	Booster Pump Station	1	LS	$125,000.00	$125,000.00
5	Electrical and Control Wiring	1	LS	$25,000.00	$25,000.00
6	6" PVC Watermain	100	LF	$25.00	$2,500.00
7	8" DIP Water Main	50	LF	$35.00	$1,750.00
8	6" Gate Valve W/Box	3	Each	$1,000.00	$3,000.00
9	8" Gate Valve W/Box	2	Each	$1,250.00	$2,500.00
10	Fire Hydrant	1	Each	$2,650.00	$2,650.00
11	Chain Link Fencing	200	LF	$45.00	$9,000.00
12	Seeding, Fertilizing and Mulching	1,000	SqYd	$2.00	$2,000.00
	Construction Subtotal				$414,400.00
	Contingencies (15%)				$63,000.00
	Construction Total				**$477,400.00**
	Design Engineering				$44,900.00
	Bidding and Contract Documents				$5,500.00
	Construction Engineering				$33,400.00
	Administration & Legal				$10,000.00
	Total Project Cost				**$571,200.00**

Table 4.5.2-2 EUAC for Storage Alternative 2

A. Construction Cost				
Item Description	**Cost**	**SV**	**PW SV**	**NPW**
Mobilization	$31,000.00	$0.00	$0.00	$31,000.00
105,000-Gallon Ground Storage Tank	$165,000.00	$82,500.00	$70,346.63	$94,653.37
Tank Foundation	$45,000.00	$0.00	$0.00	$45,000.00
Booster Pump Station	$125,000.00	$62,500.00	$53,292.90	$71,707.10
Electrical and Control Wiring	$25,000.00	$0.00	$0.00	$25,000.00
6" PVC Watermain	$2,500.00	$1,250.00	$1,065.86	$1,434.14
8" DIP Water Main	$1,750.00	$875.00	$746.10	$1,003.90
6" Gate Valve W/Box	$3,000.00	$1,500.00	$1,279.03	$1,720.97
8" Gate Valve W/Box	$2,500.00	$1,250.00	$1,065.86	$1,434.14
Fire Hydrant	$2,650.00	$1,325.00	$1,129.81	$1,520.19
Chain Link Fencing	$9,000.00	$0.00	$0.00	$9,000.00
Seeding, Fertilizing and Mulching	$2,000.00	$0.00	$0.00	$2,000.00
Capital Costs	$156,800.00	$0.00	$0.00	$156,800.00
Total Construction Cost	$571,200.00	$151,200.00	$128,926.19	$442,273.81
B. Operation and Maintenance Costs for Proposed Construction				
Item	**Annual Cost**			**NPW**
Labor	$1,500.00			$27,621.29
Utilities	$2,500.00			$46,035.49
Miscellaneous	$2,000.00			$36,828.39
Subtotal	$6,000.00			$110,485.17
C. Equivalent Uniform Annual Cost				
NPW Construction Cost				$442,273.81
NPW of O & M Costs				$110,485.17
Total Net Present Worth				**$552,758.98**
Equivalent Uniform Annual Cost				**$30,018.09**

4.5.3 Water Storage Alternative 3: New 55,000-Gallon Ground Water Storage Tank with Booster Pumps and a 50,000 Gallon Elevated Storage Tank

Water Storage Alternative 3 recommends a new 55,000 Gallon Ground Water Storage Tank with booster pumps and a 50,000 gallon elevated storage tank. The ground storage tank would provide the storage for the Clark Rural Water System to fill the Elevated Water Storage Tank. A 55,000 gallon ground storage tank would be of sufficient size to fill the Elevated Storage Tank. It is recommended that the Town construct a minimum 50,000 gallon Elevated Storage Tank with a recirculation system. The Elevated Storage Tank will provide the Town of Florence with the proper pressure for the distribution system.

To fill the Elevated Storage Tank, a pumping system would be required. The pump system would operate off a variable frequency drive (VFD) to eliminate the start stop cycling that a traditional pump setup would have. Since the Elevated Storage Tank will equalize the pressures of the system, pressure tanks would not be required. Tables 4.5.3-1 and 4.5.3-2 provide the estimated costs of this alternate and the equivalent uniform annual costs for the alternative.

Table 4.5.3-1 Cost Estimate for Storage Alternative 3

Item	Description	Quantity		Unit Price	Total Cost
1	Mobilization	1	LS	$ 50,000.00	$50,000.00
2	55,000-Gallon Ground Storage Tank	1	LS	$82,000.00	$82,000.00
3	Ground Storage Tank Foundation	1	LS	$25,000.00	$25,000.00
4	50,000-Gallon Elevated Storage Tank	1	LS	$300,000.00	$300,000.00
5	Elevated Storage Tank Foundation	1	LS	$30,000.00	$30,000.00
6	Booster Pump Station	1	LS	$125,000.00	$125,000.00
7	Electrical and Control Wiring	1	LS	$30,000.00	$30,000.00
8	6" PVC Watermain	100	LF	$25.00	$2,500.00
9	8" DIP Water Main	50	LF	$35.00	$1,750.00
10	6" Gate Valve W/Box	3	Each	$1,000.00	$3,000.00
11	8" Gate Valve W/Box	2	Each	$1,250.00	$2,500.00
12	Fire Hydrant	2	Each	$2,650.00	$5,300.00
13	Chain Link Fencing	200	LF	$45.00	$9,000.00
14	Seeding, Fertilizing and Mulching	1,000	SqYd	$2.00	$2,000.00
	Construction Subtotal				$668,050.00
	Contingencies (15%)				$101,000.00
	Construction Total				**$769,050.00**
	Design Engineering				$72,300.00
	Bidding and Contract Documents				$5,500.00
	Construction Engineering				$53,800.00
	Administration & Legal				$16,000.00
	Total Project Cost				**$916,650.00**

Table 4.5.3-2 EUAC for Storage Alternative 3

Item Description	Cost	SV	PW SV	NPW
Mobilization	$50,000.00	$0.00	$0.00	$50,000.00
55,000-Gallon Ground Storage Tank	$82,000.00	$41,000.00	$34,960.14	$47,039.86
Ground Storage Tank Foundation	$25,000.00	$0.00	$0.00	$25,000.00
50,000-Gallon Elevated Storage Tank	$300,000.00	$150,000.00	$127,902.97	$172,097.03
Elevated Storage Tank Foundation	$30,000.00	$0.00	$0.00	$30,000.00
Booster Pump Station	$125,000.00	$62,500.00	$53,292.90	$71,707.10
Electrical and Control Wiring	$30,000.00	$0.00	$0.00	$30,000.00
6" PVC Watermain	$2,500.00	$1,250.00	$1,065.86	$1,434.14
8" DIP Water Main	$1,750.00	$875.00	$746.10	$1,003.90
6" Gate Valve W/Box	$3,000.00	$1,500.00	$1,279.03	$1,720.97
8" Gate Valve W/Box	$2,500.00	$1,250.00	$1,065.86	$1,434.14
Fire Hydrant	$5,300.00	$2,650.00	$2,259.62	$3,040.38
Chain Link Fencing	$9,000.00	$0.00	$0.00	$9,000.00
Seeding, Fertilizing and Mulching	$2,000.00	$0.00	$0.00	$2,000.00
Capital Costs	$248,600.00	$0.00	$0.00	$248,600.00
Total Construction Cost	$916,650.00	$261,025.00	$222,572.48	$694,077.52
B. Operation and Maintenance Costs for Proposed Construction				
Item	**Annual Cost**			**NPW**
Labor	$1,500.00			$27,621.29
Utilities	$2,500.00			$46,035.49
Miscellaneous	$2,000.00			$36,828.39
Subtotal	$6,000.00			$110,485.17
C. Equivalent Uniform Annual Cost				
NPW Construction Cost				$694,077.52
NPW of O & M Costs				$110,485.17
Total Net Present Worth				**$804,562.69**
Equivalent Uniform Annual Cost				**$43,692.53**

4.5.4 Water Storage Alternative 4: New 100,000-Gallon Elevated Water Storage Tank

Water Storage Alternative 4 recommends a new 100,000 Gallon Elevated Water Storage Tank. The elevated storage tank could be filled by the current Clark Rural Water System. This would eliminate the need for pumps to fill the elevated storage tank. The elevated Storage Tank would be equipped with a recirculation system. The Elevated Storage Tank will provide the Town of Florence with the proper pressure for the distribution system. Since the Elevated Storage Tank will equalize the pressures of the system; pressure tanks would not be required. Tables 4.5.4-1 and 4.5.4-2 provide the estimated costs of this alternate and the equivalent uniform annual costs for the alternative.

Table 4.5.4-1 Cost Estimate for Storage Alternative 4

Item	Description	Quantity		Unit Price	Total Cost
1	Mobilization	1	LS	$ 57,000.00	$57,000.00
2	100,000-Gallon Single Pedestal Tank	1	LS	$615,000.00	$615,000.00
3	Tank Foundation	1	LS	$50,000.00	$50,000.00
4	Elevated Water Storage Control Room	1	LS	$10,000.00	$10,000.00
5	Electrical and Control Wiring	1	LS	$10,000.00	$10,000.00
6	6" PVC Watermain	100	Ft	$25.00	$2,500.00
7	8" DIP Water Main	80	Ft	$35.00	$2,800.00
8	6" Gate Valve W/Box	3	Each	$1,000.00	$3,000.00
9	8" Gate Valve W/Box	2	Each	$1,250.00	$2,500.00
10	Fire Hydrant	1	Each	$2,650.00	$2,650.00
11	Chain Link Fencing	200	LF	$45.00	$9,000.00
12	Seeding, Fertilizing and Mulching	1,000	SqYd	$2.00	$2,000.00
	Construction Subtotal				$766,450.00
	Contingencies (15%)				$115,000.00
	Construction Total				**$881,450.00**
	Design Engineering				$77,100.00
	Bidding and Contract Documents				$5,500.00
	Construction Engineering				$44,100.00
	Administration & Legal				$18,000.00
	Total Project Cost				**$1,026,150.00**

Table 4.5.4-2 EUAC for Storage Alternative 4

Item Description	Cost	SV	PW SV	NPW
Mobilization	$57,000.00	$0.00	$0.00	$57,000.00
100,000-Gallon Single Pedestal Tank	$615,000.00	$307,500.00	$262,201.08	$352,798.92
Tank Foundation	$50,000.00	$0.00	$0.00	$50,000.00
Elevated Water Storage Control Room	$10,000.00	$5,000.00	$4,263.43	$5,736.57
Electrical and Control Wiring	$10,000.00	$0.00	$0.00	$10,000.00
6" PVC Watermain	$2,500.00	$1,250.00	$1,065.86	$1,434.14
8" DIP Water Main	$2,800.00	$1,400.00	$1,193.76	$1,606.24
6" Gate Valve W/Box	$3,000.00	$1,500.00	$1,279.03	$1,720.97
8" Gate Valve W/Box	$2,500.00	$1,250.00	$1,065.86	$1,434.14
Fire Hydrant	$2,650.00	$1,325.00	$1,129.81	$1,520.19
Chain Link Fencing	$9,000.00	$0.00	$0.00	$9,000.00
Seeding, Fertilizing and Mulching	$2,000.00	$0.00	$0.00	$2,000.00
Capital Costs	$259,700.00	$0.00	$0.00	$259,700.00
Total Construction Cost	$1,026,150.00	$319,225.00	$272,198.83	$753,951.17

B. Operation and Maintenance Costs for Proposed Construction

Item	Annual Cost	NPW
Labor	$500.00	$9,207.10
Utilities	$600.00	$11,048.52
Miscellaneous	$500.00	$9,207.10
Subtotal	$1,600.00	$29,462.71
C. Equivalent Uniform Annual Cost		
NPW Construction Cost		$753,951.17
NPW of O & M Costs		$29,462.71
Total Net Present Worth		**$783,413.88**
Equivalent Uniform Annual Cost		**$42,544.02**

4.6 WATER DISTRIBUTION

Negative characteristics of Florence's water distribution system are summarized below:

- The PVC is of poor quality and has outlived its useful life expectancy;
- The system has had numerous leaks in the past few years and it is expected to continue more frequently;
- The 4 inch PVC lines do not provide adequate flows for fire hydrants;
- The 2 inch PVC lines have extremely low flows and residual pressures;
- The system has limited ways to flush lines;
- The system has low flows;
- The water losses are over the recommended level of 15%;
- There are several dead end lines in the system;

The alternatives for water main replacement will also include the installation of meters for the homes. The Hydraulic Analysis was performed in accordance with section 3.6.4 with a pressure tank set at a minimum pressure of 40 psi and a maximum pressure of 60 psi with the initial pressure of the town set at 50 psi, using a ground storage tank. Please note that one Hydraulic Analysis was performed using a 130 foot elevated water storage tank.

4.6.1 Water Distribution Alternative 1: Do Nothing

The first alternative for water distribution system improvements is to do nothing. This alternative will not help address any of the negative characteristics of the system. As a result, the "Do Nothing" alternative is not considered as an acceptable alternative.

4.6.2 Water Distribution Alternative 2: Replace all 4" PVC, 3" PVC and 2" PVC with 6" PVC

Water Distribution Alternative 2 recommends that all of the 4" PVC, 3" PVC and 2" PVC be replaced with 6" PVC lines. The Town has been experiencing many breaks over the years with the current PVC pipe. The frequency of the breaks is only expected to increase in the future. The proposed PVC pipe will increase the pressures throughout the entire system and provide fire flow protection throughout the Town. In turn, residents should see a reduction in their homeowners insurance. It is also assumed that the replacement of the PVC will help reduce the

amount of water losses in the system. Tables 4.6.2-1 and 4.6.2-2 provide the estimated costs of this alternate and the equivalent uniform annual costs for the alternative. Figure 4.6.2-1 provides a proposed layout of the water system. Figures 4.6.2-2 and 4.6.2-1 provide the modeled results for the system assuming a ground storage tank.

Table 4.6.2-1 Cost Estimate for Distribution Alternative 2

Item	Description	Quantity		Unit Price	Total Cost
1	Mobilization	1	LS	$78,000.00	$78,000.00
2	Remove and Dispose of Existing Asphalt	3,000	SqYd	$3.50	$10,500.00
3	6" PVC Water Main	12,600	Ft	$22.00	$277,200.00
4	Fire Hydrants	24	Each	$2,650.00	$63,600.00
5	6" PVC Fire Hydrant Lead	720	Ft	$25.00	$18,000.00
6	6" MJ Gate Valve w/Box	56	Each	$1,100.00	$61,600.00
7	6" DI Cross	4	Each	$450.00	$1,800.00
8	6" DI Tee	7	Each	$350.00	$2,450.00
9	6" 90° DI Bend	15	Each	$300.00	$4,500.00
10	6" 45° DI Bend	2	Each	$300.00	$600.00
11	1" Corp Stop/Service Saddle	145	Each	$175.00	$25,375.00
12	1" Curb Stop w/Box	145	Each	$200.00	$29,000.00
13	1" HDPE Service Line	7,250	Ft	$17.50	$126,875.00
14	Water Meters & Setter	145	Each	$250.00	$36,250.00
15	Connect to Existing Service	145	Each	$175.00	$25,375.00
16	Asphalt Surfacing (4")	700.0	Ton	$150.00	$105,000.00
17	Gravel Base Course (10")	1,700.0	Ton	$19.00	$32,300.00
18	Gravel Surfacing	8,000.0	Ton	$18.00	$144,000.00
19	Topsoil, Seed, Fertilize & Mulch	4.6	Acres	$1,500.00	$6,900.00
	Construction Subtotal				$1,049,325.00
	Contingencies (15%)				$158,000.00
	Construction Total				**$1,207,325.00**
	Design Engineering				$99,000.00
	Bidding and Contract Documents				$5,500.00
	Construction Engineering				$108,900.00
	Administration & Legal				$25,000.00
	Total Project Cost				**$1,445,725.00**

Table 4.6.2-2 EUAC for Distribution Alternative 2

Item Description	Cost	SV	PW SV	NPW
Mobilization	$78,000.00	$0.00	$0.00	$78,000.00
Remove and Dispose of Existing Asphalt	$10,500.00	$0.00	$0.00	$10,500.00
6" PVC Water Main	$277,200.00	$138,600.00	$118,182.34	$159,017.66
Fire Hydrants	$63,600.00	$31,800.00	$27,115.43	$36,484.57
6" PVC Fire Hydrant Lead	$18,000.00	$9,000.00	$7,674.18	$10,325.82
6" MJ Gate Valve w/Box	$61,600.00	$30,800.00	$26,262.74	$35,337.26
6" DI Cross	$1,800.00	$900.00	$767.42	$1,032.58
6" DI Tee	$2,450.00	$1,225.00	$1,044.54	$1,405.46
6" 90° DI Bend	$4,500.00	$2,250.00	$1,918.54	$2,581.46
6" 45° DI Bend	$600.00	$300.00	$255.81	$344.19
1" Corp Stop/Service Saddle	$25,375.00	$12,687.50	$10,818.46	$14,556.54
1" Curb Stop w/Box	$29,000.00	$14,500.00	$12,363.95	$16,636.05
1" HDPE Service Line	$126,875.00	$63,437.50	$54,092.30	$72,782.70
Water Meters & Setter	$36,250.00	$18,125.00	$15,454.94	$20,795.06
Connect to Existing Service	$25,375.00	$0.00	$0.00	$25,375.00
Asphalt Surfacing (4")	$105,000.00	$0.00	$0.00	$105,000.00
Gravel Base Course (10")	$32,300.00	$0.00	$0.00	$32,300.00
Gravel Surfacing	$144,000.00	$0.00	$0.00	$144,000.00
Topsoil, Seed, Fertilize & Mulch	$6,900.00	$0.00	$0.00	$6,900.00
Capital Costs	$396,400.00	$0.00	$0.00	$396,400.00
Total Construction Cost	$1,445,725.00	$323,625.00	$275,950.65	$1,169,774.35
B. Operation and Maintenance Costs for Proposed Construction				
Item	**Annual Cost**			**NPW**
Labor	$1,500.00			$27,621.29
Materials	$500.00			$9,207.10
Miscellaneous	$1,000.00			$18,414.19
Subtotal	$3,000.00			$55,242.58
C. Equivalent Uniform Annual Cost				
NPW Construction Cost				$1,169,774.35
NPW of O & M Costs				$55,242.58
Total Net Present Worth				**$1,225,016.93**
Equivalent Uniform Annual Cost				**$66,525.69**

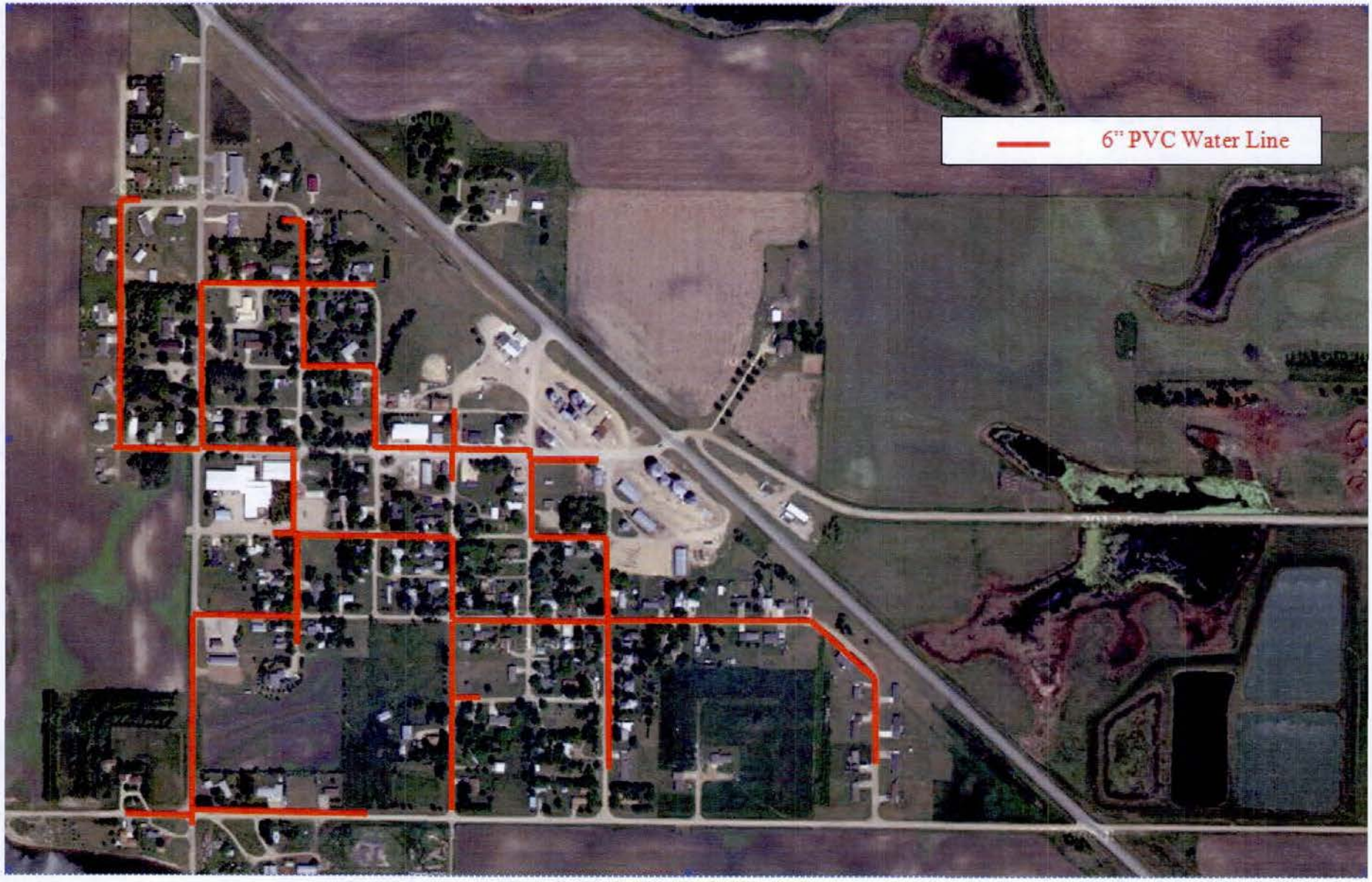


Figure 4.6.2-1 Proposed Alternative 2: 6" Watermain Layout

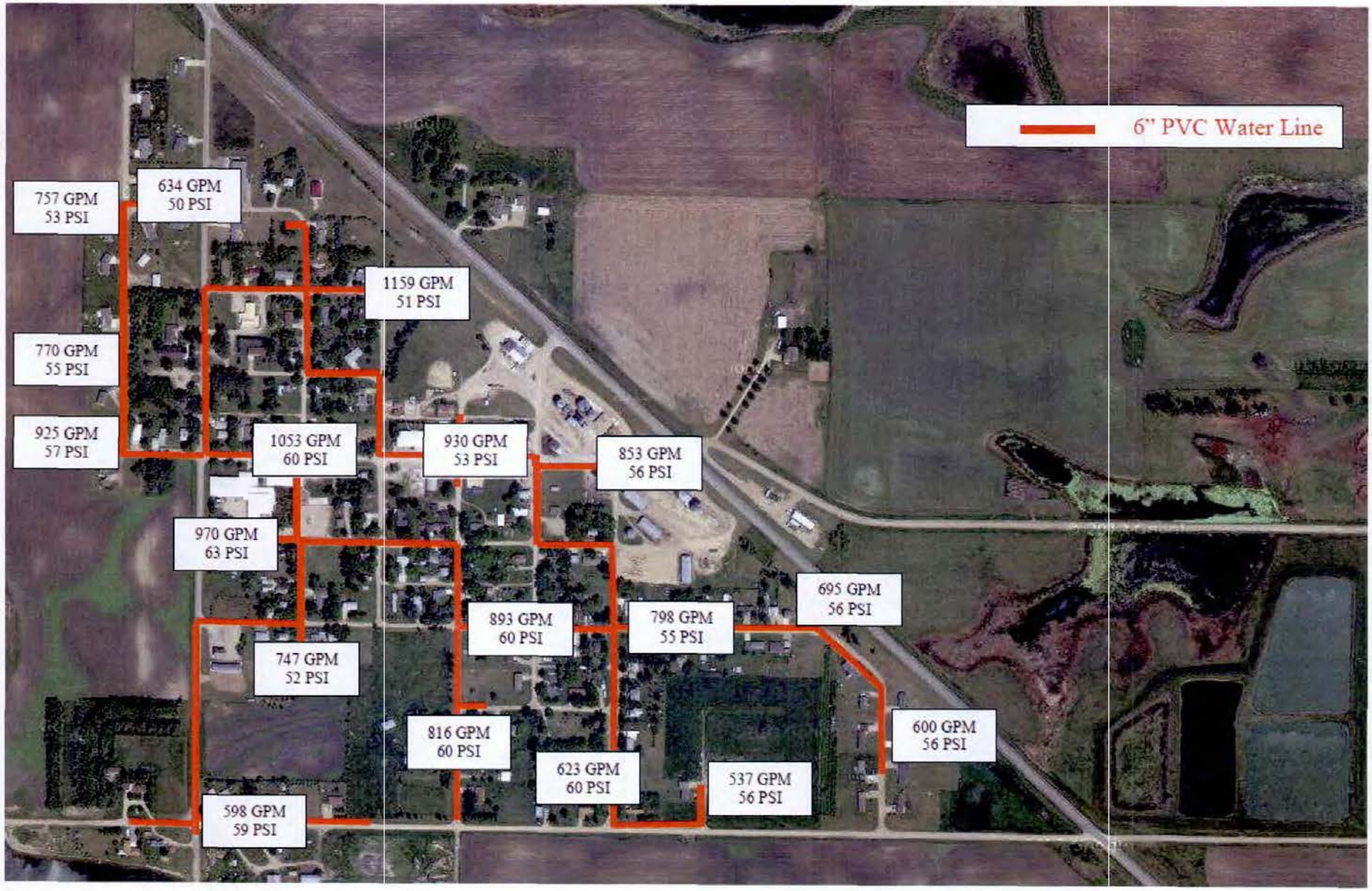


Figure 4.6.2-2 Proposed Alternative 2: 6" Watermain Pressures and Flows

4.6.3 Water Distribution Alternative 3: Replace all 4" PVC, 3" PVC & 2" PVC with 6" PVC and Loop the System

Water Distribution Alternative 3 recommends that all of the existing 4" PVC, 3" PVC & 2" PVC be replaced with 6" PVC lines and looped. The Town has been experiencing many breaks over the years with the current PVC pipe. The frequency of the breaks is only expected to increase in the future. This would be a larger diameter system operated by the Town and would provide better flows and pressures by looping the system. This system would also reduce the number of dead ends within the system which will improve the water quality. This would also increase the fire protection for the Town. The residents of Florence could see a potential decrease in their home owners insurance. Tables 4.6.3-1 and 4.6.3-2 provide the estimated costs of this alternate and the equivalent uniform annual costs for the alternative. Figure 4.6.3-1 provides a proposed layout of the water system. Figure 4.6.3-2 provides the modeled results for the system assuming a ground storage tank. Figure 4.6.4-3 provides the modeled results for the system assuming a 130 foot elevated storage tank.

Table 4.6.3-1 Cost Estimate for Distribution Alternative 3

Item	Description	Quantity		Unit Price	Total Cost
1	Mobilization	1	LS	$96,000.00	$96,000.00
2	Remove and Dispose of Existing Asphalt	4,400	SqYd	$3.50	$15,400.00
3	6" PVC Water Main	17,000	Ft	$22.00	$374,000.00
4	Fire Hydrants	24	Each	$2,650.00	$63,600.00
5	6" PVC Fire Hydrant Lead	720	Ft	$25.00	$18,000.00
6	6" MJ Gate Valve w/Box	60	Each	$1,100.00	$66,000.00
7	6" DI Cross	4	Each	$450.00	$1,800.00
8	6" DI Tee	10	Each	$350.00	$3,500.00
9	6" 90° DI Bend	16	Each	$300.00	$4,800.00
10	6" 45° DI Bend	2	Each	$300.00	$600.00
11	1" Corp Stop/Service Saddle	145	Each	$175.00	$25,375.00
12	1" Curb Stop w/Box	145	Each	$200.00	$29,000.00
13	1" HDPE Service Line	7,250	Ft	$17.50	$126,875.00
14	Water Meters & Setter	145	Each	$250.00	$36,250.00
15	Connect to Existing Service	145	Each	$175.00	$25,375.00
16	Asphalt Surfacing (4")	1,000.0	Ton	$150.00	$150,000.00
17	Gravel Base Course (10")	2,500.0	Ton	$19.00	$47,500.00
18	Gravel Surfacing	11,300.0	Ton	$18.00	$203,400.00
19	Topsoil, Seed, Fertilize & Mulch	5.6	Acres	$1,500.00	$8,400.00
	Construction Subtotal				$1,295,875.00
	Contingencies (15%)				$195,000.00
	Construction Total				**$1,490,875.00**
	Design Engineering				$122,300.00
	Bidding and Contract Documents				$5,500.00
	Construction Engineering				$134,500.00
	Administration & Legal				$30,000.00
	Total Project Cost				**$1,783,175.00**

Table 4.6.3-2 EUAC for Distribution Alternative 3

Item Description	Cost	SV	PW SV	NPW
Mobilization	$96,000.00	$0.00	$0.00	$96,000.00
Remove and Dispose of Existing Asphalt	$15,400.00	$0.00	$0.00	$15,400.00
6" PVC Water Main	$374,000.00	$187,000.00	$159,452.36	$214,547.64
Fire Hydrants	$63,600.00	$31,800.00	$27,115.43	$36,484.57
6" PVC Fire Hydrant Lead	$18,000.00	$9,000.00	$7,674.18	$10,325.82
6" MJ Gate Valve w/Box	$66,000.00	$33,000.00	$28,138.65	$37,861.35
6" DI Cross	$1,800.00	$900.00	$767.42	$1,032.58
6" DI Tee	$3,500.00	$1,750.00	$1,492.20	$2,007.80
6" 90° DI Bend	$4,800.00	$2,400.00	$2,046.45	$2,753.55
6" 45° DI Bend	$600.00	$300.00	$255.81	$344.19
1" Corp Stop/Service Saddle	$25,375.00	$12,687.50	$10,818.46	$14,556.54
1" Curb Stop w/Box	$29,000.00	$14,500.00	$12,363.95	$16,636.05
1" HDPE Service Line	$126,875.00	$63,437.50	$54,092.30	$72,782.70
Water Meters & Setter	$36,250.00	$18,125.00	$15,454.94	$20,795.06
Connect to Existing Service	$25,375.00	$0.00	$0.00	$25,375.00
Asphalt Surfacing (4")	$150,000.00	$0.00	$0.00	$150,000.00
Gravel Base Course (10")	$47,500.00	$0.00	$0.00	$47,500.00
Gravel Surfacing	$203,400.00	$0.00	$0.00	$203,400.00
Topsoil, Seed, Fertilize & Mulch	$8,400.00	$0.00	$0.00	$8,400.00
Capital Costs	$487,300.00	$0.00	$0.00	$487,300.00
Total Construction Cost	$1,783,175.00	$374,900.00	$319,672.15	$1,463,502.85
B. Operation and Maintenance Costs for Proposed Construction				
Item	**Annual Cost**			**NPW**
Labor	$1,500.00			$27,621.29
Materials	$500.00			$9,207.10
Miscellaneous	$1,000.00			$18,414.19
Subtotal	$3,000.00			$55,242.58
C. Equivalent Uniform Annual Cost				
NPW Construction Cost				$1,463,502.85
NPW of O & M Costs				$55,242.58
Total Net Present Worth				**$1,518,745.44**
Equivalent Uniform Annual Cost				**$82,476.89**

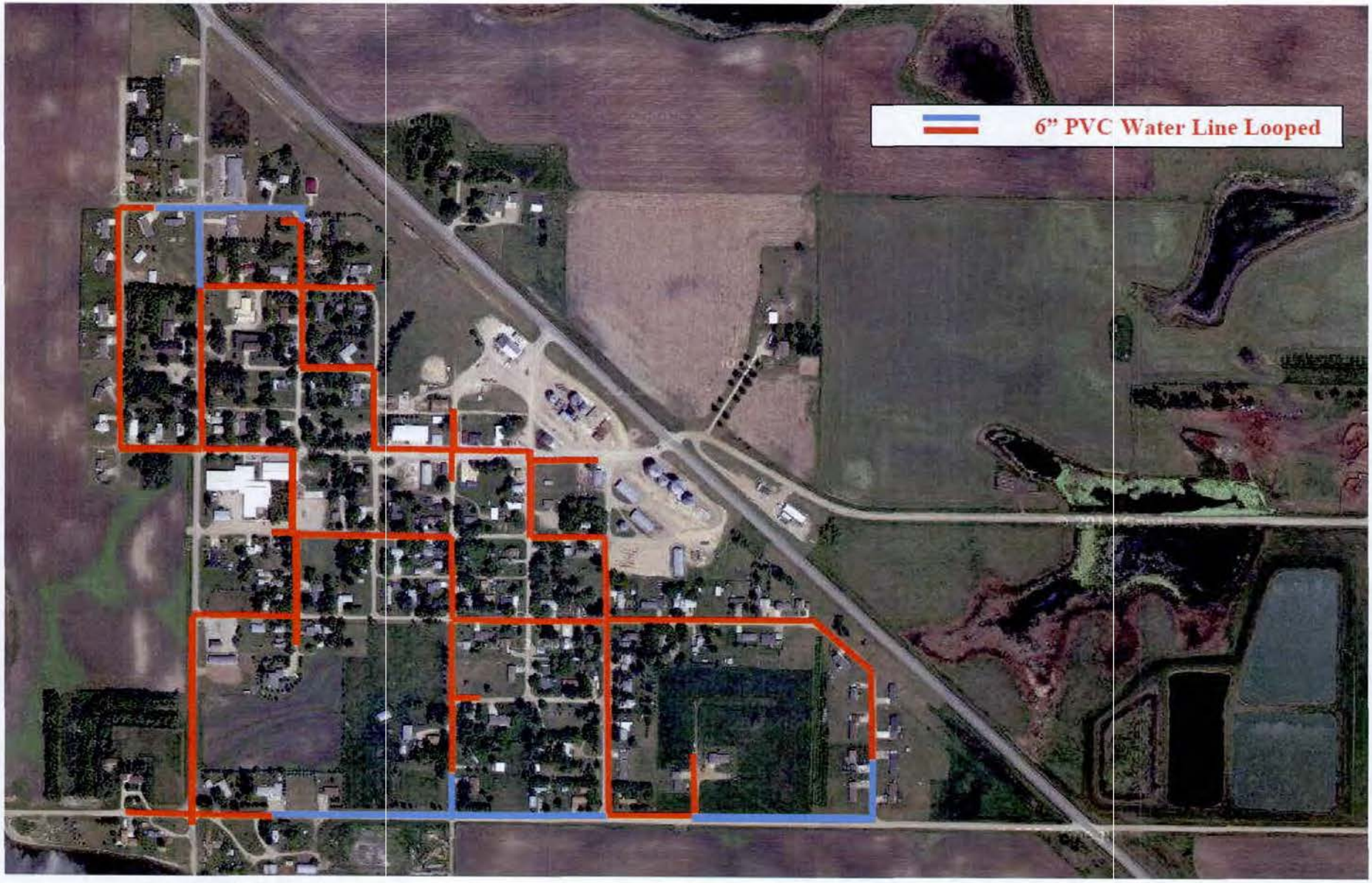


Figure 4.6.3-1 Proposed Alternative 3: Proposed Layout of Looped System

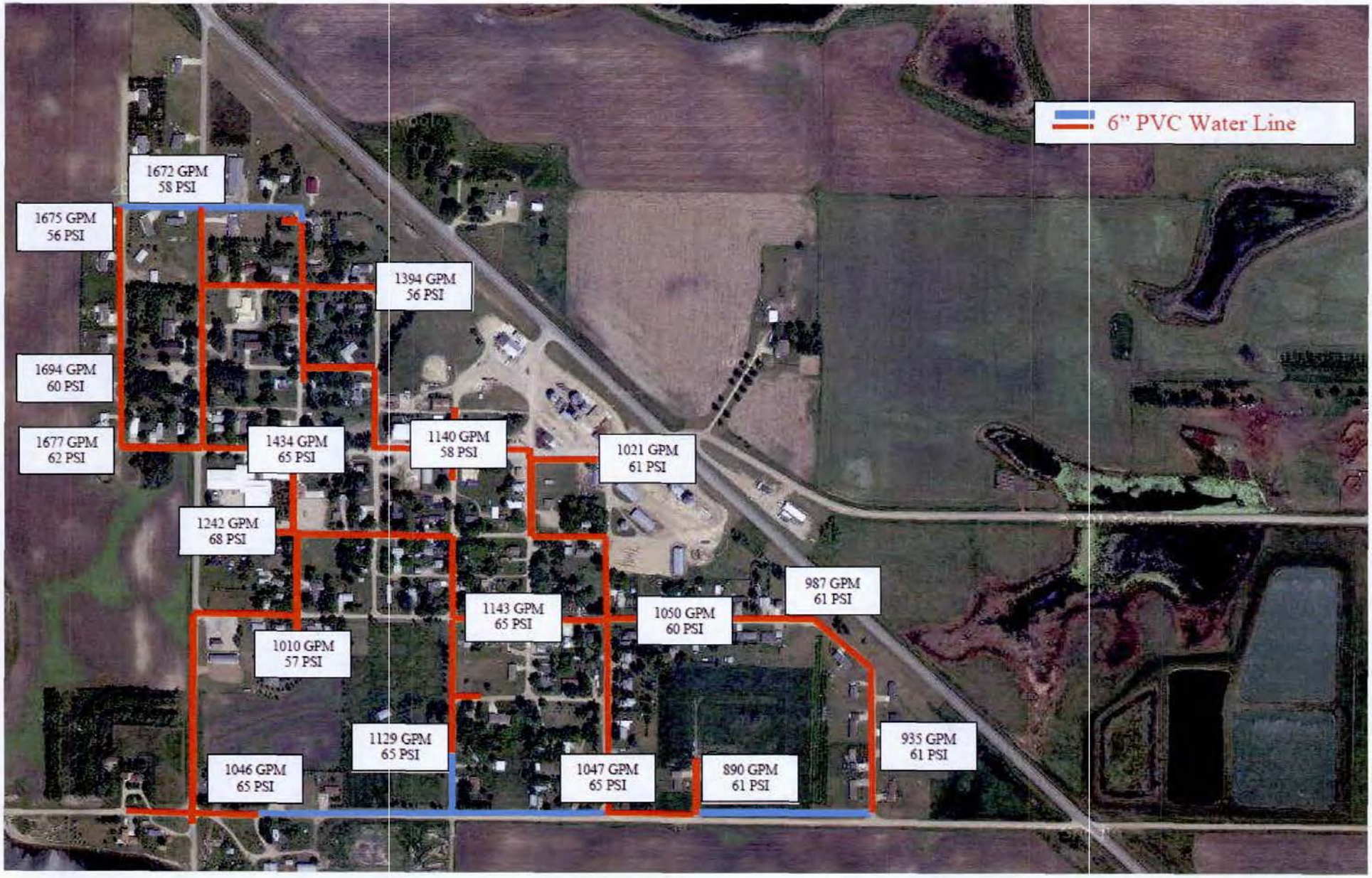


Figure 4.6.3-2 Proposed Alternative 3: 6" Water Main Looped with Pressures and Flows

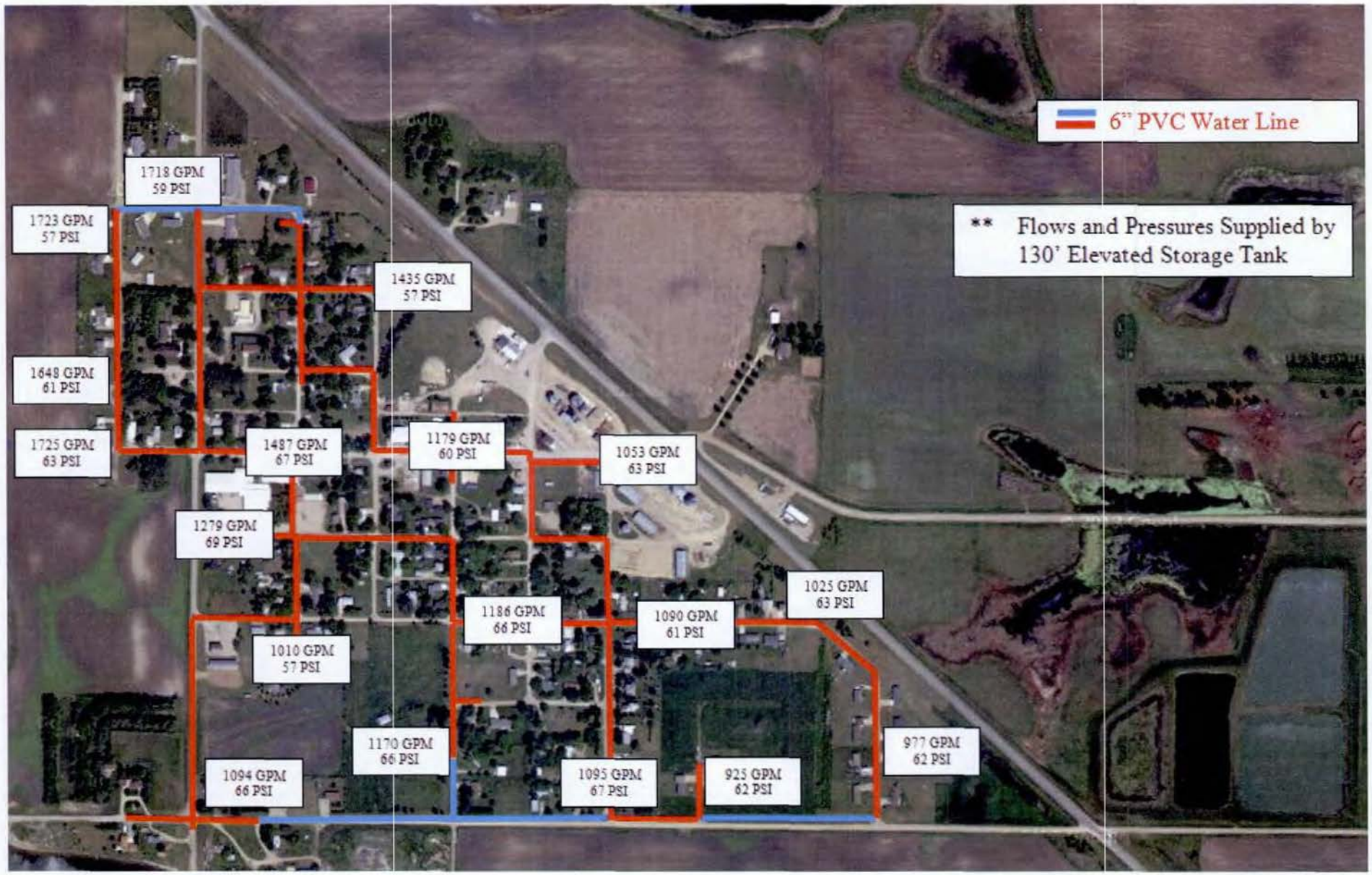


Figure 4.6.3-3 Proposed Alternative 3: 6" Water Main Looped with Pressures and Flows Supplied by Elevated Storage Tank

5 SELECTION OF WATER ALTERNATIVES

5.1 WATER SOURCE

Water Source Alternative 1 (Do Nothing) could be a viable option because Clark Rural Water System has adequately supplied the Town with water in years past with higher population numbers. The community has one well that it has been using for filling the fire trucks; if the well becomes in operable the Town of Florence has no way of filling the fire trucks. Additional storage is recommended due to the inability of using the current well.

Water Source Alternative 2 (Install Additional Well for Town) with a total cost of $170,250.00 is also a viable option if included with distribution line updates.

Knowing that the current well is not suitable for consumption without additional treatment, the new well would needed additional treatment for consumption as the water would come out of the same aquifer. The Town of Florence would have an initial additional cost for a treatment facility and additional costs per year for the treatment of the water for consumption. Therefore this alternative is not recommended.

5.2 WATER STORAGE

Water Storage Alternative 1 (Do Nothing) is not recommended because it will not provide adequate storage or pressure for the Town of Florence.

Water Storage Alternative 2 (New 105,000-Gallon Ground Storage Tank & Booster Pumps) with a total estimate cost of $571,200.00 is recommended. This alternative provides adequate storage and pressure, but the EUAC are higher due to the additional costs for operation and maintenance.

Water Storage Alternative 3 (New 55,000 Gallon Ground Storage Tank & 50,000 Gallon Elevated Storage Tank) with a total estimated cost of $916,650.00 is not recommended. The initial costs for the elevated tank are higher, and the EUAC are higher due to the additional costs for operation and maintenance.

Water Storage Alternative 4 (New 100,000 Gallon Elevated Storage Tank) with a total estimate cost of $1,026,150.00 is not recommended. The initial costs for the elevated tank are higher, and the EUAC costs are higher.

5.3 WATER DISTRIBUTION

Water Distribution Alternative 1 (Do Nothing) is not recommended because it will not address negative characteristics of the system.

Water Distribution Alternative 2 (Replace all 4" PVC, 3" PVC and 2" PVC with 6" PVC) with a total project cost of $1,445,725.00 is not recommended. This system would improve the pressures throughout the Town of Florence, but would not increase the water quality.

Water Distribution Alternative 3 (Replace all 4" PVC, 3" PVC and 2" PVC with 6" PVC in a Looped System) with a total project cost of $1,783,175.00 is recommended at this time. This alternative will increase the pressure and provide fire flow throughout the system, especially in the areas that are experiencing problems. This alternative will replace the current system and add additional lines to improve the water quality of the system. These improvements will correct the current issues with the water distribution system.

5.4 IMPACT ON USER FEES

A summary of the costs associated with the alternatives (Table 5.4-1) and an additional table, (Table 5.4-2) are provided below

Table 5.4-1 Summary of Water Alternative Costs

Alternative	Capital Cost	EUAC
Water Source Alternatives		
Alternative 1: Do Nothing	NA	NA
Alternative 2: Install Additional Well for Town	$170,250.00	$11,120.25
Water Storage		
Alternative 1: Do Nothing	NA	NA
Alternate 2: 105,000 Gallon Ground Storage Tank & Booster Pumps	$571,200.00	$30,018.09
Alternate 3: 55,000 Gallon Ground Storage Tank & 50,000 Gallon Elevated Storage Tank	$916,650.00	$43,692.53
Alternate 4: 100,000 Gallon Elevated Storage Tank	$1,026,150.00	$42,544.02
Water Distribution		
Alternative 1: Do Nothing	NA	NA
Alternative 2: Replace all 4", 3" & 2" PVC to 6" PVC	$1,445,725.00	$66,525.69

Table 5.4-2 Summary of Selected Water Alternative Costs

Selection of Improvements	Total Costs	EUAC
Water Source Alternate 1: Do Nothing	NA	NA
Alternate 2: 105,000 Gallon Ground Storage Tank & Booster Pumps	$571,200.00	$30,018.09
Water Distribution Alternate 3: Replace all 4", 3", & 2" PVC with 6" PVC and Loop the System	$1,783,175.00	$82,476.89
Total Costs of Alternatives	**$2,354,375.00**	**$112,494.98**

As part of the cost analysis of the recommended improvements, the estimated impact on the monthly user fees has been calculated. Financial data supplied by Florence was used to determine the current operational status of the funds. The current water rate for 5,000 gallons is a flat fee of $32.00 per month. In order to be eligible for grant dollars from Rural Development or SD-DENR, the Town needs to charge a minimum of $25.00 per month.

Table 5.4-3 summarizes the financial data that is used to determine the current and proposed operational status of the water fund with the recommended improvements. The water fund is shown to require additional revenue. These calculations were based on a 100% loan. Due to the project's life cycle the Town qualifies for a loan of 3.25% for 30 years and a capital recovery factor of 4.15%.

The short-lived asset replacement value was obtained from Table 5.4-4. This table indicates how much the Town needs to budget for well pumps and water tank maintenance.

The actual rates will be dependent upon the actual funding that would be obtained.

Table 5.4-3 Operation of the Water Fund

	No Grant	50% Grant
Gross Revenue from Water Fees	$46,980.00	$46,980.00
Water Purchase	$30,600.00	$20,000.00
Proposed O & M Cost	$6,000.00	$6,000.00
Retirement of Current Debt	$0.00	$0.00
Short Lived Asset Replacement	$2,900.00	$2,900.00
Net Income	**$7,480.00**	**$18,080.00**
Retirement of Debt Incurred with This Project	$97,780.76	$48,890.38
Amount to Be Set Aside for Debt Reserves	$9,778.08	$4,889.04
Remaining Surplus/Deficit After Project	**-$100,078.84**	**-$35,699.42**
Increase of Water Charge	$58.00	$21.00
Number of Accounts	145	145
Added Revenue	$100,920.00	$36,540.00
Surplus After Increase in Water Charge	**$841.16**	**$840.58**

An increase of $58.00 per month is needed in order to balance the water fund. The Town would need a grant of 75% to balance the water fund at the current rate. Table 5.4-5 breaks down different grant/loan combinations and shows how the sewer rates will be affected in Florence.

5.5 CAPITAL FINANCING PLAN

The Town of Florence will make applications to state and federal resources for loan and grant assistance to begin the project during the 2015 construction seasons.

5.6 ENVIRONMENTAL EVALUATION

The Town of Florence has requested comments from concerned federal agencies. The correspondence related to these inquiries is included in Appendix A.

5.7 VIEWS OF THE PUBLIC AND CONCERNED INTEREST GROUPS

The Town of Florence is planning to conduct a public hearing on the proposed project. Information related to the hearing will be submitted after it is conducted.

Table 5.4-4 Short Lived Asset Replacement Schedule

Expenses	Year															
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Well Pumps	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600
Water Tank Maintence	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300	$2,300
Annual Total to Be Budgeted	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**	**$2,900**

Table 5.4-5 Water Rate Analysis

Funding Percentages	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10
	grant/loan	grant/loan	grant/loan	grant/loan	grant/loan	grant/loan	grant/loan	grant/loan	grant/loan
Annual O & M	$8,100	$8,100	$8,100	$8,100	$8,100	$8,100	$8,100	$8,100	$8,100
Grant Amount	$235,438	$470,875	$706,313	$941,750	$1,177,188	$1,412,625	$1,648,063	$1,883,500	$2,118,938
Loan Amount	$2,118,938	$1,883,500	$1,648,063	$1,412,625	$1,177,188	$941,750	$706,313	$470,875	$235,438
Annual Loan Payment	$111,629	$99,226	$86,823	$74,420	$62,016	$49,613	$37,210	$24,807	$12,403
Debt Reserves	$11,163	$9,923	$8,682	$7,442	$6,202	$4,961	$3,721	$2,481	$1,240
Short Lived Asset Replacement	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900	$2,900
Total Annual Costs	$133,792	$120,149	$106,505	$92,861	$79,218	$65,574	$51,931	$38,287	$24,644
Annual Revenue	$46,980	$46,980	$46,980	$46,980	$46,980	$46,980	$46,980	$46,980	$46,980
Surplus/Deficit After Project	-$86,812	-$73,169	-$59,525	-$45,881	-$32,238	-$18,594	-$4,951	$8,693	$22,336
Minimum Water Rate Increase	$49.89	$42.05	$34.21	$26.37	$18.53	$10.69	$2.85	$0.00	$0.00
Current Water Rate	$32.00	$32.00	$32.00	$32.00	$32.00	$32.00	$32.00	$32.00	$32.00
New Water Rate	$81.89	$74.05	$66.21	$58.37	$50.53	$42.69	$34.85	$32.00	$32.00

6 SELECTED PLAN, DESCRIPTION AND IMPLEMENTATION ARRANGEMENTS FOR WATER IMPROVEMENTS

6.1 JUSTIFICATION AND DESCRIPTION OF SELECTED PLAN

The preferred alternative selected includes a looped 6" water main stem and a new elevated storage tank. This alternative was chosen due to the reduced costs and maintenance for the new elevated storage tank, as Clark Rural Water Systems can fill the tank without additional pumping. The distribution system was chosen to increase the quality of water by looping the system. This alternative was chosen as it will remedy all of the current problems with the current system.

6.2 DESIGN OF SELECTED PLAN

The design of the improvements to the water system will provide enhanced flexibility in operation and will be designed in accordance with the SD DENR design criteria and the accepted principles and standards for the design of the water distribution system.

6.3 ARRANGEMENT FOR IMPLEMENTATION

This report provides information to describe the proposed project and to support the Board's decision to proceed with the selected options as quickly as possible. Final design will be completed by the Town of Florence's consultant and approved by the Department of Environment and Natural Resources, as it is definitely a "work of significance". Cost estimates have been prepared and are referenced elsewhere in this document.

The project will be bid in accordance with state statutes that govern municipal corporations and will be constructed by the lowest responsible bidder.

Table 6.3-1 Proposed Schedule

Facility Plan Submitted to Funding Agencies	January 1, 2015
Environmental Review Completed	March 3, 2015
Funding Agency Approval of Facility Plan	February 17, 2015
Final Funding Package Complete	August 16, 2015
Begin Design	September 1, 2015
Plans & Specifications Submitted to DENR	January 15, 2016
Plans & Specifications Approved by DENR	March 1, 2016
Advertisement for Bids	March 15, 2016
Open Bids	April 15, 2016
Award Bids	May 1, 2016
Begin Construction	June 1, 2016
Construction Complete	October 31, 2016
Project Close-out	December 1, 2016

6.4 LAND ACQUISITION

If the Town would decide to pursue the installation of a new elevated storage tank under options 1, 2 or 3, then it is possible that land may need to be acquired. It is likely that a new elevated storage tank could be located in existing City property that has been previously disturbed. If the Town decides to precede with just the water main replacement no land acquisition would be required for the water system improvements as all work will be completed in existing street rights-of-way or in easements that have already been or will be obtained. It would appear that

the land could be found within the areas already submitted in with the environmental letters. It is assumed that an Archeological Survey would be required on any potential new sites.

6.5 INTERAGENCY AGREEMENTS

No operating agreements with other agencies are needed as the Town of Florence owns, operates and maintains its municipal water system. Loan documents will have to be executed with the appropriate lender but as Florence is a municipal corporation, it has the legal authority to enter into such agreements. Florence's attorney will advise the Board on any legal matters related to this issue.

7 FINANCING OPTIONS

7.1 GENERAL

Financing any major construction project is difficult for a community that has limited resources. "Routine" community needs such as the improvements to streets, equipment replacement, correction of drainage problems, and solid waste issues cannot be neglected. These needs must be met and projects relating to addressing them must continue to be financed.

These "routine" types of projects frequently consume all or nearly all available community financial resources just to maintain an acceptable level of service. Consequently, to finance major capital improvement projects, other methods of obtaining capital must be investigated.

7.2 PAY-AS-YOU-GO

For small communities, the most common method of financing needed improvements is the "pay-as-you-go" method. This method obtains revenue from general taxation, fees, service charges, special funds and/or special assessments. The advantages of this method are:

1) No interest payments; and
2) Greater budget flexibility.

Disadvantages of this method are:

1) Inequities between age groups (older citizens pay for a share of the project and younger citizens who may not have paid any of the costs realize greater benefits simply because of greater life spans);
2) Difficulty in generating large amounts of capital that is often required for large scale capital improvements; and
3) Large scale capital improvements often cannot be constructed efficiently by phased construction.

7.3 RESERVE FUNDS

A variation of the "pay-as-you-go" method is using reserve fund financing. Communities using this method accumulate funds in advance for construction of needed capital improvements. This accumulation may be the result of surplus operating funds that are allowed to remain in the

operating budget from year to year. These funds are often "earmarked" for a specific purpose. It may also be revenues from a certain percentage of the water or sewer rate that are specifically placed in a depreciation account. Financing projects in this manner is often attractive to communities.

This method can have its drawbacks. The most obvious drawback is that the fund has to have been established for some time to allow it to generate sufficient capital for a project that is needed today. Also, good management is required to ensure that the investment pays an adequate return. If the interest generated on the investment is not greater than the inflation rate, then gains in the accumulation of the fund may be lost to inflation.

7.4 SALES TAXES

Sales taxes can also be used to finance capital improvements. State statutes allow a Town to dedicate sales tax revenues to capital improvement construction. A long-range plan can be developed to allow capital improvements to be constructed in phases. As revenue is generated each year, a segment of the overall plan is constructed. This method of constructing capital improvement projects is being used successfully by many communities.

7.5 BONDS

Another method of generating revenue for capital improvements is through the sale of bonds on the private bond market. Three different types of bonds are frequently used to finance capital improvement projects. Each has different requirements and will need the involvement of the Town's Attorney. The three types are General Obligation (GO), revenue and special assessment.

7.6 GENERAL OBLIGATION BONDS

General Obligation bonds always require a bond election with a 60% majority because General Obligation bonds pledge the taxing authority of the Town to repay the bond. As they are backed by the taxing authority of the Town, General Obligation bonds frequently offer a lower interest rate than revenue bonds.

7.7 REVENUE BONDS

Revenue bonds, which pledge revenues (that is, user fees) generated from the project, are often sold to finance capital improvement projects. They, like special assessment bonds, do not require a bond election but with any action of a governmental body, the enabling ordinance that must be approved by the board can be referred. Sales tax revenues can be and are frequently used to repay both revenue and general obligation bonds.

7.8 SPECIAL ASSESSMENT BONDS

Special assessment bonds have a limited payback period. Assessment for principal and interest repayment are levied against and collected from adjacent property owners over a given period of years. The special assessments are collected with property tax payments. Street improvements are frequently financed through the use of special assessment bonds.

7.9 LEASE-PURCHASE

Local financial institutions are becoming interested in financing community improvements through lease-purchase programs. This interest appears to be the result of recently passed federal legislation that provides tax advantages to financial institutions that participate in community improvement efforts. Lease-purchase plans can also use sales tax revenues to provide the vehicle for repayment.

7.10 OTHER SOURCES OF FINANCING

All of the previously discussed methods of financing rely on 100% local funding. Often it is difficult, if not impossible, for a community to finance projects with 100% local funding. Fortunately, there are other resources and programs available that can be used in conjunction with local funding to assist communities in financing projects such as the one being considered by the Town.

7.11 FEDERALLY FUNDED LOANS / GRANTS

Federal agencies such as the US Department of Agriculture's Rural Development / Rural Utility Service (RD / RUS) has both grant and loan funds available for financing community

improvements. RD / RUS requires a preliminary engineering report and pre-application, along with certain other information, before it can invite a community to submit a full application for project funding.

While the RD / RUS is the primary federal agency that funds local projects, there are other federal agencies that do assist local communities under "special" circumstances. These agencies include, but are not limited to, the Federal Emergency Management Agency (FEMA), the Economic Development Administration (EDA) and the US Department of Housing and Urban Development (HUD). However, these federal agencies normally do not become involved in funding local projects unless there has been a declared disaster or a major economic development activity is imminent.

7.12 STATE FINANCED LOANS / GRANTS

The State of South Dakota has several programs that can provide financial assistance for community facility improvements. The programs are operated through various departments of state government. Some are financed with 100% state resources, some use a combination of state and federal funds and some are federal "pass-through" funds.

7.13 DENR PROGRAMS

The Department of Environment and Natural Resources (DENR) has a low interest loan and grant program known as the Consolidated Water Facilities Construction Program (CWFCP). This program was established in 1986 by combining several existing grant and loan programs. It is funded entirely with state financing and is designed to provide financial assistance through grants and loans for water and wastewater projects throughout the state.

DENR also operates the State Revolving Fund (SRF) loan program. It began in 1987 as a result of amendments to the Federal Clean Water Act. This program was designed to replace the EPA, the federal construction grants program. EPA had, for a number of years, provided grants directly to communities to construct and/or rehabilitate wastewater treatment and collection systems. The funding from the construction grants program has been made available to the state. The federal funds are to be used in combination with state funds to create a revolving loan program that will be self-perpetuating. SRF funds are targeted specifically to wastewater

treatment and collection systems, storm drain systems and other construction activities that will improve surface and groundwater quality.

7.14 GOED PROGRAM

The Governor's Office of Economic Development (GOED) administers the Community Development Block Grant (CDBG) program. This program utilizes the US Department of Housing and Urban Development (HUD) small cities program funding. CDBG funds may be used for a variety of community development activities, including water and sewer system renovations and rehabilitation. The emphasis of this program is to provide benefits for low and moderate income people. Information supplied by GOED indicates that most communities can probably qualify for funds from this program; however, an income survey may be necessary.

7.15 SUMMARY OF FUNDING OPTIONS

No existing program will provide a 100% grant to finance a project. Most of the programs (both state and federal) require or strongly recommend that the applicant provide some local funding. Low interest loans and grant offers are frequently "packaged" with available local funds to completely finance capital improvement project activities. DENR also has minimum rate requirements that must be met by a community for it to be eligible for grant funding under the CWFCP. The department is recommending that the minimum rate for municipal water be $25.00 per month for 5,000 gallons of water used. If a community does not have its rates at or above this level, it will not be eligible for grant assistance from the consolidated program.

7.16 FUNDING RECOMMENDATIONS

Given the cost of construction of a project of this scope and the limited amount of local finances available, it is recommended that the community should:

1. Make application to place this project on the State Water Facilities Plan.
2. Evaluate its own financial resources, rate structure and various funding sources available to construct capital improvement projects to see if rate increases or other funding options may be used to finance all or part of the proposed project.

3. Complete applications for financial assistance to programs such as the CWFCP, CDBG Program, and/or USDA's Rural Development / Rural Utility Service Water and Sewer Program when the project is approved for the State Water Facilities Plan.

The process of completing applications for financial assistance could begin when an application to the State Water Facilities Plan is submitted. Early application for financial assistance could speed the process of obtaining financing for project construction as obtaining financing can be a lengthy process.

8 REFERENCES

Committee of Great Lakes – Upper Missouri River Council of State Public Health and Environmental Managers, (1997). Recommended Standards for Water Works (Albany, NY: Health Education Services), pp.

Mays, Larry W., (2000). Water Distribution Systems Handbook, (New York, NY: McGraw Hill), pp.

Soil Conservation Service, South Dakota Agricultural Experiment Station. Soil Survey of Codington County, South Dakota. South Dakota: National Cooperative Soil Survey, 1966.

South Dakota Department of Environment and Natural Resources, (May 1990). *Recommended Design Criteria Manual for Water Works,* Pierre, SD: Division of Environmental Regulation.

Appendix A Environmental Comment Letters

SOUTH DAKOTA
STATE HISTORICAL SOCIETY
DEPARTMENT OF TOURISM

10/18/2013

Helms & Associates
Search S14-101

A-5786: Town of Florence Sanitary Sewer and Water Study
T118N-R54W-Sec. 4, 5, 8 and 9-Florence Quadrangle

Within Project Area		**Source/Identification**	**Eligibility**
Sites	39CD47	Prehistoric/Historic Artifact Scatter	NE
	39CD2003	Chicago Northwestern Railroad	NR Eligible
Survey	ACD-0037	Gillen 1996	
Structures	11	See SHPO CRGRID	No DOE
	CD00000124	Methodist Church	NR Eligible
One Mile Radius			
Sites	39CD51	Farmstead/Historic Scatter	NE
	39CD52	Farmstead	Unevaluated
	39CD120	Foundation/Historic Scatter	No DOE
Surveys	ACD-0024	Estep 1991	
	ACD-0041	Gillen & Palmer 1998	
	ESD-0100	Winham 1989	
	ESD-0224	Downing 1999	
	ESD-0512	Byrne 2012	
Structure	CD00000465	T.N. Bergan Homestead	No DOE

This concludes your archaeological record search and I have enclosed copies of the GIS quadrangle maps showing the site, survey and structure locations. State Historic Preservation Office guidelines require listing all sites, structures and surveys within a mile of a project area. Researchers/contractors must be aware that lack of sites or surveys at a particular location does not mean the project site may not need a Class III archaeological resources survey by a qualified archaeologist. The SHPO has set an arbitrary date of 1982 as the cut-off for previous surveys to be considered valid and not require a new survey. This arbitrary date does not grandfather in inadequate surveys. The SHPO has also established a policy that a file search is valid for six months prior to the submission of the report.

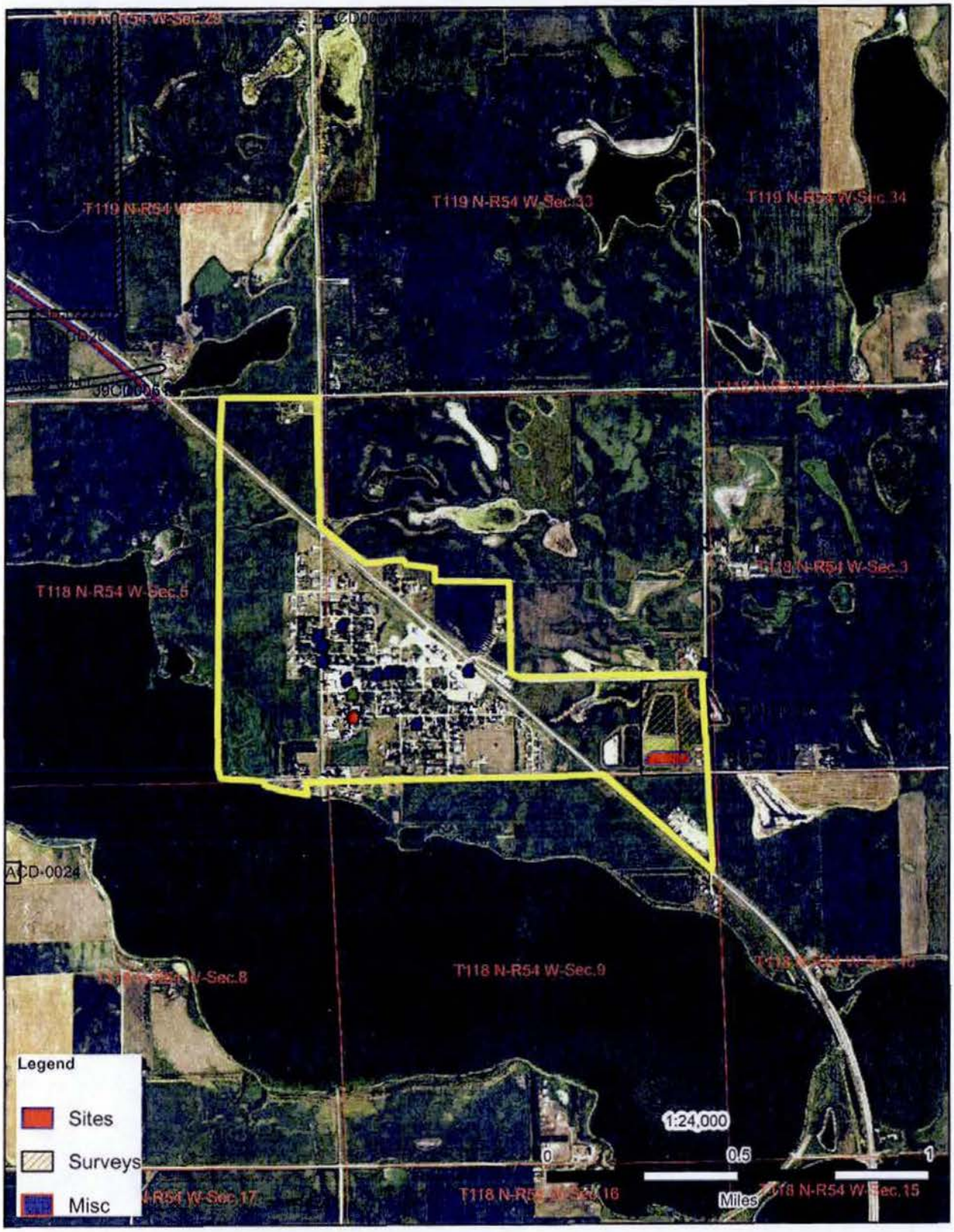
The purpose of the Level 1 archaeological records search is for informational purposes only and does not constitute compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended). **This information must be submitted for review to Paige Olson, Review and Compliance *Coordinator, Office of the State Historic Preservation Officer (SHPO), 900 Governors Drive, Pierre, SD,* 57501.**

Sincerely,

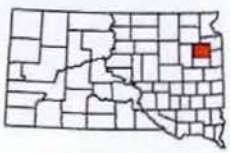
Jane P. Watts

ARCHAEOLOGICAL RESEARCH CENTER
2425 E SAINT CHARLES ST • PO BOX 1257 • RAPID CITY • SD 57709 • P (605 • 394 • 1936) F (605 • 394 • 1941) • HISTORY.SD.GOV
DEPARTMENT OF TOURISM (TOURISM.SD.GOV)

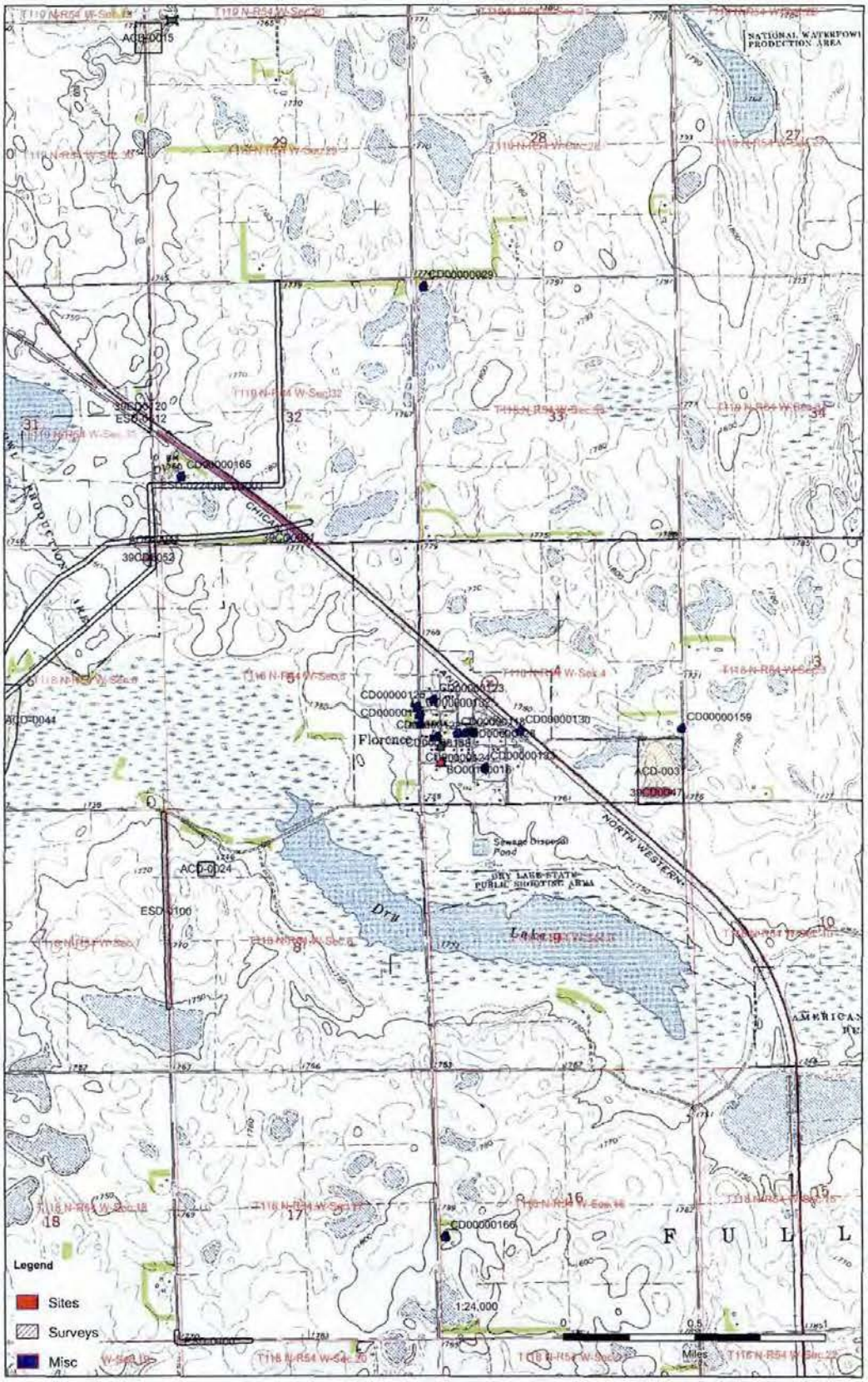
South Dakota Archaeological Research Center
GIS Database



A-5786
Town of Florence Sanitary Sewer and Water Study
T118N-R54W-Sec. 4, 5, 8, 9-Florence Quadrangle
10/17/2013
Warning! This data is preliminary and not intended for public use or display!



South Dakota Archaeological Research Center
GIS Database



A-5786
Town of Florence Sanitary Sewer and Water Study
T118N-R54W-Sec. 4, 5, 8, 9-Florence Quadrangle
10/17/2013
Warning! This data is preliminary and not intended for public use or display!

A-5785
Env.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
1616 CAPITOL AVENUE
OMAHA NE 68102-4901

REPLY TO
ATTENTION OF

November 4, 2013

Planning, Programs, and Project Management Division

RECEIVED
NOV 15 2013
HELMS & ASSOCIATES

Ms. Korina Fryslie
Helms & Associates
221 Brown Co. Hwy. #19
P.O. Box 111
Aberdeen, South Dakota 57402

Dear Ms. Fryslie:

The U.S. Army Corps of Engineers, Omaha District (Corps) has reviewed your letter dated October 15, 2013 regarding Florence, South Dakota's proposal to improve their sanitary sewer and water systems located in Codington County. It is understood that the potential work may include the replacement of the system's lift station, force main, sanitary sewer mains and water mains, and stabilization pond improvements. The Corps offers the following comments:

Your plans should be coordinated with the state water quality office in which the project is located to ensure compliance with federal and state water quality standards and regulations mandated by the Clean Water Act and administered by the U.S. Environmental Protection Agency. Please coordinate with the South Dakota Department of Environment & Natural Resources concerning state water quality programs.

If you have not already done so, it is recommended you consult with the U.S. Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks regarding fish and wildlife resources. In addition, the South Dakota State Historic Preservation Office should be contacted for information and recommendations on potential cultural resources in the project area.

Since the proposed project does not appear to be located within Corps owned or operated lands, we are providing no floodplain or flood risk information. To determine if the proposed project may impact areas designated as a Federal Emergency Management Agency special flood hazard area, please consult the following floodplain management office:

South Dakota, Division of Emergency Management
Attention: Nicole Prince
118 W. Capitol Ave.
Pierre, South Dakota 57501-5070
Nicole.prince@state.sd.us
Telephone: 605-773-3238
Fax: 605-773-3580

Any proposed placement of dredged or fill material into waters of the United States (including jurisdictional wetlands) requires Department of the Army authorization under Section 404 of the Clean Water Act. You can visit the Omaha District's Regulatory website for permit applications and related information. Please review the information on the provided website (http://www.nwo.usace.army.mil/Missions/RegulatoryProgram.aspx) to determine if this project requires a 404 permit. For a detailed review of permit requirements, preliminary and final project plans should be sent to:

U.S. Army Corps of Engineers
Pierre Regulatory Office
Attention: CENWO-OD-R-SD/Naylor
28563 Powerhouse Road, Room 120
Pierre, South Dakota 57501

If you have any questions, please contact Ms. Amanda Ciurej of my staff at (402) 995-2897.

Sincerely,

Eric Laux
Acting Chief, Environmental Resources and Missouri River Recovery Program Plan Formulation Section

Helms & ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

RECEIVED
OCT 17 2013
U.S. FISH & WILDLIFE SERVICE

221 BROWN CO. HWY. #19
PO BOX 111
ABERDEEN, SD 57402-0111

PHONE (605) 225-1212
TOLL FREE 1-888-378-4394
FAX (605) 225-3189

October 15, 2013

Mr. Donald Gober, Field Supervisor
United States Department of Interior
Fish and Wildlife Service
420 S. Garfield Avenue
Pierre, SD 57501-5408

RECEIVED
NOV 14 2013
HELMS & ASSOCIATES

Re: Town of Florence Water and Wastewater Study
A-5786

Dear Mr. Gober,

The Town of Florence located in Codington County, SD is looking to make much needed improvements to their sanitary sewer and water systems.

The potential work could include replacement of all sanitary sewer mains, lift station replacement, force main replacement, stabilization pond improvements and replacement of their watermains. All work will be completed in the ROW for existing roads, streets, and alley ways, in areas where excavation for utilities have previously taken place.

We are requesting your comments concerning environmental impacts from the possible improvements to these sanitary sewer and water facilities. Please find the enclosed map showing the area being looked at for improvement and possible disturbance.

The work performed will be funded with State and Federal funding. The agencies tapped may include, Rural Development, Community Development Block Grants, EPA, State Revolving Funds and other South Dakota loan and grant funds.

If you have any questions, please contact our office. Your prompt response would be greatly appreciated.

Sincerely,
Helms and Associates

Korina R Fryslie, Helms & Assoc.

W/Enclosure

This constitutes a report of the Department of the Interior prepared in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). We have reviewed and have NO OBJECTION to this proposed project.

11/13/13
Date

Acting Field Supervisor

A-5786
ENV

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

RECEIVED
NOV 22 2013
HELMS & ASSOCIATES

November 21, 2013

Korina Fryslie
Helms and Associates
221 Brown Co. Hwy 19
P.O. Box 111
Aberdeen, SD 57402-0111

Dear Ms. Fryslie:

The South Dakota Department of Environment and Natural Resources (DENR) reviewed the project proposed by the Town of Florence concerning water and wastewater improvements. The DENR finds that this construction, using conventional construction techniques, should not cause violation of any statutes or regulations administered by the DENR based on the following recommendations:

1. At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities. Contact the Department of Environment and Natural Resources for additional information or guidance at 1-800-SDSTORM (737-8676) or http://denr.sd.gov/des/sw/StormWaterandConstruction.aspx.

2. A Surface Water Discharge (SWD) permit may be required if any construction dewatering should occur. Please contact Al Spangler at (605) 773-3351 concerning this permit.

3. The Plans and Specifications for improvements to the sanitary sewer system must be submitted to Kelli Buscher with the Surface Water Program for review and approval.

4. Wetlands may be impacted by the projects. These water bodies are considered waters of the state and are protected under the South Dakota Surface Water Quality Standards. The discharge of pollutants from any source, including indiscriminate use of fill material, may not cause destruction or impairment except where authorized under Section 404 of the Federal Water Pollution Control Act. Please contact the U.S. Army Corps of Engineers concerning these permits.

If you have any questions concerning these comments, please contact me at (605) 773-3351.

Sincerely,

John Miller
Environmental Scientist
Surface Water Quality Program

Helms & ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

221 BROWN CO. HWY. #19
PO BOX 111
ABERDEEN, SD 57402-0111

PHONE (605) 225-1212
TOLL FREE 1-888-378-4394
FAX (605) 225-3189

October 15, 2013

Mr. John Miller
Department of Environment and Natural Resources
Surface Water Program
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501

RECEIVED
DEC 9 2013
HELMS & ASSOCIATES

Re: Town of Florence Water and Wastewater Study
A-5786

Dear Mr. Miller,

The Town of Florence located in Codington County, SD is looking to make much needed improvements to their sanitary sewer and water systems.

The potential work could include replacement of all sanitary sewer mains, lift station replacement, force main replacement, stabilization pond improvements and replacement of their watermains. All work will be completed in the ROW for existing roads, streets, and alley ways, in areas where excavation for utilities have previously taken place.

We are requesting your comments concerning environmental impacts from the possible improvements to these sanitary sewer and water facilities. Please find the enclosed map showing the area being looked at for improvement and possible disturbance.

The work performed will be funded with State and Federal funding. The agencies tapped may include, Rural Development, Community Development Block Grants, EPA, State Revolving Funds and other South Dakota loan and grant funds.

If you have any questions, please contact our office. Your prompt response would be greatly appreciated.

Sincerely,
Helms and Associates

Korina R Fryslie, Helms & Assoc.

W/Enclosure

RECEIVED
OCT 16 2013
SURFACE WATER PROGRAM

SD DOUBLE PROTECTION REQUIREMENT
It appears, based on the information provided, the project will have little or no impact on water quality in this area. This project is approved.
Approved By: Brad Schulz
Date: 12/5/2013
(605) 773-6038 Fax (605) 773-
South Dakota Department of Environment and Natural Resources

DEPARTMENT OF GAME, FISH, AND PARKS
Foss Building
523 East Capitol
Pierre, South Dakota 57501-3182

October 16, 2013

Ms. Korina Fryslie
Helms & Associates
221 Brown Co. Hwy. 19
PO Box 111
Aberdeen, SD 57402-0111

RE: Water & Wastewater Study- Florence, South Dakota
A-5786

Dear Ms. Fryslie:

This letter is in response to your request for information regarding environmental impacts resulting from improvements to the water and wastewater systems in the Town of Florence, South Dakota.

At this time, the project described will have no impacts on fish and wildlife resources. However, if the project design changes or if new information becomes available, please submit the changes for review.

If you have any other questions, please feel free to contact me at 605.773.6208.

Sincerely,

Leslie Murphy
Senior Biologist

RECEIVED
OCT 18 2013
HELMS & ASSOCIATES

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
200 Fourth Street SW
Huron, South Dakota 57350

Phone: (605) 352-1200
Fax: (855) 256-2565

October 18, 2013

Korina R. Fryslie
Helms & Associates
221 Brown Co., Hwy. #19
P. O. Box 111
Aberdeen, SD 57402-0111

RE: Town of Florence Water and Wastewater Study, A-5786

Dear Korina:

Thank you for the opportunity to provide comments on the above project. The project will have no effect on prime or important farmland.

The Natural Resources Conservation Service (NRCS) would advise the applicant to consult with the local NRCS and Farm Service Agency (FSA) offices regarding any USDA easements or contract in the project area that may be affected.

If you have any questions, please contact Barb Hall, GIS Specialist, at (605)352-1256.

Sincerely,

Deanna M Peterson

DEANNA M. PETERSON
State Soil Scientist

RECEIVED
OCT 21 2013
HELMS & ASSOCIATES

Appendix B Water Rights Permit No. 4051-3

Form 2 - Application for Permit to Appropriate Water-Original (Includes Approval and Permit)

No. 4051-3

Map No. 32q3-3 Water Division No. 3 Big Sioux River District

(Blanks to be Filled by the Engineer for the W. R. C.)

STATE WATER RIGHTS COMM. Pierre, S.D.

APPLICATION FOR PERMIT

To Appropriate Water within the State of South Dakota

(NOTE--Draw a line through items not applicable)

1. Name of Applicant Town of Florence

Postoffice address Florence, State South Dakota

If a corporation show date and place of incorporation 1907

2. Method of accomplishing work (contract, employment of others, or by direct labor) —

3. Name of diversion work —

4. Amount of water claimed (cubic feet per second) ~~1.1~~ 1.0 cfs but future request is for ~~2~~ 2.0 cfs.

5. Source of water supply Well but additional wells may be needed in the future

6. Location of point of diversion PRESENT WELL IS IN NW¼SW¼ SECTION 4, T118N, R54W; FUTURE USE AREA IS WITHIN CITY LIMITS OF TOWN OF FLORENCE County Codington

7. Annual period or periods during which water is to be used Daily-24 hours a day-year-round

8. Use to be made of water, (irrigation, industrial, municipal, commercial, recreation, etc.) all except irrigation

9. For irrigation use. Total number of acres to be irrigated —

List below each forty acre subdivision, or lot, or fraction thereof and show number of acres to be irrigated in each.

Land Description	No. Acres Irr.	Land Description	No. Acres Irr.
	—		—
	—		—
	—		—
	—		—

Attach sheet if more space is needed

10. Time required to complete construction of water supply system 5 years. Additional time required to complete application of water to the proposed beneficial use 4 years.

11. Choice of newspaper for Notice of Intent to Appropriate Water publication Watertown Public Opinion or South Shore Gazette

12. Principal Features of the Proposed Water Supply System.

A. Works proposed to divert water from its natural source.
City well with water system expanded to include a fire hydrant system.

B. Works proposed to transport water to place of use.

C. Works proposed to apply water to beneficial use.

Estimated Total Cost $ 59,940.40

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map. (See instructions concerning preparation.)

STATE OF SOUTH DAKOTA)
) ss.
County of Codington)

I, Town of Florence the applicant, certify that I have read the foregoing application and have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction.

Signed Steven Peterson

Subscribed and sworn to before me this 27th day of Sept. 1976

Emerson Brooks
Notary Public (or other qualified officer)

WATER RIGHT APPLICATION APPROVAL

ıe Water Rights Commission hereby approves Water Right Application No. 4051-3

TOWN OF FLORENCE (Applicant) (Post Office Address)

SOUTH DAKOTA 57235 (State) With the following modifications:

The [redacted] well approved under this Permit is located near domestic wells which may obtain water from the same aquifer. The [redacted] well owner, under this Permit, shall control his [redacted] withdrawals so there is not a reduction of needed water supplies in adequate domestic wells.

* THE COMPLETION DATES DO NOT APPLY TO FUTURE USE PORTIONS OF THIS PERMIT. UNDER THE FUTURE USE PORTION OF THIS PERMIT, SPECIFIC APPLICATIONS FOR ALL OR ANY PART OF THE APPROPRIATION MUST BE SUBMITTED AT SUCH TIME AS THE WORKS ARE TO BE CONSTRUCTED.

Date of first receipt of application OCTOBER 20, 19 76

Date of return to applicant for correction, amendments or changes required —, 19 ____

Date of receipt of corrected application —, 19 ____

Approved JULY 28, 19 77, Recorded in Book 19 Page 59

WATER RIGHT PERMIT NO. 4051-3

he Water Rights Commission hereby grants and issues this Water Right Permit No. 4051-3 authorizing the construction of the water use system and the putting of water to beneficial use as stated in the Application and as modified in the Water Right Application approval, subject, however, to the following limitations and conditions:

1. The date from which applicant may claim right is OCTOBER 20, 19 76

2. The equivalent of at least one-fifth of the work above specified is to be completed on or before [redacted] JANUARY 28, 19 80

3. The whole of said work is to be completed on or before JULY 28, 19 82

4. The limit of time from proof of beneficial use of water appropriated in accordance herewith is JULY 28, 19 86

5. The water appropriated shall be used for the purpose of MUNICIPAL

6. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be injuriously affected by this appropriation.

7. The amount of the appropriation herein granted shall not exceed 3.0 (2.00 FOR FUTURE USE) cubic feet per second; neither shall it exceed the capacity of the above described water supply system, nor shall it exceed the amount of water needed for ~~beneficial uses served, and if for the irrigation purpose, said appropriation must be limited to not more than 2 acre feet per acre per year and be limited to not more than one seventieth (1/70) of one cubic foot of water per second of time for each acre of land to~~ which water is actually and beneficially USED FOR MUNICIPAL PURPOSES ~~applied for irrigation~~ on or before JULY 28, 19 86; said water to be used during the following described annual period: CONTINUOUSLY

Witness my hand this 15TH day of AUGUST, 19 77

WATER RIGHTS COMMISSION

By: John Katich

Chief Engineer, Executive Officer

Certificate of Construction Issued ____, 19 ____

Water License Issued ____, 19 ____

Florence

Form 2A - Wells, Dugouts or Water Storage Dams (Supplement to form 2)

12. Principal Features of the Proposed Water Supply System (continued.)

D. Well Information or Estimates

(1) Drill Hole, Diameter 14", Depth 120'

(2) Casing, Type Steel (wood, concrete, steel, etc), Diameter 8" Thickness

(3) Perforated Screen.

Type Metal, Diameter 8", Length 20'

(4) Gravel Pack, Thickness 30", Length of gravel pack 40 L.F.

E. Dugout Information or Estimates.

(1) Surface dimensions, Depth —

F. Fill out for Either a Well or a Dugout.

Water Right Number 4051-3

1. Considered 7-27, 1977
2. Name of Applicant TOWN OF FLORENCE
3. Post Office Address
4. Amount of water claimed 3.00 1.0 2.0 F/U
5. Source of water supply 120' WELL (EXISTING)
6. Water to be used for MUNICIPAL

   Acres to be irrigated
7. Water to be diverted and used in CODINGTON County

   about IN CITY LIMITS Miles of
8. Proof of Publication Received 7-21-77

   Not received
9. Application Approved

   Subject to

   Not approved

   Action deferred
10. Remarks:

under building "

Steve Peterson
Signature of Applicant

Form 2B - Affidavit o[redacted]er Use (Supplement to Form 2)

NO. _____

NOTE: This Form is supplemental to Form 2, and is to be used when an affidavit pertaining to construction and water use, already completed, is needed.

AFFIDAVIT OF CONSTRUCTION OF WATER USE
SYSTEM AND APPLICATION OF WATER TO BENEFICIAL USE

Name of Applicant (Same as Form 2) Town of Florence

Post Office Address Florence, State South Dakota

If a Corporation show date and place of incorporation 1907

13. Notice of Appropriation (If available)

    Date of Posting – Date of Recording –

    Recording Data –

14. Date of start of construction of water supply system Complete but new well may be needed

15. Date that water was first applied to beneficial use

16. Name of owner of original water supply system Town of Florence, South Dakota

17. Amount of water originally applied to beneficial use no previous application c. f. s.

18. Present Use of Water

    Amount of water now being used .046 c. f. s.

    Date that this amount of water was first used 1970

19. Chronological History of Water Use

New wells may be needed

Attach to this Form 2B any copies of notices, postings, filings, publications, affidavits, or other records that apply. You may also attach any written statement by you, or by others, that you deem pertinent.

STATE OF SOUTH DAKOTA)
) ss.
County of Codington)

I, Steven Peterson - Chairman Town Board, the applicant, certify that I have read the foregoing and that the matters therein stated are true.

Signed Steven Peterson

Subscribed and sworn to before me this 27th day of Sept., 19 76

Imarion Boka
(Notary Public - or other qualified Officer)

I, the undersigned, do hereby certify that I know about the water use system described above that I have read the foregoing and that the matters therein stated are true.

Steven Peterson Chairman

Form 8 - Proof of Public - Notice of
Intent to Appropriate Water

No. 4051-3

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) ss.
County Codington)

I, John R. Lowrie hereby

certify that the annexed printed copy of Notice of Intent to Appropriate

Water was taken from the Watertown Public Opinion

A newspaper which during the whole time of publication of said notice herein after stated, has been and is printed and published in the

city of Watertown

County of Codington and State of South Dakota; that the said notice was published in said newspaper on the following two dates:

July 12th, 1977

July 19th, 1977

(Signature)

General Manager
(Title)

July 19th, 1977
(Date Signed)

PUBLIC NOTICE
NO. 4051-3
NOTICE OF HEARING ON APPLICATION TO APPROPRIATE WATER
Pierre, South Dakota, 57501
July 6, 1977

Notice is hereby given that the Town of Florence whose post office address is Florence, South Dakota, has made an application in accordance with the provisions of SDCL 46-1-1 thru 46-1-8; 46-2-9 thru 46-2-11; 46-2-13; 46-5-1 thru 46-5-8, 46-5-10 thru 46-5-22, 46-5-41, 46-5-38, 46-6-3, 46-6-5, 46-6-6.1, 46-6-10, 46-6-14 and Commission Rules ARSD 52:01:01:01 thru 52:01:01:13, 52:01:01:21 thru 52:01:01:24, for a permit to appropriate for beneficial use 1.0 cubic feet per second and for future beneficial use 2.0 cubic feet of water per second of time from ground water through the Florence Well Field, the point of diversion of which is to be located in the NW¼ SW¼, Present Well, Section 4, T116N, R54W; the future use area is within the city limits of the Town of Florence. Said water to be used for the purpose of providing present and future municipal water supplies for the Town of Florence.

This Application No. 4051-3 will be considered by the Water Rights Commission at the Staurolite Inn, Brookings, S.D. upon the 27th day of July, 1977, at 10 A.M. The Commission is authorized to make a determination on this application at the hearing. All interested persons may appear and be heard. Any person who may be affected by a Commission decision who desires to present evidence or cross-examine witnesses according to SDCL 1-26 may notify the Commission in writing prior to the hearing or orally at the hearing.

WATER RIGHTS
COMMISSION
JAMES WINTERTON
Water Rights Specialist
(July 12, 19, 1977)

5"@2.25x2=
$22.50

JUL 1977
RECEIVED
STATE WATER
RIGHTS COMM.
Pierre, S.D.

NO. _____

Publish first publication, on or before July 14, 1977

NOTICE OF HEARING ON
APPLICATION TO APPROPRIATE WATER

Pierre, South Dakota 57501

July 6, 1977

Notice is hereby given that the Town of Florence whose post office address is Florence, South Dakota, has made an application in accordance with the provisions of SDCL 46-1-1 thru 46-1-8; 46-2-9 thru 46-2-11, 46-2-13; 46-5-1 thru 46-5-8, 46-5-10 thru 46-5-22, 46-5-41, ~~Future Use~~ 46-5-38, ~~Temporary Permit 46-5-38, 46-5-40, Water~~ 46-6-3, 46-6-5, 46-6-6.1, 46-6-10, 46-6-14 and Commission Rules ARSD 52:01:01:01 thru 52:01:01:13, ~~Rules~~ 52:01:01:21 thru 52:01:01:24, for a permit to appropriate for beneficial use 1.0 cubic feet per second and for future beneficial use 2.0 cubic feet of water per second of time from ~~a point~~ ground water through the Florence Well Field, the point of diversion of which is to be located in the NW¼ SW¼, Present Well, Section 4, T118N, R54W; the Future use area is within the city limits of the Town of Florence.

~~Said~~ _____. Said water to be used for the purpose of providing ~~irrigation~~ present and future municipal water supplies for the Town of Florence.

This Application No. 4051-3 will be considered by the Water Rights Commission at ~~the Rapid City Office~~ the Staurolite Inn, Brookings, S.D. upon the 27th day of July, 1977, at 10:A.M. The Commission is authorized to make a determination on this application at the hearing. All interested persons may appear and be heard. Any person who may be affected by a Commission decision who desires to present evidence or cross-examine witnesses according to SDCL 1-26 may notify the Commission in writing prior to the hearing or orally at the hearing.

WATER RIGHTS COMMISSION

JAMES WINTERTON
Water Rights Specialist

cc:

Town of Florence, Florence, S.D. 57235

CODINGTON-WATERTOWN CIVIL DEFENSE
POSTOFFICE BOX 12 • 119 SOUTH MAPLE
WATERTOWN, SOUTH DAKOTA 57201
605/886-8200

October 19, 1976

Vern Butler
Water Rights Commission
Joe Foss Building
Pierre, South Dakota 57501

Dear Vern,

It is our understanding that Henry, Wallace, Florence, South Shore and Kranzburg have not established their past, present and future water rights. I brought this to the attention of the Codington County Commissioners on August 3, 1976 and they requested our office to aid these communities in so doing.

We contacted the First Model Rural Development District for the proper forms which they obtained for us through your office.

We have thoroughly studied First Model Rurals Comprehensive Plan for Codington County which was completed in July 1973. We have also contacted the U.S. Geodetic Office in Huron, South Dakota and Assad Barari of the State Geological Office in Vermillion, South Dakota and Rueb Wicks in the local S.C.S. Office. At this point and time neither we or they can find but very little earth strata data or aquifer data concerning these small communities. We will be checking the community records regarding town wells, in as far as possible.

The Model Rural Comprehensive Plan bases their average daily water consumption in 1973 at 60 gallons per person; which we feel was too low at that time and in talking with Mr. Vallard, Supt. of the Water Dept. of the City of Watertown Utilities Dept.; he indicates the average daily consumtion per person at the present time in the City of Watertown to be 160 gallons and it is on this basis that we are submitting these applications for present and future water rights for these smaller communities.

We are also basing future rights on projected population and industrial growth in Codington County extending to these small communities for the next 50 years. We, therefore, request future water rights for the next 50 years to at least double our present request.

These small communities we feel must certainly have some vested rights in that Henry was founded in 1882 and incorporated in 1886; South Shore was founded in 1887; Florence was incorporated in 1907; Wallace was incorporated in 1908 and Kranzburg was founded in 1879. We wish to establish these water rights immediately; even though it may be a number of years before they have any need.

Sincerely yours,

D.O. Johnson

D.O. Johnson C/D/D
Codington-Watertown
Civil Defense District

Department of
Natural Resources
Pierre, South Dakota 57501-3181

November 13, 1984

NOTICE

To : Josephine Stenwedel, Town President, Town of Florence

From : John Hatch, Chief Engineer, Water Rights Division

Subject : Review of Future Use Water Permit No. 4051-3

The Water Management Board has directed that all future use water permits without a qualification requiring the permit to be reviewed every seven years to be noticed for hearing before the Board. The hearing to review Future Use Permit No. 4051-3, Town of Florence will be conducted pursuant to SDCL 46-1-14, 46-5-38.1, ARSD 74:02:01:27 and contested case procedures contained in SDCL 1-26, December 5, 1984 at 2:30 pm in the Conference Room 216, Joe Foss Building, Pierre, South Dakota.

The hearing will be to review 1) progress made in development of water reserved by Permit No. 4051-3, 2) future plans for development of the reserved water, and 3) if the permit is not cancelled, to amend Permit No. 4051-3 to add the seven year review qualification and to add or clarify other qualifications.

Future Use Permit No. 4051-3 was approved July 28, 1977 with a priority date of October 20, 1976, for 2.0 cubic feet per second (cfs) from an area within City limits of Florence with the following qualifications.

1. At such time as definite plans are made, specific applications for all or part of the water granted under this withdrawal must be submitted prior to construction of facilities.

Following the hearing, the Board can:

1) Take no action,

2) Cancel Permit No. 4051-3 for no development and/or no planned future development,

3) Continue and amend Permit No. 4051-3 with the following qualifications:

a) Permit No. 4051-3 to appropriate water for future use is subject to review by the Water Management Board as to accomplishment thereunder upon expiration of seven (7) years.

b) This permit is approved for groundwater from the Prairie Cotton aquifer.

If continued, at the end of seven years, the permit will again be reviewed and if it is continued, you will be required to pay 10% of the annual fee [illegible] application to use water to keep Permit No. 4681-3 in effect. The projected fee in seven years based upon the existing permit CFS will be $[illegible].

This hearing is an adversary proceeding. Any person has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing. Decisions of the [illegible] be appealed to the Circuit Court and the State Supreme Court as provided by [illegible]

cc: Pat Grygiel, Finance Officer

S315.wr

Department of
& Natural Resources
Water Rights Division
605 773-3352
Pierre, South Dakota 57501-3181

December 7, 1984

RE: Future Use Permit
No. 4051-3

Josephine Stemwedel, Town President
PO Box 144
Florence SD 57235

Dear Ms. Stemwedel:

This letter is in regard to the motion passed by the Water Management Board December 5, 1984 after review of Florence's Future Use Permit No. 4051-3. The Board continued Permit No. 4051-3 and amended the Permit to add the qualifications on the enclosed Attachments which should be placed with your Permit. Future Use Permit No. 4051-3 will be subject to review after seven years.

If you have any questions, please feel free to contact us.

Very truly yours,

John Hatch

JOHN HATCH, Chief Engineer
Water Rights Division

JH:ks

enclosure

cc: Pat Grygiel, Finance Officer

ATTACHMENT "A" TO FUTURE USE PERMIT NO. 4051-3

FOR THE CITY OF FLORENCE

Future Use Permit No. 4051-3 was continued by action of the Water Management Board December 5, 1984 and amended to add the following qualifications:

a) Permit No. 4051-3 to appropriate water for future use is subject to review by the Water Management Board as to accomplishment thereunder upon expiration of seven (7) years.

b) This permit is approved for groundwater from the Prairie Coteau aquifer.

South Dakota
GREAT FACES. GREAT PLACES.

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

September 23, 1991

4051-3

Don Sorenson, President
Town of Florence
PO Box 137
Florence SD 57235-9137

Dear Mr. Sorenson:

I am writing in regard to the seven year review of Future Use Water Permit No. 4051-3 from groundwater which is held by the Town of Florence. Currently, our records show that 2.0 cubic feet of water per second remain in reserve under this future use permit which was issued in 1977.

Permit No. 4051-3 will be scheduled for review by the Water Management Board on December 4, 1991 pursuant to SDCL 46-5-38.1. Notice will be given of the hearing time and place at a future date. The purpose of this review is to determine if a reasonable need exists for retaining the permit. A fee will be charged if the Board allows the permit to remain in effect after the hearing. The fee to be assessed will be dependent upon the amount of water allowed to remain in reserve on Permit No. 4051-3.

Please respond in writing by October 15, 1991, regarding the Town's intention for the future use permit. If the Town of Florence does plan to retain the permit, then your response should outline a reasonable need for retaining the future use permit, including an estimate of future needs and any annual pumping records for the past three years.

Please contact Eric Gronlund, if you have any questions.

Sincerely,

Karen Schlaak

KAREN SCHLAAK
Natural Resources Analyst
605 773-3352

RECOMMENDATION OF CHIEF ENGINEER FOR FUTURE USE WATER PERMIT NO. 4051-3, TOWN OF FLORENCE

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Environment and Natural Resources concerning Future Use Water Permit No. 4051-3, Town of Florence SD.

The Chief Engineer is recommending that Future Use Permit No. 4051-3 REMAIN in EFFECT because 1) there is reasonable probability that there may be development of the water reserved under Permit No. 4051-3, 2) the Town of Florence has demonstrated a reasonable need for the water reserved by Permit No. 4051-3, 3) the proposed use will be a beneficial use and 4) it is in the public interest with the following qualification:

> That Permit No. 4051-3 reserves for future use 38 acre-feet annually. The diversion rate of 2.00 cfs is deleted from Permit No. 4051-3.

And that maintaining the effectiveness of Future Use Permit No. is subject to payment of the $15.00 fee pursuant to SDCL 46-2-13(2) within 60 days of notice to the Town of Florence.

John Hatch

JOHN HATCH, Chief Engineer
October 25, 1991

NOTE: The maximum annual acre-feet of full-time pumping represented by 2 cubic feet of water per second (cfs) reserved by No. 4051-3 is 1,448 acre-feet. Assuming that the total amount pumped annually would equal 60% of 1,448 acre-feet, then expected developed pumping of water reserved under Permit No. 4051-3 would be about 869 acre-feet per year.

The maximum annual water usage of record from September, 1990 to September 1991 by the Town of Florence was 19 acre-feet. Doubling this annual use (38 acre-feet) to estimate the volume that may be reserved is less than that expected to be developed by pumping 60% of cfs (869 acre-feet) under Permit No. 4051-3. Board General Rules 74:02:01:24.01 states that future use permits may be limited to two times the amount actually put to beneficial use. Therefore, Permit No. 4051-3 should be allowed to remain in effect for 38 acre-feet as outlined in the above qualifications.

South Dakota

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DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

November 1, 1991

NOTE: TO BE SURE OF PUBLICATION ON THE CORRECT DATES, CONTACT THE NEWSPAPER RIGHT AWAY.

Pat Grygiel, Finance Officer
Town of Florence
PO Box 137
Florence SD 57235-0137

Dear Ms. Grygiel:

Future Use Permit No. 4051-3 will be reviewed for progress in the development and future plans for use of the water reserved. The notice of this review has been sent to the Publisher of the Watertown Public Opinion printed at Watertown SD. Please review this notice prior to publication and notify this office, if you have any corrections or questions.

BE SURE TO CONTACT THE ABOVE NEWSPAPER IMMEDIATELY TO AUTHORIZE PUBLICATION OF THE NOTICE OF HEARING AND TO ARRANGE FOR PAYMENT. Early contact with the paper can eliminate delays. The publisher has been instructed to publish the notice once each week for two consecutive weeks with the last publication to occur at least twenty days before the board meeting. We must receive Proof of Publication before the future use review can be considered by the Water Management Board.

Sincerely,

Karen Schlaak

? Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

South Dakota

GREAT FACES. GREAT PLACES.

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

November 1, 1991

Watertown Public Opinion
Box 10
Watertown SD 57201

Dear Sir:

Enclosed is a Notice of Hearing to Review Future Use Water Permit No. 4051-3 to be published twice. Please publish the first notice on November 6, 1991 with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is the Town of Florence, PO Box 137, Florence SD.

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. The permit application cannot be considered by the Water Management Board until proof of publication has been received.

Sincerely,

Karen Schlaak

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

----------CUT HERE----------

FIRST TRANSMITTAL NOTICE
No._____

TO: Water Rights Division
Joe Foss Building
Pierre SD 57501-3181

Date_____
We are in receipt of your letter of _____ enclosing Notice of Hearing to to Review Future Use Water Permit No._____ which was first published in our issue of_____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

_____ _____
Name Newspaper

Instruction to Newspaper-Publish first publication of the following Notice on or before November 6, 1991 with 2nd publication 1 week later. The permit owner is responsible for payment.

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence SD 57235-0137 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved July 28, 1977 to reserve 2 cfs from groundwater (Prairie Choteau Aquifer) located within the city limits as existing on October 20, 1976, of the Town of Florence. Water is reserved for municipal uses.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends that Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) the reserved water may be developed, 2) there is need for the reserved water 3) the proposed use will be a beneficial use and 4) it is in the public interest.

The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at the Governor's Inn, Kneip Room, 700 W Sioux Ave, Pierre SD on December 4, 1991 at 10:15 am.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by November 25, 1991. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

The hearing to review Future Use Permit No. 4051-3 will be conducted pursuant to the provisions of SDCL 46-1-14, 46-2-5, 46-2-9, 46-2-11, 46-5-38.1; Board Rules ARSD 74:02:01:25.01 thru 74:02:01:25.03; and contested case procedures contained in SDCL 1-26.

This hearing is an adversary proceeding. The permit owner or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this permit or to assure access to the hearing by the handicapped can contact the Water Rights Division, DENR, Joe Foss Building, Pierre SD 605 773-3352 for assistance prior to the hearing date. The time of the hearing will be automatically delayed for at least 20 days upon written request of the permit owner or any person who has filed a petition to oppose or support continuance of the Future Use Permit. The request for a delay must be filed with the Chief Engineer by November 25, 1991.

Form 8 - Proof of Publication

NOV 1991
DIVISION OF
WATER RIGHTS
Pierre, SD

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) ss.
County Codington)

I, Monica K. Saathoff

certify that the attached p

from the Watertown Pu

A newspaper which during the
said notice herein after stated,
published in the

city of W

County of Codington
that the said notice was publish
following two dates:

November 6th, 1991

November 13th, 1991

FLORENCE

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence, SD 57235-0137 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved July 28, 1977 to reserve 2 cfs from groundwater (Prairie Choteau Aquifer) located within the city limits as existing on October 20, 1976, of the Town of Florence. Water is reserved for municipal uses.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends that Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) the reserved water may be developed, 2) there is need for the reserved water 3) the proposed use will be a beneficial use and 4) it is in the public interest.

The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at the Governor's Inn, Kneip Room, 700 W. Sioux Ave., Pierre, SD on December 4, 1991 at 10:15 a.m.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by November 25, 1991. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

The hearing to review Future Use Permit No. 4051-3 will be conducted pursuant to the provisions of SDCL 46-1-14, 46-2-5, 46-2-9, 46-2-11, 46-5-38.1; Board Rules ARSD 74:02:01:25.01 thru 74:02:01:25.03; and contested case procedures contained in SDCL 1-26.

This hearing is an adversary proceeding. The permit owner or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this permit or to assure access to the hearing by the handicapped can contact the Water Rights Division, DENR, Joe Foss Building, Pierre, SD 605-773-3352 for assistance prior to the hearing date. The time of the hearing will be automatically delayed for at least 20 days upon written request of the permit owner or any person who has filed a petition to oppose or support continuance of the Future Use Permit. The request for a delay must be filed with the Chief Engineer by November 25, 1991.

(November 6, 13, 1991)

Monica K Saathoff
(Signature)

Bookkeeper
(Title)

November 13th, 1991
(Date Signed)

Cost of Printing: 92.40

5-88

October 10, 1991

Department of Environment
and Natural Resources
Karen Schlaak
Natural Resources Analyst

OCT 1991
DIVISION OF
WATER RIGHTS
Pierre, SD

Dear Karen,

This letter is in regard to Future Use Water Permit No. 4051-3. The Town of Florence wants to retain use of the permit for the following reasons 1) the water is our source of water for a fire 2) if Clark Rural Water System, our other source of water, cannot supply us with needed water on a daily basis, we rely on our own system, 3) we have pumped water for several fires and filled fire trucks, for bulk rural water users, and road construction.

If you have any questions please call Don Sorensen 758-2568 or Pat Gryggel 758-2223.

Sincerely,
Pat Gryggel
Finance Officer
Florence Town

Water Rights Division - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: **City of Florence**

ADDRESS: _____ COUNTY: _____

DATE: **10/16/91** TELEPHONE: **758-2223**

RE: **Discussion with Pat Grygiel**

COMMENTS:

I called Ms. Grygiel after receiving the Town of Florence's letter regarding their Future Use Permit. I explained that the review only included that portion of the permit that was issued for future use. The 1.0 cfs from a well that was permitted under the original permit (and is now used as a standby since the town is hooked up to Clark RWS) will be unaffected by this review. I explained what the future use permit portion of the permit is for and why we have a review each 7 years. After our discussion, I believe she understood that this review would not affect the city's current use from the standby well. She said she'd talk to the water superintendent and that they'd sent us another letter with the city's water use over the past years.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

NAME: Eric Hinderlund

October 21, 1991

Department of Environment
and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

Dear Mr. Gronlund,

This letter is in regard to the Future Use Permit No. 4051-3. The Town of Florence wants to retain the permit. The Town is currently hooked up to clark Rural Water System. CRW expands every year and as the Town of Florence grows CRW may not be-able to provide the Town with the water needed on a daily basis. The Town's present well is 20 years old, therefore the Town may need to use this permit in the future.

The Town's water usage for Sept. 1989 to Sept. 1990 was 5803500 gallons, and Sept. 1990 to Sept. 1991 was 6150400 gallons.

Sincerely,

Pat Grygiel
Finance Officer
Town of Florence
605 758-2223

South Dakota
GREAT FACES. GREAT PLACES.

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

December 6, 1991

NOTICE

Pat Grygiel, Finance Officer
Town of Florence
PO Box 137
Florence SD 57235-0137

Dear Mr. Grygiel:

I am writing in response to action taken by the Water Management Board at the hearing on December 4, 1991 to review Future Use Permit No. 4051-3. The Board allowed the permit to remain in effect and amended Permit No. 4051-3 by adding the qualification on the enclosed "Amendment". The "Amendment" should be placed with the permit. Future Use Permit No. 4051-3 is again subject to review in seven years.

The fee for maintaining the effectiveness of Future Use Permit No. 4051-3 is $15.00 pursuant to SDCL 46-2-13(2). Please remit the fee within 60 days.

Please contact Eric Gronlund, Water Rights Staff Engineer, if you have any questions.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

enclosure

AMENDMENT TO FUTURE USE PERMIT NO. 4051-3

TOWN OF FLORENCE

Pursuant to the December 4, 1991 Water Management Board hearing, Future Use Permit No. 4051-3 was allowed to remain in effect and amended by adding the following qualification:

> The Permit No. 4051-3 reserves for future use 38 acre-feet annually. The diversion rate of 2 cfs is deleted from Permit No. 4051-3.

CERTIFICATION

I hereby certify that on December 6, 1991, I have personally deposited with the U.S. Mail, postage prepaid envelopes containing a Notice dated December 6, 1991, regarding future use permits amended by action taken by the Water Management Board at the December 4, 1991, meeting and addressed to:

FUP 1262-3 - John Anderson, Mayor, City of Canton, 123 S Main, Canton, SD 57013
FUP 524-3 - Roger Knock, Mayor, City of DeSmet, PO Drawer 70, DeSmet, SD 57231
FUP 4039-3 - Sylvia Thompson, Finance Officer, PO Box 97, Montrose, SD 57048
FUP 4051-3 - Pat Grygiel, Finance Officer, Town of Florence, PO Box 137, Florence, SD 57235-0137
FUP 4052-3 - Judy Kos, Finance Officer, Town of Henry, PO Box 27, Henry, SD 57243-0027

Jaci R Konop

JACI R. KONOP
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 9th day of December, 1991.

John Hatch
Notary Public

JOHN HATCH
NOTARY PUBLIC
SOUTH DAKOTA
SEAL SEAL
My Commission Expires Apr. 1, 1993

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

September 25, 1998

Town of Florence
Pat Grygiel, Finance Officer
PO Box 137
Florence SD 57235-0137

Dear Mr. Grygiel:

I am writing in regard to the seven year review of Future Use Water Permit No. 4051-3 from groundwater (Prairie Choteau Aquifer) which is held by the Town of Florence. By law, all future use permits are to be reviewed by the Water Management Board every seven years. The permit reserves water for future water supply needs for the city. Currently, our records show that 38 acre-feet remain in reserve under this future use permit that was issued in 1977 and last reviewed in 1991.

Please respond in writing by November 1, 1998, regarding the town's intention for the future use permit. If the town plans to retain the permit, then the response should outline a reasonable need for retaining the future use permit, including an estimate of future needs and any annual pumping records for the past three years.

Permit No. 4051-3 will then be scheduled for review before the Water Management Board pursuant to SDCL 46-5-38.1. Notice will be given of the hearing time and place at a future date. The purpose of this review is to determine if a reasonable need exists for retaining the permit. A fee will be charged if the Board allows the permit to remain in effect after the hearing. The fee to be assessed will be dependent upon the amount of water allowed to remain in reserve.

Please contact Eric Gronlund, if you have any questions.

Sincerely,

Karen Schlaak

Karen Schlaak
Environmental Scientist
Water Rights Program
605 773-3352

TOWN OF FLORENCE

PO BOX 137
FLORENCE, SD 57235-0137

NOV 1998
WATER RIGHTS
PROGRAM
Pierre, SD

October 29, 1998

Karen Schlaak
Environmental Scientist
Water Rights Program

To: The Water Management Board,

This letter is in regard to the future use permit No. 4051-3 for the Town of Florence. The town would like to retain the permit for future use. The towns population has grown from 200 to around 300 in the last 8 yrs. And we expect the town to continue to grow. The town is hooked up to Clark Rural Water, but we don't know if they will always beable to meet our needs. The gallons of water used for the past 3 yrs. are: 1997- 7,648,275, 1996- 7,550,100, 1995- 5,868,620.

Sincerely,

Pat Grygiel

Town of Florence
Pat Grygiel
Finance Officer

RECOMMENDATION OF CHIEF ENGINEER FOR FUTURE USE WATER PERMIT
NO. 4051-3, Town of Florence SD

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Future Use Water Permit No. 4051-3, Town of Florence, PO Box 137, Florence SD 57235-0137.

The Chief Engineer is recommending that Future Use Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) there is reasonable probability that there may be development of the water reserved under Permit No. 4051-3, 2) the Town has demonstrated a reasonable need for the water reserved by Permit No. 4051-3, 3) the proposed use will be a beneficial use and 4) it is in the public interest.

Maintaining the effectiveness of Future Use Permit No. 4051-3 is subject to payment of the $15.00 fee pursuant to SDCL 46-2-13(2) within 60 days of notice to the Town of Florence SD after the Board hearing.

JOHN HATCH, Chief Engineer
January 21, 1999

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

January 21, 1999

NOTE: TO BE SURE OF PUBLICATION ON THE CORRECT DATES, CONTACT THE NEWSPAPER RIGHT AWAY.

Pat Grygiel, Finance Officer
Town of Florence
PO Box 137
Florence SD 57235-0137

Dear Ms Grygiel:

Future Use Permit No. 4051-3 will be reviewed for progress in the development and future plans for use of the water reserved. The notice of this review has been sent to the Publisher of the Watertown Public Opinion (Phone #605 886-6901). For your information, a copy of the recommendation of the Chief Engineer is enclosed. Please review this notice prior to publication and notify this office, if you have any corrections or questions.

BE SURE TO CONTACT THE ABOVE NEWSPAPER IMMEDIATELY TO AUTHORIZE PUBLICATION OF THE NOTICE OF HEARING AND TO ARRANGE FOR PAYMENT. Early contact with the paper can eliminate delays. The publisher has been instructed to publish the notice once each week for two consecutive weeks with the last publication to occur at least twenty days before the board meeting. We must receive Proof of Publication before the future use review can be considered by the Water Management Board.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

January 2, 1999

Watertown Public Opinion
PO Box 10
Watertown SD 57201-0010

Dear Sir:

Enclosed is a Notice of Hearing to Review Future Use Water Permit No. 4051-3 to be published twice. Please publish the first notice on January 28, 1999 with the second publication 7 days later.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Town of Florence, PO Box 137, Florence SD 57235-0137.

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at 605 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

----------CUT HERE----------

TO: Water Rights Program
Joe Foss Building
523 E Capitol
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of January 21, 1999 enclosing Notice of Hearing to Review Future Use Water Permit No. 4051-3 which was first published in our issue of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

_____ _____
Name Newspaper

Instruction to Newspaper-Publish first publication of the following Notice on January 28, 1999 with 2nd publication 7 days later. The permit owner is responsible for payment.

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence SD 57235-0137 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved July 28, 1977 and currently reserves 38 acre-feet of groundwater (Prairie Choteau Aquifer) located within the city limits (S ½ Section 4-T118N-R54W) as existing on October 20, 1976, for the Town of Florence. Water is reserved for municipal use.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Program recommends that Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) the reserved water may be developed, 2) there is need for the reserved water 3) the proposed use will be a beneficial use and 4) it is in the public interest.

The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at the Floyd Matthew Training Center, Joe Foss Building, 523 E Capitol, Pierre SD on March 3, 1999 at 10:00 am.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by February 19, 1999. The Chief Engineer's address is "Water Rights Program", Joe Foss Building, 523 E Capitol Ave, Pierre SD 57501 (605 773-3352) and the permit holders mailing address is given above. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

The hearing to review Future Use Permit No. 4051-3 will be conducted pursuant to the provisions of SDCL 46-1-14, 46-2-5, 46-2-9, 46-2-11, 46-5-38.1; Board Rules ARSD 74:02:01:25.01 thru 74:02:01:25.03 and contested case procedures contained in SDCL 1-26.

This hearing is an adversary proceeding. The permit owner or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this permit, to assure access to the hearing by the handicapped or obtain an interpreter for the hearing impaired may contact Eric Gronlund, Water Rights Program, (605 773-3352) by February 19, 1999. The time of the hearing will be automatically delayed for at least 20 days upon written request of the permit owner or any person who has filed a petition to oppose or support continuance of the Future Use Permit. The request for a delay must be filed with the Chief Engineer by February 19, 1999. Nettie H Myers, Secretary, Department of Environment and Natural Resources

Form 8

FEB 1999
WATER RIGHTS
PROGRAM
Pierre, SD

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of Codington)

I, Monica K. Saathoff

certify that the attached printed Notice was taken

from the Watertown Public Opinion

printed and published in Watertown

County of Codington and

state of South Dakota. The notice was published

in the newspaper on the following two dates:

JANUARY 28th, 1999

FEBRUARY 4th 1999

Cost of Printing 132.76

Monica K Saathoff
(Signature)

Bookkeeper
(Title)

February 4th, 1999
(Date Signed)

FLORENCE

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence, SD 57235-0137 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved July 28, 1977 and currently reserves 38 acre-feet of groundwater (Prairie Choteau Aquifer) located within the city limits (S 1/2 Section 4-T118N-R54W) as existing on October 20, 1976, for the Town of Florence. Water is reserved for municipal use.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Program recommends that Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) the reserved water may be developed, 2) there is need for the reserved water, 3) the proposed use will be a beneficial use, and 4) it is in the public interest.

The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at the Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol, Pierre, SD on March 3, 1999 at 10:00 a.m.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examined witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by February 19, 1999.

The Chief Engineer's address is "Water Rights Program", Joe Foss Building, 523 E. Capitol Ave., Pierre, SD 57501 (605-773-3352) and the permit holders mailing address is given above. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

The hearing to review Future Use Permit No. 4051-3 will be conducted pursuant to the provisions of SDCL 46-1-14, 46-2-5, 46-2-9, 46-2-11, 46-5-38.1; Board Rules ARSD 74:02:01:25.01 thru 74:02:01:25.03 and contested case procedures contained in SDCL 1-26.

This hearing is an adversary proceeding. The permit owner or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this permit, to assure access to the hearing by the handicapped or obtain an interpreter for the hearing impaired may contact Eric Gronlund, Water Rights Program, (605-773-3352) by February 19, 1999. The time of the hearing will be automatically delayed for at least 20 days upon written request of the permit owner or any person who has filed a petition to oppose or support continuance of the Future Use Permit. The request for a delay must be filed with the Chief Engineer by February 19, 1999.

Nettie H. Myers, Secretary
Department of Environment and Natural Resources.
(January 28, February 4, 1999)

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

March 5, 1999

NOTICE

Pat Grygiel, Finance Officer
Town of Florence
PO Box 137
Florence SD 57235-0137

Dear Ms Grygiel:

I am writing in response to action taken by the Water Management Board at the hearing on March 3, 1999 to review Future Use Permit No. 4051-3. The Board allowed the permit to remain in effect for 38 acre-feet of water annually. Future Use Permit No. 4051-3 is subject to another review in seven years.

The fee for maintaining the effectiveness of Future Use Permit No. 4051-3 is $15.00 pursuant to SDCL 46-2-13(2). Please remit the fee within 60 days.

Please contact Eric Gronlund, staff engineer, if you have any questions.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Program
605 773-3352

CERTIFICATION

I hereby certify that on March 5, 1999, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated March 5, 1999, regarding action taken by the Water Management Board at the hearing on March 3, 1999, to review the following Future Use Permits, addressed as stated below:

427-3 & 3142-3: Tim McGannon, Public Works Director, City of Mitchell, P.O. Box 278, Mitchell, SD 57301.

3371-3: P. Eric Swanson, City Manager, City of Yankton, P.O. Box 176, Yankton, SD 57078-0176.

3428-3: Rick Wahlen, Superintendent, Aberdeen Water Works, City of Aberdeen, 123 S. Lincoln St., Aberdeen, SD 57401.

4051-3: Pat Grygiel, Finance Officer, Town of Florence, P.O. Box 137, Florence, SD 57235-0137.

4052-3: Judy Fos, Finance Officer, Town of Henry, P.O. Box 27, Henry, SD 57243-0027.

5522-3 & 5523-3: Lyle D. Johnson, Directory of Public Works, City of Sioux Falls, 224 W. 9th St., Sioux Falls, SD 57104-6407.

A Notice and a copy of the amendment to Future Use was sent to the following:

4039-3: Connie Zimmer, Finance Officer, City of Montrose, P.O. Box 97, Montrose, SD 57048.

Cheryl F. Frost
Cheryl F. Frost
Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 8th day of March, 1999

Karen Schlaak
Notary Public

KAREN SCHLAAK, Notary Public
My Commission Expires

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

May 13, 1999

Town of Florence
Pat Grygiel, Finance Officer
PO Box 137
Florence SD 57235-0137

Dear Mr. Grygiel:

On March 5, 1999 we requested the fee for maintaining the effectiveness of Future Use Permit No. 4051-3. To date, we have not received this payment.

Please submit the $15.00 fee as soon as possible to avoid jeopardizing the City's future use permit. If you have any questions, please contact this office.

Sincerely,

Karen Schlaak

Karen Schlaak
Environmental Scientist
Water Rights Program
605 773-3352

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

№ 416147

Pierre, June 16, 19 99

RECEIVED OF Town of Florence, PO Box 37, Florence SD 57235

the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use _____		
Fee for Application for Permit No. _____ to Appropriate Water, for Future Use _____		
Fee to retain Future Use Permit No. 4051-3 after period of seven years.	15	00
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____		
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		
(Any Other Work Provided by Law) Total	15	00

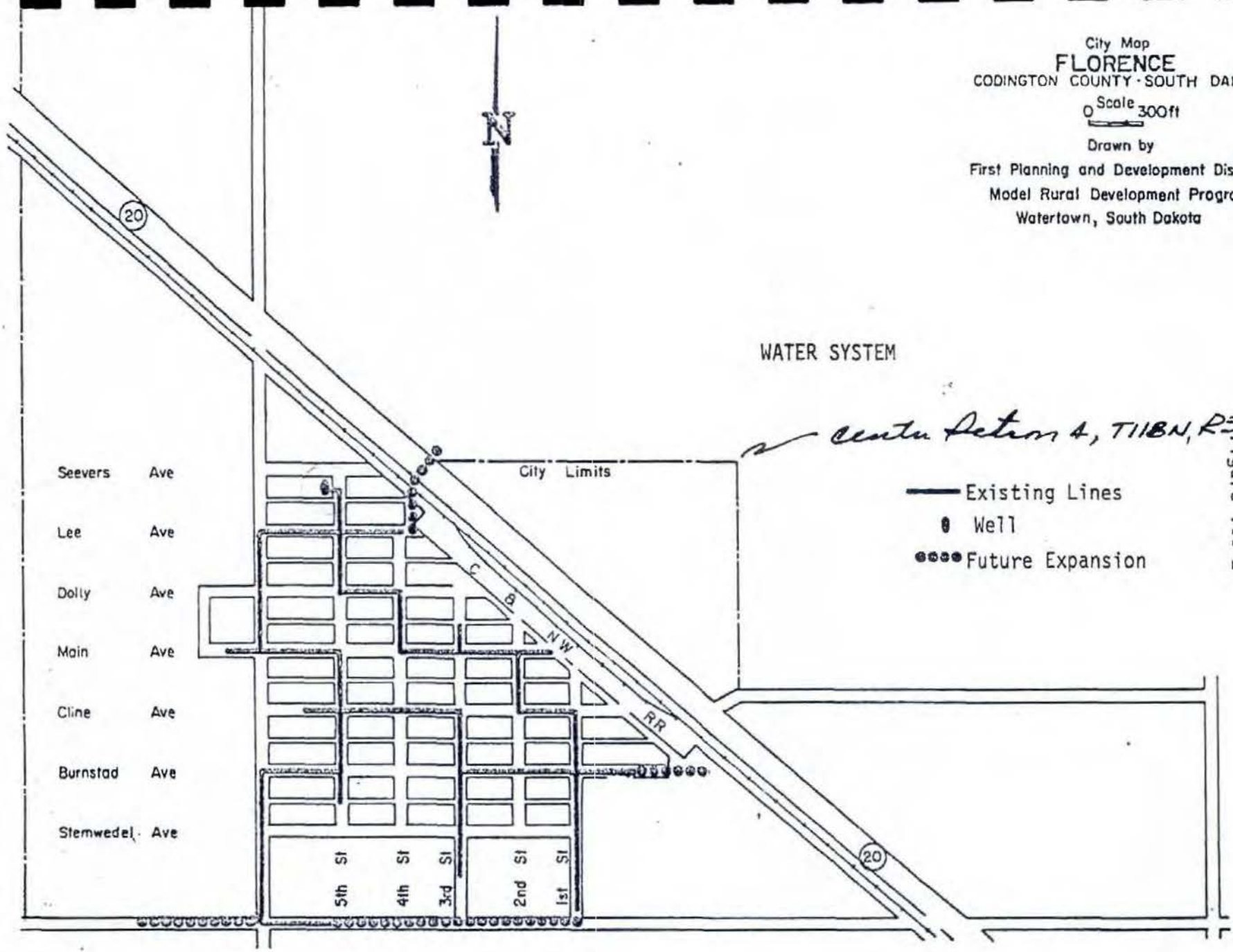
Robin Hilts

City Map
FLORENCE
CODINGTON COUNTY · SOUTH DAKOTA
0 Scale 300ft
Drawn by
First Planning and Development District
Model Rural Development Program
Watertown, South Dakota

WATER SYSTEM

center Section 4, T118N, R54W

Figure VII-2



[redacted] Ark No. 4051-3

4051-3

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

December 29, 2005

Pat Grygiel
Town of Florence
PO Box 137
Florence SD 57028-0343

Dear Mr. Grygiel:

I am writing in regard to the seven year review of Future Use Water Permit No. 4051-3 from groundwater (Prairie Choteau Aquifer) which is held by the Town of Florence. By law, all future use permits are to be reviewed by the Water Management Board every seven years to determine whether a reasonable need exists for the reserved water. The permit reserves water for future water supply needs for the town. Currently, our records show that 38 acre-feet remain in reserve under this future use permit that was issued in 1977 and last reviewed in 1999.

Please respond in writing by January 31, 2006, regarding the town's intention for the future use permit. If the town plans to retain the permit, then the response should outline a reasonable need for retaining the future use permit, including an estimate of future needs and any annual pumping records for the past three years.

Permit No. 4051-3 will then be public noticed at the town's expense and scheduled for review before the Water Management Board pursuant to SDCL 46-5-38.1. Notice will be given of the hearing time and place at a future date. The purpose of this review is to determine if a reasonable need exists for retaining the permit. A fee will be charged if the Board allows the permit to remain in effect after the hearing. The fee to be assessed will be dependent upon the amount of water allowed to remain in reserve.

Please contact Eric Gronlund, if you have any questions.

Sincerely,

Karen Schlaak

Karen Schlaak
Environmental Scientist
Water Rights Program
605 773-3352

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

February 22, 2006

Pat Grygiel, Finance Officer
Town of Florence
PO Box 137
Florence SD 57028-0343

Dear Mr. Grygiel:

On December 29, 2005, we notified you that Future Use Water Permit No. 4051-3 held by the Town of Florence was to be scheduled for review by the Water Management Board. To date, we have not received a response from you.

The future use permit was obtained in 1977 to reserve water for future development. By state law, these permits are subject to review every seven years. Please read again the December 29, 2005 letter that was sent to you (copy enclosed). If the town does plan to retain this permit, it will be necessary to outline a reasonable need for retaining the permit and submit any pumping records for the past three years.

Permit No. 4051-3 will not be scheduled for review by the Water Management Board until the above information has been submitted.

Please contact Eric Gronlund or me, if you have any questions.

Sincerely,

Karen Schlaak

Karen Schlaak
Environmental Scientist
Water Rights Program
605 773-3352
karen.schlaak@state.sd.us

enclosure

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

May 30, 2006

Pat Grygiel, Finance Officer
Town of Florence
PO Box 137
Florence SD 57235-0137

Dear Mr. Grygiel:

On December 29, 2005 and February 22, 2006, we notified you that Future Use Water Permit No. 4051-3 held by the Town of Florence was to be scheduled for review by the Water Management Board. To date, we have not received a response from the town.

As stated in the previous letters, Future Use Water Permit No. 4051-3 was obtained by the town in 1977 and reserves groundwater (Prairie Choteau Aquifer) for future development. Currently, our records show that 38 acre-feet of water remains in reserve under this permit. By state law, these permits are subject to review every seven years. If the town plans to retain the permit, then the response should outline a reasonable need for retaining the future use permit, including an estimate future use needs.

Please respond by **June 15, 2006** to avoid jeopardizing the City's future use permit. If you have any questions, please contact Eric Gronlund or me.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program
605 773-3352

RECEIVED
JUN 16 2006
WATER RIGHTS
PROGRAM

Dear Garland Erbele,

The town of Florence is experiencing consistent growth over the last ten years, with our population rising from 192 to 315. ICAP, a self-help housing program is purchasing 11 lots in town for development over the next couple of years.

With this growth comes a concern for enough water to supply the town's drinking water needs, as well as water for fire protection. With this in mind, I would ask that the town of Florence be allowed to retain their Future Use Water Permit No. 4051-3 to address these concerns.

Sincerely,
Dell Jacobson
Dell Jacobson
Mayor.

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

RECOMMENDATION OF CHIEF ENGINEER FOR FUTURE USE WATER PERMIT
NO. 4051-3, Town of Florence SD

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Future Use Water Permit No. 4051-3, Town of Florence, PO Box 137, Florence SD 57028.

The Chief Engineer is recommending that Future Use Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) there is reasonable probability that there may be development of the water reserved under Permit No. 4051-3, 2) the town has demonstrated a reasonable need for the water reserved by Permit No. 4051-3, 3) the proposed use will be a beneficial use and 4) it is in the public interest.

Maintaining the effectiveness of Future Use Permit No. 4051-3 is subject to payment of the $15 fee pursuant to SDCL 46-2-13(2) within 60 days of notice to the town after the Board hearing.

Garland Erbele, Chief Engineer
September 5, 2006

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

September 5, 2006

NOTE: TO BE SURE OF PUBLICATION ON THE CORRECT DATES, CONTACT THE NEWSPAPER RIGHT AWAY.

Dell Jacobson, Mayor
Town of Florence
PO Box 137
Florence SD 57028

Dear Mayor Jacobson:

Future Use Permit No. 4051-3 will be reviewed for progress in the development and future plans for use of the water reserved. Water rights law requires publication of a notice in the county where water will be diverted or used. The notice of this review has been sent to the Publisher of the Public Opinion printed at Watertown SD (Phone #605 886-6901). For your information, a copy of the Chief Engineer's recommendation is enclosed. Please review this notice prior to publication and notify this office, if you have any corrections or questions.

BE SURE TO CONTACT THE ABOVE NEWSPAPER IMMEDIATELY TO AUTHORIZE PUBLICATION OF THE NOTICE OF HEARING AND TO ARRANGE FOR PAYMENT. Early contact with the paper can eliminate delays. The publisher has been instructed to publish the notice once each week for two consecutive weeks with the last publication to occur at least twenty days before the board meeting. We must receive Proof of Publication before the future use review can be considered by the Water Management Board.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

September 5, 2006

Public Opinion
PO Box 10
Watertown SD 57201-0010

Dear Sir:

Enclosed is a Notice of Hearing to Review Future Use Water Permit No. 4051-3 to be published twice. Please publish the first notice on September 13, 2006 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at 605 773-3352.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication**. The APPLICANT is the town of Florence, PO Box 137, Florence SD 57028.

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at 605 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form**. The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

----------CUT HERE----------

TO: Water Rights Program
Joe Foss Building
523 E Capitol
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of September 5, 2006 enclosing Notice of Hearing to Review Future Use Water Permit No. 4051-3 which was first published in our issue of_____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

_____ _____
Name Newspaper

Instruction to Newspaper-Publish first publication of the following Notice on September 13, 2006 with 2nd publication 7 days later. The Town of Florence is responsible for payment.

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence SD 57028 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved in 1977 currently reserves 38 acre feet from groundwater (Prairie Choteau Aquifer) located within the city limits (S ½ Section 4-T118N-R54W) as existing on October 20, 1976, for the Town of Florence. Water is reserved for municipal use.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Program recommends that Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) the reserved water may be developed, 2) there is need for the reserved water 3) the proposed use will be a beneficial use and 4) it is in the public interest.

The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at 8:30 am on October 11, 2006 at the Visitor Center (west side of Capitol Lake) 650 E. Capitol Avenue, Pierre SD.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by October 2, 2006. The Chief Engineer's address is "Water Rights Program", Joe Foss Building, 523 E Capitol Ave, Pierre SD 57501 (605 773-3352) and the permit holders mailing address is given above. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

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Any person wishing a copy of the Chief Engineer's recommendation, further information on this permit, to assure access to the hearing by the handicapped or obtain an interpreter for the hearing impaired may contact Eric Gronlund, Water Rights Program, (605 773-3352) by October 2, 2006. The time of the hearing will be automatically delayed for at least 20 days upon written request of the permit owner or any person who has filed a petition to oppose or support continuance of the Future Use Permit. The request for a delay must be filed with the Chief Engineer by October 2, 2006. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of CODINGTON)

I, MONICA K. SAATHOFF

certify that the attached printed Notice was taken

from the WATERTOWN PUBLIC OPINION

printed and published in WATERTOWN

County of CODINGTON and

state of South Dakota. The notice was published

in the newspaper on the following two dates:

SEPTEMBER 13th, 2006

SEPTEMBER 20th, 2006

Cost of Printing 137.06

Monica K Saathoff
(Signature)

BOOKKEEPER
(Title)

SEPTEMBER 20th, 2006
(Date Signed)

RECEIVED
SEP 26 2006
WATER RIGHTS PROGRAM

OK

DENR

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence SD 57028 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved in 1977 currently reserves 38 acre feet from groundwater (Prairie Choteau Aquifer) located within the city limits (S 1/2 Section 4-T118N-R54W) as existing on October 20, 1976, for the Town of Florence. Water is reserved for municipal use.

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The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at 8:30 am on October 11, 2006 at the Visitor Center (west side of Capitol Lake) 650 E. Capitol Avenue, Pierre SD.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by October 2, 2006. The Chief Engineer's address is "Water Rights Program", Joe Foss Building, 523 E Capitol Ave, Pierre SD 57501 (605 773-3352) and the permit holders mailing address is given above. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

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(September 13th & 20th, 2006)

$ 137.06

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 13, 2006

NOTICE

Dell Jacobson, Mayor
Town of Florence
PO Box 137
Florence SD 57028

Dear Mayor Jacobson:

I am writing in response to action taken by the Water Management Board at the hearing on October 11, 2006 to review Future Use Permit No. 4051-3. The Board allowed the permit to remain in effect for 38 acre-feet of water annually. Future Use Permit No. 4051-3 is subject to another review in seven years.

The fee for maintaining the effectiveness of Future Use Permit No. 4051-3 is $15.00 pursuant to SDCL 46-2-13(2). Please remit the fee within 60 days.

Please contact Eric Gronlund, staff engineer, if you have any questions.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
605 773-3352

CERTIFICATION

I hereby certify that on October 13, 2006 , I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated October 13, 2006 regarding Notice of action taken by the Water Management Board for Future Use Permit No. 4051-3, 747-3 & 369-1 addressed as stated below:

369-1
Terry Wolterstoff City Engineer
City of Belle Fourche
606 6th Ave
Belle Fourche SD 57717-1407

747-3
Jerry Mikel Public Works Director
City of Madison
PO Box 308
Madison SD 57042-0308

4051-3
Dell Jacobson Mayor
Town of Florence
PO Box 137
Florence SD 57028

Eric Gronlund
Natural Resource Engineer
Water Rights

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 13th day of October, 2006.

Karen Schlaak
Notary Public
My Commission expires April 1, 2007

SEAL KAREN SCHLAAK NOTARY PUBLIC State of South Dakota SEAL

Dept of Environment & Natural Resources

11/7/2006

Date	Type	Reference	Original Amt.	Balance Due	Discount	Payment
10/13/2006	Bill	Future Use Per 4057-3	15.00	15.00	WATER RIGHTS	15.00
10/15/2006	Bill		12.00	12.00		12.00
					Check Amount	27.00

See License # HEALTH LAB

Postmark Date 11-08-06

Remittance center in Sioux Falls is doing receipt

Florence W&S Checkin 27.00

Security features are included. Details on back.

2770

FLORENCE SEWER & WATER
P.O. BOX 137
FLORENCE, SD 57235

PEOPLE STATE BANK
P.O. BOX 35
FLORENCE, SOUTH DAKOTA 57235
78-682/914

11/7/2006

Pay to the Order of Dept of Environment & Natural Resources $ **27.00

Twenty-Seven and 00/100********** Dollars

Dept of Environment & Natural Resources
PMB 2020
Joe Foss Building
523 East Capitol
For Pierre SD 57501-3182

Peggy Lindahl
Patricia S Callen MP

⑈002770⑈ ⑆091406820⑆ 501 197⑈

CHECK SPLIT BETWEEN	
Health Lab	12.00
DENR WATER Rights	15.00
TOTAL	$27.00

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

July 30, 2013

Town of Florence
Peggy Lindahl, Finance Officer
PO Box 137
Florence SD 57235

Dear Ms. Lindahl:

I am writing in regard to the seven year review of Future Use Water Permit No. 4051-3 from groundwater (Prairie Choteau Aquifer) held by the Town of Florence. By law, all future use permits are to be reviewed by the Water Management Board every seven years to determine whether a reasonable need exists for the reserved water. The permit reserves water for future water supply needs for the town. Currently, our records show that 38 acre-feet remain in reserve under this future use permit that was issued in 1977 and last reviewed in 2006.

Please respond in writing by August 30, 2013, regarding the town's intention for the future use permit. If the city plans to retain the permit, then the response should outline a reasonable need for retaining the future use permit, including an estimate of future needs and any annual pumping records for the past three years.

Permit No. 4051-3 will then be public noticed at the town's expense and scheduled for review before the Water Management Board pursuant to SDCL 46-5-38.1. Notice will be given of the hearing time and place at a future date. The purpose of this review is to determine if a reasonable need exists for retaining the permit. A fee will be charged if the Board allows the permit to remain in effect after the hearing. The fee to be assessed will be dependent upon the amount of water allowed to remain in reserve. If the entire 38 acre-feet remain in reserve, the fee will be $50.00.

Please contact Eric Gronlund, if you have any questions.

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
605 773-3352
karen.schlaak@state.sd.us

Schlaak, Karen

From: Duvall, Ron
Sent: Monday, August 05, 2013 4:13 PM
To: 'Patrick Callan'
Subject: RE: Atten: Eric Gronlund
Attachments: 4051-3.pdf

Mayor Callan,

I have attached a copy of the entire Future Use Permit No. 4051-3. On page 39 you will find a copy of the letter sent to us in response to the review completed in 2006. For future reference you can find this permit as well as others on the DENR website. Here is a link to the water rights database: http://denr.sd.gov/des/wr/dbwrsearch.aspx

Please let me know if you have any further questions.

Thank you,

Ron Duvall
Water Rights Program
(605) 773-3352

From: Patrick Callan [mailto:patcallan@hotmail.com]
Sent: Monday, August 05, 2013 4:06 PM
To: DENR INTERNET INFORMATION
Subject: Atten: Eric Gronlund

Good afternoon.
My name is Patrick Callan and I am the Mayor of the Town of Florence. I need information pertaining to the Future Use Water Permit #4051-3 that we received notice concerning a review. Can you email a copy of the last response , from 2006?

Thank you for your time and attention.

Sincerely,
Patrick S. Callan
Mayor
patcallan@hotmail.com

RECEIVED
AUG 2 8 2013
WATER RIGHTS
PROGRAM

August 26, 2013
Pat Callan
Town of Florence
PO Box 137
Florence, SD 57235

Eric Gronlund
DENR
Pierre, SD 57501

Dear Eric Gronlund,

In response to your letter dated July 30, 2013 about the seven year review of Future Use Water Permit No. 4051-3 from groundwater currently held by the Town of Florence: yes, we want to retain the permit. The Town of Florence has grown to 374 according to the latest census and it continues to grow. We wish to retain the permit so we have adequate water for the town and for firefighting capabilities.

We have not been able to use the well until just recently due to mechanical problems. Therefore, we have no pumping records other than the 5000 gallons used recently.

Sincerely,

Patrick E Callan

Pat Callan
Mayor
Town of Florence
605-758-2156
patcallan@hotmail.com

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

RECOMMENDATION OF CHIEF ENGINEER FOR FUTURE USE WATER PERMIT NO. 4051-3, Town of Florence SD

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Future Use Water Permit No. 4051-3, Town of Florence PO Box 137, Florence SD 57235.

The Chief Engineer is recommending that Future Use Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) there is reasonable probability that there may be development of the water reserved under Permit No. 4051-3, 2) the town has demonstrated a reasonable need for the water reserved by Permit No. 4051-3, 3) the proposed use will be a beneficial use and 4) it is in the public interest.

Maintaining the effectiveness of Future Use Permit No. 4051-3 is subject to payment of the $50.00 fee pursuant to SDCL 46-2-13(2) within 60 days of notice to the town after the Board hearing.

Jeanne Goodman

Jeanne Goodman, Chief Engineer
September 3, 2013

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

September 3, 2013

NOTE: TO BE SURE OF PUBLICATION ON THE CORRECT DATE, CONTACT THE NEWSPAPER RIGHT AWAY.

Town of Florence
c/o Pat Callan, Mayor
PO Box 137
Florence SD 57235

Dear Mayor Callan:

Future Use Permit No. 4051-3 will be reviewed for progress in the development and future plans for use of the water reserved. Water rights law requires publication of a notice in the county where water will be diverted or used. The notice of this review has been sent to the Publisher of the Watertown Public Opinion (605 886-6901). For your information, a copy of the Chief Engineer's recommendation is enclosed. Please review this notice prior to publication and notify this office, if you have any corrections or questions.

BE SURE TO CONTACT THE ABOVE NEWSPAPER IMMEDIATELY TO AUTHORIZE PUBLICATION OF THE NOTICE OF HEARING AND TO ARRANGE FOR PAYMENT. Early contact with the papes can eliminate delays. The publisher has been instructed to publish this notice on September 11, 2013. We must receive Proof of Publication before the future use review can be considered by the Water Management Board.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

September 3, 2013

Public Opinion
PO Box 10
Watertown SD 57201

Dear Sir:

Enclosed is a Notice of Hearing to Review Future Use Water Permit No. 4051-3 to be published on September 11, 2013. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at 605 773-3352 or email karen.schlaak@state.sd.us

The applicant must verify to you that the notice is to be published. **Please BILL the APPLICANT for the cost of publication**. The APPLICANT is the Town of Florence, c/o Pat Callan, Mayor, PO Box 137, Florence SD 57235.

Please send the Water Rights Program an affidavit or the enclosed Proof of Publication form immediately.

The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

Instruction to Newspaper-Publish the following Notice on September 11, 2013. The permit owner is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence SD 57235 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved 1977 and currently reserves 38 acre-feet of water annually from groundwater (Prairie Choteau Aquifer) located within the city limits (S 1/2 Section 4-T118N-R54W) as existing on October 20, 1976, for the Town of Florence. Water is reserved for municipal use.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Program recommends that Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) the reserved water may be developed, 2) there is need for the reserved water 3) the proposed use will be a beneficial use and 4) it is in the public interest.

The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at 10:00 am on October 3, 2013 at the Floyd Mathew Training Center, Joe Foss Bldg, 523 E Capital Ave, Pierre SD.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by September 23, 2013. The Chief Engineer's address is "Water Rights Program", Joe Foss Building, 523 E Capitol Ave, Pierre SD 57501 (605 773-3352) and the permit holders mailing address is given above. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

The hearing to review Future Use Permit No. 4051-3 will be conducted pursuant to the provisions of SDCL 46-1-14, 46-2-5, 46-2-9, 46-2-11, 46-5-38.1; Board Rules ARSD 74:02:01:25.01 thru 74:02:01:25.03 and contested case procedures contained in SDCL 1-26.

This hearing is an adversary proceeding. The permit owner or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this permit, to assure access to the hearing by the handicapped or obtain an interpreter for the hearing impaired may contact Eric Gronlund, Water Rights Program, (605 773-3352) by September 23, 2013. The time of the hearing will be automatically delayed for at least 20 days upon written request of the permit owner or any person who has filed a petition to oppose or support continuance of the Future Use Permit. The request for a delay must be filed with the Chief Engineer by September 23, 2013. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published once at the approximate cost of_____.

RECEIVED

SEP 19 2013

WATER RIGHTS PROGRAM

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of Codington)

I, Monica K. Saathoff

certify that the attached printed Notice was taken

from the Watertown Public Opinion

printed and published in Watertown

County of Codington and

state of South Dakota. The notice was published

in the newspaper on the following date:

September 11th, 2013

Cost of Printing 79.51

Monica K. Saathoff
(Signature)

Bookkeeper
(Title)

September 11th, 2013
(Date Signed)

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

NOTICE OF HEARING TO REVIEW FUTURE USE WATER PERMIT NO. 4051-3

Notice is given that the Water Management Board will review Future Use Permit No. 4051-3 held by the Town of Florence, PO Box 137, Florence SD 57235 for progress made in the development of the water reserved by the Permit and future plans for development of the water reserved by Permit No. 4051-3. This permit was approved 1977 and currently reserves 38 acre-feet of water annually from groundwater (Prairie Choteau Aquifer) located within the city limits (S 1/2 Section 4-T118N-R54W) as existing on October 20, 1976, for the Town of Florence. Water is reserved for municipal use.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Program recommends that Permit No. 4051-3 REMAIN in EFFECT for 38 acre-feet annually because 1) the reserved water may be developed, 2) there is need for the reserved water 3) the proposed use will be a beneficial use and 4) it is in the public interest.

The Water Management Board will conduct the hearing to review Future Use Permit No. 4051-3 at 10:00 am on October 3, 2013 at the Floyd Mathew Training Center, Joe Foss Bldg, 523 E Capital Ave, Pierre SD.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) allow the permit to remain in effect, 2) amend the permit by adding qualifications, 3) cancel the permit for no development or no planned future development, or 4) take no action after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the permit owner and the Chief Engineer by September 23, 2013. The Chief Engineer's address is "Water Rights Program", Joe Foss Building, 523 E Capitol Ave, Pierre SD 57501 (605 773-3352) and the permit holders mailing address is given above. The petition may be informal, but it must include a statement describing the petitioners interest in the future use permit, the reasons for petitioner's opposition to or support of continuing the future use permit, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The permit owner need not file a petition.

The hearing to review Future Use Permit No. 4051-3 will be conducted pursuant to the provisions of SDCL 46-1-14, 46-2-5, 46-2-9, 46-2-11, 46-5-38.1; Board Rules ARSD 74:02:01:25.01 thru 74:02:01:25.03 and contested case procedures contained in SDCL 1-26.

This hearing is an adversary proceeding. The permit owner or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this permit, to assure access to the hearing by the handicapped or obtain an interpreter for the hearing impaired may contact Eric Gronlund, Water Rights Program, (605 773-3352) by September 23, 2013. The time of the hearing will be automatically delayed for at least 20 days upon written request of the permit owner or any person who has filed a petition to oppose or support continuance of the Future Use Permit. The request for a delay must be filed with the Chief Engineer by September 23, 2013. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published once at the approximate cost of $85.75.

(September 11, 2013)

79.51

All legal notices in the Public Opinion and other South Dakota newspapers can be found at www.sdpublicnotices.com

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

October 4, 2013

NOTICE

Town of Florence
c/o Pat Callan, Mayor
PO Box 137
Florence SD 57235

Dear Mayor Callan:

I am writing in response to action taken by the Water Management Board at the hearing on October 3, 2013 to review Future Use Permit No. 4051-3. The Board allowed the permit to remain in effect for 38 acre-feet of water annually. Future Use Permit No. 4051-3 is subject to another review in seven years.

The fee for maintaining the effectiveness of Future Use Permit No. 4051-3 is $50.00 pursuant to SDCL 46-2-13(2). Please remit the fee within 60 days.

Please contact Eric Gronlund, staff engineer, if you have any questions.

Sincerely,

Jeanne Goodman

Jeanne Goodman, Chief Engineer
Water Rights Program
605 773-3352

CERTIFICATION

I hereby certify that on October 4, 2013, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelope(s) containing a Notice dated October 4, 2013 regarding Future Use Permits addressed as stated below:

Lake Andes-Wagner Irrigation Dist., Chuck Eitmiller, PO Box 818, Wagner SD 57380	**1688A-3**
Town of Florence, Pat Callan, PO Box 137, Florence SD 57235	**4051-3**
City of Canton, Jeff Fossum, 210 N Dakota St, Canton SD 57013	**1262C-3**
City of Madison, Fred Snoderly, PO Box 308, Madison SD 57042	**747-3**
City of Belle Fourche, Ryan C Kavan, 511 6th Ave, Belle Fourche SD 57717	**369-1**

Gail Jacobson

Gail Jacobson
Secretary/Water Rights

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 4th day of October, 2013.

Karen Schlaak

Karen Schlaak
Notary Public
My Commission expires April 1, 2019

SEAL KAREN SCHLAAK NOTARY PUBLIC State of South Dakota SEAL

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 10/21, 20 13

RECEIVED OF Florence Sewer & Water PO Box 137 Florence SD 57835

The following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use		
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. 4051-3 after period of seven years.	50	00
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____		
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law) TOTAL	50	00

No. 06466

By Jeanne Goodman
Chief Engineer

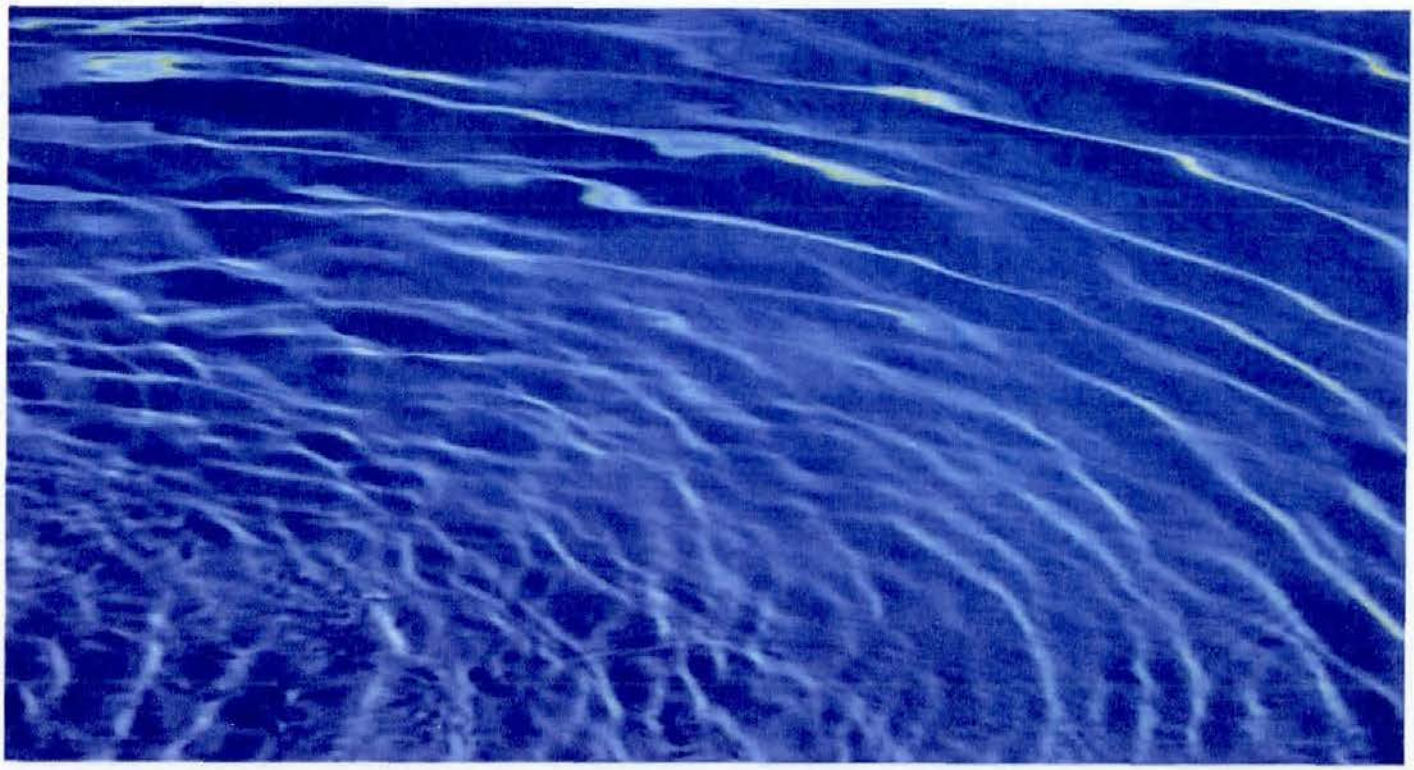
Appendix C SD-DENR 2013 Drinking Water Report

You can contact us by calling
(605)758-2379 or write us at
PO Box 137
Florence SD 57235-0103

Town of Florence

2013 Drinking Water Report

It's your tap water!



EPA ID: 0128

Water Quality

Last year, the Town of Florence monitored your drinking water for possible contaminants. This brochure is a snapshot of the quality of the water that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies.

Water Source

We serve more than 374 customers an average of 28,000 gallons of water per day. Our water is groundwater that we purchase from another water system. The state has performed an assessment of our source water and they have determined that the relative susceptibility rating for the Florence public water supply system is low.

For more information about your water and information on opportunities to participate in public meetings, call (605)758-2379 and ask for Peggy Lindahl.

Additional Information

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides,* which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- *Radioactive contaminants*, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants can be obtained by calling the Environment Protection Agency's Safe Drinking Water Hotline (800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Town of Florence public water supply system is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *http://www.epa.gov/safewater/lead.*

Detected Contaminants

The attached table lists all the drinking water contaminants that we detected during the 2013 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 – December 31, 2013 The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

The Town of Florence public water system purchases 100% of their water from Clark Rural Water-Kampeska (2277).

2013 Table of Detected Contaminants For Florence (EPA ID 0128)

Terms and abbreviations used in this table:

* *Maximum Contaminant Level Goal(MCLG): the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.*
* *Maximum Contaminant Level(MCL): the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.*
* *Action Level(AL): the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow. For Lead and Copper, 90% of the samples must be below the AL.*
* *Treatment Technique(TT): A required process intended to reduce the level of a contaminant in drinking water. For turbidity, 95% of samples must be less than 0.3 NTU*

Units:

**MFL: million fibers per liter*
**mrem/year: millirems per year(a measure of radiation absorbed by the body)*
**NTU: Nephelometric Turbidity Units*
**pCi/l: picocuries per liter(a measure of radioactivity)*
**ppm: parts per million, or milligrams per liter(mg/l)*
**ppb: parts per billion, or micrograms per liter(ug/l)*
**ppt: parts per trillion, or nanograms per liter*
**ppq: parts per quadrillion, or picograms per liter*
**pspm: positive samples per month*

Substance	90% Level	Test Sites > Action Level	Date Tested	Highest Level Allowed (AL)	Ideal Goal	Units	Major Source of Contaminant
Copper	0.5	0	08/03/11	AL=1.3	0	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead	4	0	08/03/11	AL=15	0	ppb	Corrosion of household plumbing systems; erosion of natural deposits.

Substance	Highest Level Detected	Range	Date Tested	Highest Level Allowed (MCL)	Ideal Goal (MCLG)	Units	Major Source of Contaminant
Alpha emitters *	3	ND - 3	06/11/13	15	0	pCi/l	Erosion of natural deposits.
Arsenic *	1		07/23/13	10	NA	ppb	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium *	0.086		07/23/13	2	2	ppm	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Chromium *	0.6		07/23/13	100	100	ppb	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride *	1.19	1.11 - 1.19	07/09/13	4	4	ppm	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Haloacetic Acids	10.7		09/03/13	60	0	ppb	By-product of drinking water chlorination.
Haloacetic Acids *	9.01	4.27 - 9.01	09/04/13	60	0	ppb	By-product of drinking water chlorination.
Nitrate (as Nitrogen) *	7.5		11/12/13	10	10	ppm	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Selenium *	1.8		07/23/13	50	50	ppb	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Total trihalomethanes	23.3		09/03/13	80	0	ppb	By-product of drinking water chlorination.
Total trihalomethanes *	23.2	3.02 - 23.2	09/04/13	80	0	ppb	By-product of drinking water chlorination.

Please direct questions regarding this information to Mr Pat Callan with the Florence public water system at (605)758-2379.

*** Clark Rural Water-Kampeska (2277) test result.**

WRAP Review Sheet
Drinking Water Facilities Funding Application
Applicant: City of Emery

Project Title:	Water Distribution System Upgrade and Replacement
Funding Requested:	$2,200,000
Other Proposed Funding:	$21,587 - Local Cash
Total Project Cost:	$2,221,587
Project Description:	The project will replace portions of the existing watermain throughout the city and install looping sections, with 6- and 8-inch PVC pipe.
Alternatives Evaluated:	"Do Nothing Alternative" was evaluated but not recommended as this alternative would do nothing to improve the issues facing the water distribution system. "Add Piping to Loop Existing System" alternative includes installing 6-inch PVC watermain between existing watermain ends to loop the system. This alternative was considered but not recommended as it was not the most cost effective alternative. "Replace Water Distribution System" alternative proposes to replace the watermains within the city with 6- and 8-inch PVC pipe and to install 6-inch pipe to loop dead ends within the system. This alternative was considered and selected as it was the most effective alternative. "Looping with Limited Replacement" alternative would replace all of the 4-inch PVC watermain with minimum 6-inch PVC pipe and install 6-inch pipe to loop dead ends within the system. This alternative was considered but not recommended as it was not a practical alternative.
Implementation Schedule:	The city of Emery anticipates bidding the project in October 2016 with a project completion date of October 2018.
Service Population:	456
Current Domestic Rate:	$41.20 per 5,000 gallons usage

Interest Rate: 3.00% Term: 30 years Security: Water Surcharge

DEBT SERVICE CAPACITY

Coverage at Maximum Loan Amount:	If all funding is provided as loan Emery would have to enact a surcharge of approximately $47.09. When added to current rate of $41.20/5,000 gallons residents would be paying $88.29/5,000 gallons.

25% Funding Subsidy:	$550,000 subsidy with a loan of $1,650,000
Coverage at 25% Subsidy:	Based on a 25% subsidy and a loan of $1,650,000 Emery would have to enact a surcharge of approximately $35.32 thereby paying a rate $76.52/5,000 gallons..

50% Funding Subsidy:	$1,110,000 subsidy with a loan of $1,110,000
Coverage at 50% Subsidy:	Based on a 50% subsidy and a loan of $1,110,000 Emery would have to enact a surcharge of approximately $23.54 thereby paying a rate $64.74/5,000 gallons.

75% Funding Subsidy:	$1,650,000 subsidy with a loan of $550,000
Coverage at 75% Subsidy:	Based on a 75% subsidy and a loan of $550,000 Emery would have to enact a surcharge of approximately $11.77 thereby paying a rate $52.97/5,000 gallons.

ENGINEERING REVIEW COMPLETED BY: NICK NELSON

FINANCIAL REVIEW COMPLETED BY: ELAYNE LANDE

RECEIVED
APR - 2 2015
Division of Financial & Technical Assistance

Drinking Water Facilities Funding Application

Consolidated Water Facilities Construction Program (CWFCP)
Drinking Water State Revolving Fund Program (DWSRF)

Applicant	Proposed Funding Package	
City of Emery	CWFCP / DWSRF	$2,200,000
Address	Local Cash	$21,587
PO Box 38 Emery, South Dakota 57332	Other	
	Other	
Subapplicant	Other	
N/A		
DUNS Number	**TOTAL**	$2,221,587
17-810-7202		

Project Title: Water Distribution System Upgrade and Replacement

Description:

The City of Emery is proposing to replace all of its dated water distribution infrastructure. Emery recently upgraded its wastewater treatment facilities and had began moving forward with a main street or downtown project to include replacement of the water and sewer mains. A Community Access grant was secured to assist in financing the project but upon further review and discussion by the City Council the project was scrapped in favor of a more comprehensive approach due to the age of the City's entire water and wastewater infrastructure.

USDA-RD funding was initially pursued due to the availability of grant funds and favorable financing terms. As time went on the USDA-RD became less attractive and other alternatives were discussed. After months of delays the City Council decided to now pursue SD-DENR funding. The project also includes replacement of nearly the entire wastewater collection infrastructure therefore a complementary application is to be submitted in conjunction with this request. It is the aforementioned process which caused the delays and dated engineering estimates and other documentation

The project before you includes replacement of the water distribution mains not only in the 6-7 blocks of downtown but also now encompasses every antiquated line within the city. The age of the existing infrastructure is estimated at 90 years, well past its useful life. The City has entered into a contact with Johnson Engineering Inc. of Yankton to begin surveying and preliminary design work for the proposed project.

The Applicant Certifies That:

I declare and affirm under the penalties of perjury that this application has been examined by me and, to the best of my knowledge and belief, is in all things true and correct.

Joshua Kayser, Mayor — 3-27-15

Name & Title of Authorized Signatory (Typed) — Signature — Date

Professional Consultants

Application Prepared By: Planning and Development District III

Contact Person: Brian McGinnis

Mailing Address: PO Box 687

City, State, and Zip: Yankton, South Dakota 57078

Telephone Number: 605-665-4408 Fax: 605-665-0303

Email address: brian.mcginnis@districtiii.org

Consulting Engineering Firm: Johnson Engineering Company

Contact Person: Dan Johnson

Mailing Address: 1800 Broadway Avenue Suite 3

City, State, and Zip: Yankton, South Dakota 57078

Telephone Number: 605-665-5571 Fax: 605-665-8423

Email address: dkjjec@iw.net

Legal Counsel's Firm: Fink Law Office, P.C.

Legal Counsel: Mike Fink

Mailing Address: 304 Main Street

City, State, and Zip: Bridgewater, South Dakota 57319

Telephone Number: 605-729-2552 Fax: 605-729-2445

Email address: finklaw@initelsd.com

This section applies only to political subdivisions

Bond Counsel's Firm: Danforth, Meierhenry & Meierhenry

Bond Counsel: Todd Meierhenry

Mailing Address: 315 S. Phillips Avenue

City, State, and Zip: Sioux Falls, South Dakota 57102

Telephone Number: 605-336-3075 Fax: 605-336-2593

Email address: todd@meierhenrylaw.com

BUDGET SHEET

Cost Classification	A CWFCP / DWSRF	B	C	D	E	Total Funds
1. Administrative Expenses						
A. Personal Services	$60,450.00					$60,450.00
B. Travel						
C. Legal including Bond Counsel	$22,000.00					$22,000.00
D. Other						
2. Land, Structure, Right-of-Way						
3. Engineering						
A. Bidding and Design Fees	$135,550.00					$135,550.00
B. Project Inspection Fees	$120,850.00					$120,850.00
C. Other						
4. Construction and Project Improvement	$1,711,556.50					$1,711,556.50
5. Equipment						
6. Contractual Services						
7. Other						
8. Other						
9. Subtotal (Lines 1-8)	$2,050,406.50					$2,050,406.50
10. Contingencies	$149,593.50	$21,586.50				$171,180.00
11. Total (Lines 9 and 10)	$2,200,000.00	$21,586.50				$2,221,586.50
12. Total %	99.03%	0.97%	0.00%	0.00%	0.00%	100.00%

Columns A - E: Identify each funding source and enter the amounts budgeted by cost category.

Comments:

Method of Financing

Source Header		Secured Funds	Unsecured Funds (Date Anticipated)
Local Cash (Identify Source)	Reserves	$21,586.50	
Other (Explain)	SD-DENR		$2,200,000.00 (June 2015)
Other (Explain)			
Other (Explain)			
Other (Explain)			
Other (Explain)			
TOTAL		$21,586.50	$2,200,000.00

Comments:

7.3.1 Repayment Information

Interest rate and term you are applying for: 3 %, 30 years.

What security is being pledged toward the repayment of this loan?
(Political Subdivisions Only)

- ☐ 1. General Obligation bond (requires bond election)
- ☐ 2. Water Revenue bond
- ☒ 3. Project Surcharge Revenue bond
- ☐ 4. Sales Tax Revenue bond

7.3.2 Documents That Must Be Submitted With The Application

Financial Documents

1. Most recent audit or unaudited financial statement to include specific accounting of pledged funds.
2. Current year's budget.

Planning and Legal Documents

1. Governing user charge ordinance or resolution and its effective date.
2. Resolution of authorized signatory for submission of the Drinking Water SRF application and signing of payment requests. This resolution must also include the maximum loan amount requested, interest rate and term being applied for, description of proposed project, and security pledged towards repayment of the loan.
3. Facilities Plan (8.3.18).
4. Capacity Assessment Worksheets (section 8.3.16).

Items 5-7 apply to Nonprofit Entities only

5. By-laws
6. Articles of Incorporation
7. Certificate of Good Standing from Secretary of State

7.3.3 General Information

The month and day your fiscal year begins: January 1

Population Served

Current 456 2000 441 1990 415

Top Five Employers Within 30 Miles	Number of Employees	Type of Business
Avera Queen of Peace	760	Healthcare
Trail King	458	Manufacturing
Mitchell School District	430	Education
Walmart	310	Retail Sales
Cabelas	275	Retail Sales

Please indicate employers within boundary of issuing entity with an asterisk (*).

7.3.4 Drinking Water Utility Information

Current Water Utility Debt

Year	2009						
Purpose	Improvements						
Security Pledged	Revenues						
Amount	$206,500.00						
Maturity Date (mo/yr)	01/2049						
Debt Holder	USDA-RD						
Debt Coverage Requirement	110%						
Avg. Annual Required Payment	$10,044.00						
Outstanding Balance	$195,730.27						

Use additional sheets if more room is required to list all current water utility debt.

Emery DW

IX

Drinking Water Utility Cash Flow

	Prior Year	Prior Year	Current Year	Future Year #
Fiscal Year	2013	2014	2015	2017
OPERATING CASH FLOW				
Water Sales	$86,453	$85,718.60	$90,500.00	$94,000.00
Surcharge Fee				
Other (Explain) Late Fees	$2,700	$1,230.00	$1,000.00	$1,200.00
Connection Fees	$100	$100.00	$100.00	$100.00
OPERATING PAYMENTS				
Personal Services	($5,807)	($5,103.69)	($6,972.00)	($7,686.63)
Chemical, Material & Supplies	($22,402)	($26,416.75)	($21,825.00)	($24,062.06)
Electric & Other Utilities	($2,865)	($2,596.55)	($600.00)	($661.50)
Other (Explain) Rural Water Purchase	($35,105)	($38,945.70)	($45,000.00)	($49,612.50)
		$0.00	$0.00	$0.00
NET CASH FROM OPERATIONS	$23,074	$13,985.91	$17,203.00	$13,277.31
NONOPERATING CASH FLOW				
Interest Income				
Other Revenue (Explain)				
Transfers In (Explain) Reserves	$8,918.27	$8,512.53	$11,000.00	$11,444.00
Facilitate Cash Flows				
Fixed Asset Sale (Explain)				
Transfers Out (Explain)	($8,918.27)	($8,512.53)	($11,000.00)	($11,444.00)
Reimburse Reserve Funds				
Fixed Asset Purchases (Explain)				
Debt Payment (Principal Only)	($2,891.89)	($2,891.89)	($2,891.89)	($46,286.41)
Debt Payment (Interest Only)	($7,152.11)	($7,152.11)	($7,152.11)	($78,652.07)
Other Expenses (Explain)				
NET CASH FROM NONOPERATING	($10,044)	($10,044.00)	($10,044.00)	($124,938.48)
Net Increase (Decrease) in Cash	$13,030	$3,941.91	$7,159.00	($111,661.17)
Beginning Cash Balance	$86,591	$110,101.00	$114,042.91	$126,473.06
Ending Cash Balance	$99,621	$114,042.91	$121,201.91	$14,811.89
RESTRICTED BALANCE	$105,000	$105,000.00	$105,000.00	$7,000.00
UNRESTRICTED BALANCE	$5,101	$9,042.91	$16,201.91	$763.43

Future Year: First full year after project completion.

Emery DW VII

Restricted Funds Breakdown:

Amount	Anticipated Expense	Method Used to Encumber
$50,000.00	Replacement Reserve	Council Direction
$25,000.00	Capital Improvements	Council Direction
$30,000.00	New Developments/Businesses	Council Direction

Water Fees:

Attach current and proposed rate ordinances or resolutions and rate schedules.

Municipal or Sanitary District - monthly rates at 5,000 gallons (670 cubic feet)

Other Community Water System - monthly rates at 7,000 gallons (935 cubic feet)

Check one: ✓ Incorporated Municipality or Sanitary District

or

____ Other Community Water System

Monthly:	Current Rate	Proposed Rate	# of Accounts	Average use gallons/cubic feet
Domestic	$41.20	$0.00	195	4,500
Business	$41.20	$0.00	22	5,000
Other:				

Are fees based on usage or flat rate? Minimum ($20 w 1K Gal) + .53 per 100 gallons

When is proposed fee scheduled to take effect? N/A

When did the current fee take effect? 07/01/14

What was the fee prior to the current rate? $39.20

Attach current and proposed rate ordinances or resolutions and rate schedules.

Five Largest Customers	Type of Business	% of System Revenues
Bridgewater-Emery School	Education	1,700%
Cargill	Agriculture Commodities	1,000%
City of Emery (Pool)	Municipal	600%
Emery Manors	Rental Housing	500%
Emery Housing LLC	Rental Housing	200%

7.3.7 Facilities Plan Checklist.

Before submitting the application, please take a few moments to complete the following checklist. Addressing these items prior to submitting the application will expedite the review process

Checklist of SRF Facilities Plan Requirements

Have the following items been addressed?

- Submission of a Facilities Plan to the department that addresses those items found in section 8.3.18. _____
- A public hearing held discussing the project and the use of an SRF loan to finance the project. (See section 8.3.15) _____
- Minutes of the public hearing prepared and submitted to the department for inclusion into the final Facilities Plan. _____
- The affidavit of publication of the public hearing received and submitted to the department for inclusion into the final Facilities Plan. (See section 8.3.15) _____
- The four review agencies contacted and responses received for inclusion into the final Facilities Plan. (See section 8.3.18) _____
- The Cultural Resources Effects Assessment Summary and supporting documentation, such as an archaeological survey or Historic Register database search. (See section 8.3.20) _____

Emery DW

Resolution No. 137

WHEREAS, the City of Emery hereby states that the rates for water usage for dwellings, customers, and businesses in Emery are as follows:

(a) For the first one thousand (1000) gallons, or less, of water each month the minimum sum of Twenty dollars and no cents ($20.00), and for all water used over one thousand (1,000) gallons per month, the sum of fifty three cents (.53) per hundred gallons, or part thereof. This shall be paid for as a regular water payment and be credited to the Water Fund. The City shall make charges to such customers at rates fixed pursuant to resolution of the City Council.

THEREFORE BE IT RESOLVED, that the above rates shall be in effect as of July 1, 2014 or until determined otherwise by new resolution, by the Council of the City of Emery.

Passed and approved this 9th day of June 2014, by the City Council of the City of Emery, South Dakota, by the following vote:

Ayes: __6__
Nays: __0__
Absent: __0__

SEAL

City of Emery

By:
Joshua A. Kayser
Mayor

ATTEST:

Kara D. Kayser
Finance Officer

7.3.8 Certification of Drinking Water Needs Categories

Identify the loan amount associated with the needs category or categories described below. If the loan addresses needs in more than one category, please break down the total amount into estimated amounts for each category.

Definition	Loan Amount
Transmission/Distribution	$2,200,000.00
Treatment	
Storage	
Source	
System Purchase	
Restructuring	
1452(k) Loan Activities	
1. To acquire land or a conservation easement for source water protection.	
2. To implement voluntary, incentive-based source water quality protection measures.	
TOTAL	$2,200,000.00

City of Emery

Name of Applicant

Signature of Authorized Representative

3-27-15

Date

7.3.9 Preaward Compliance Review

FORM Approved By OMB: No. 2030-0020 Expires 12-31-2011

United States Environmental Protection Agency
Washington, DC 20460

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note : Read instructions on other side before completing form.

I. Applicant/Recipient (Name, Address, State, Zip Code).	DUNS No.
City of Emery PO Box 38 Emery, South Dakota 57332	17-810-7202

II. Is the applicant currently receiving EPA assistance? No

III. List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) N/A

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective action taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) N/A

V. List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3)). N/A

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below.

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable bypersons with disabilities, explain how a regulatory exception (40 C.F.R. § 7.70) applies. The project entails underground utilities and controlled access facilities such as lift stations

VII.* Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex,age, or disability in its programs or activities? (40 C.F.R. § 5.140 and § 7.95) Yes

a. Do the methods of notice accommodate those with impaired vision or hearing? Yes b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communication? Yes c. Does the notice identify a designated civil rights coordinator? Yes

VIII.* Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. § 7.85(a)) Yes

IX.* Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166) Yes

X.* If the applicant/recipient is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator. N/A

XI* If the applicant/recipient is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet address for, or a copy of, the procedures. N/A

For the Applicant/Recipient I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official	B. Title of Authorized Official	C. Date
	Mayor	3-27-15

For the U.S. Environmental Protection Agency I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preawardcompliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisionsof 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized EPA Official See ** note on reverse side.	B. Title of Authorized EPA Official	C. Date

7.3.10 Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) Have not within a three year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Joshua Kayser, Mayor

Name & Title of Authorized Representative

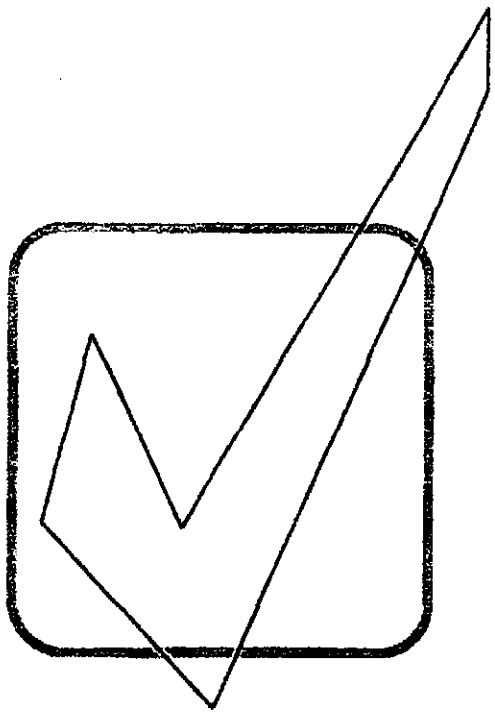
3-27-15

Signature of Authorized Representative Date

____ I am unable to certify to the above statements. Attached is my explanation

II

8.3.16 Capacity Assessment Worksheets for Public Water Systems



Department of Environment and Natural Resources

Revised January 2007

Glossary of Terms

Contaminant: Any physical, chemical, biological, or radiological substance or matter in water;

Disinfectant: Any oxidant, including chlorine, chlorine dioxide, chloramine, and ozone, that is added to water in any part of the treatment or distribution process and that is intended to kill or inactivate pathogenic microorganisms;

Disinfectant contact time: The time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration is measured;

Filtration: A process for removing particulate matter from the water by passing the water through porous media;

Ground Water: The supply of fresh water found beneath the surface of the ground, usually in aquifers, which is often used for supplying wells and springs;

Ground Water Under the Direct Influence of Surface Water: Any water beneath the surface of the ground with a significant occurrence of insects, macroorganisms, algae, or large-diameter pathogens such a *Giardia lamblia* ; or any water with significant and relatively rapid shifts in water quality characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions;

Maximum Contaminant Level (MCLs): The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards;

mg/L: milligrams per liter - equivalent to parts per million;

µg/L: micrograms per liter - equivalent to parts per billion;

NTU: nephelometric turbidity unit;

psi: pounds per square inch

Surface Water: All water that is open to the atmosphere and subject to surface runoff;

Turbidity: A cloudy condition in water due to suspended silt or organic matter; and

Waiver: A process used by the Department of Environment and Natural Resources that allows a public water system to reduce or eliminate monitoring for a particular chemical.

Introduction

Because you are in the process of applying for a Drinking Water State Revolving Fund (DWSRF) loan, it is necessary for you to complete the following worksheets. The Safe Drinking Water Act requires that a system applying for a DWSRF loan must demonstrate that it has financial, managerial, and technical capacity. What exactly does that mean?

- ***Technical capacity*** - the physical infrastructure of the water system, including but not limited to the source water adequacy, infrastructure adequacy, and technical knowledge. In other words, does your treatment system work the way it is supposed to? Are you providing the safest and cleanest water possible and required by law to your customers right now, and will you be able to in the future?

- ***Managerial capacity*** - the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages. In simpler terms, do you have a capable and trained staff? Do you have an effective management structure?

- ***Financial capacity*** - the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness, and fiscal controls. Basically, does your system have a budget and enough revenue coming in to cover costs, repairs, and replacements?

If it is determined that your system does NOT have the required capacity, you may still qualify for a DWSRF loan if it is going to be used to ensure that your system will have the necessary capacity. If you have questions while completing the following worksheets, please call our office at **(605) 773-3754**, and we will be happy to help.

After DENR receives these worksheets, we will study them and other information located in our files to make a determination whether or not your public water system has the technical, financial, and managerial capacity to be eligible to apply for a DWSRF loan. A final report will be available upon completion of the analysis.

Applicant: City of Emery, SD

Prepared by: Kara Kayser - Finance Officer

Phone #: 605 449 4455

Date: 3-27-15

The Technical Portion of your System

Your Water Supply

Please check the appropriate box: Yes, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section or question does not apply to your system, please check NA for not applicable.***

Water Supply and Existing Demands	**Yes**	**No**	**Unknown**	**NA**
Do you know how much water you pump on an average day? ***Amount:*** 25,425 /gpd	☒	☐	☐	☐
Do you know how much water you pump on a peak day? ***Amount:*** 34,300 /gpd	☒	☐	☐	☐
Do you know the maximum amount of water you can pump from your source? ***Amount:*** 45 gpm	☒	☐	☐	☐
Is your source capacity higher than your peak day demand? ***Percentage higher or lower:*** 50%	☒	☐	☐	☐
Can you meet peak demand without pumping at peak capacity for extended periods? ***Longest time pumping at peak demand:***	☒	☐	☐	☐
Have you been able to provide adequate volumes of water during drought cycles?	☒	☐	☐	☐
Have you had to restrict usage at any time for any reason? ***Please specify:***	☐	☒	☐	☐
Does your system have an emergency or supplemental water supply? ***Please specify:***	☐	☒	☐	☐
Do you have an Emergency Response Plan that will allow you to meet system demand during a drought or shortage, such as the loss of the largest source? ***If yes, please attach.***	☒	☐	☐	☐
Water Demand	**Yes**	**No**	**Unknown**	**NA**
Do you know whether your system demands will be growing, declining, or remain stable over the next ten years? ***Please check:*** ☒ ***growing,*** ☐ ***declining, or*** ☐ ***stable.***	☒	☐	☐	☐
Does your source have additional water available for appropriation?	☐	☒	☐	☐
Do you have a water right? ***Water right permit number(s):***	☐	☒	☐	☐
If you have large commercial, industrial, or irrigation users, do you know their long-term plans and understand their needs?	☐	☐	☐	☒
Purchased Water	**Yes**	**No**	**Unknown**	**NA**
If you purchase water from another system or a wholesaler, do you know their long-term plans?	☒	☐	☐	☐
Do you have a contract to purchase water? ***If yes, with whom?*** Hanson Rural Water	☒	☐	☐	☐
Are you currently staying within your contract?	☒	☐	☐	☐
Are you knowledgeable about other demands being placed on the same water source that you are using?	☐	☒	☐	☐

Alternative Sources	Yes	No	Unknown	NA
Are alternative water sources possibly available to you?	☐	☒	☐	☐
Are you knowledgeable of the characteristics and costs of using alternative sources?	☐	☐	☐	☒
Water Source	**Yes**	**No**	**Unknown**	**NA**
Do you know the depth of your well? ***Depth*** _____	☐	☐	☐	☒
Do you know the geologic name of the aquifer system from which your water is drawn? ***If yes, geologic name:*** _____	☐	☐	☐	☒
Are all abandoned water sources properly managed and disconnected to prevent accidental contamination or problems with current water system facilities?	☐	☐	☐	☒

Treatment - Microbiological Contamination

Is your system using surface water or ground water under the influence of surface water? ☐ yes ☒ no

(If you checked "no", skip to the next section - Ground Water Systems – unless your water system requires treatment other than just disinfection.)

Surface Water Systems

Filtration Plant Condition	Yes	No	Unknown	NA
Is your filter plant in good physical condition (free from spalling concrete, peeling paint)?	☐	☐	☐	☐
If constructed more than 20 years ago, have treatment processes been upgraded to meet current standards?	☐	☐	☐	☐
Are repair parts available?	☐	☐	☐	☐
Do you have redundancy (back-ups/automatic switch-overs) for all major mechanical units? ***If no, list units you do NOT have redundancy for:*** _____	☐	☐	☐	☐
Can your plant achieve a filtered water turbidity of 0.3 NTU?	☐	☐	☐	☐
Do you have on-line continuous turbidimeters on each filter?	☐	☐	☐	☐
Have you adopted a turbidity goal lower than the standard? ***If yes, list goal:*** _____	☐	☐	☐	☐
Do you have the capability to add coagulant before the filter?	☐	☐	☐	☐

Ground Water Systems

Ground Water Under the Influence of Surface Water	Yes	No	Unknown	NA
Is your water free from variations in turbidity and temperature after storm events?	☐	☐	☐	☒
Well Construction and Protection				

Do you know when your well was constructed? ***List year:*** _____	☐	☐	☐	☒
Is your well(s) constructed according to current South Dakota regulations?	☐	☐	☐	☒
Do you have a source water protection plan?	☐	☐	☐	☒
Is your wellhead finished with a pitless adapter that will prevent contamination from surface water?	☐	☐	☐	☒

Disinfection

Do you disinfect? ☐ **yes** ☒ **no** ***(If "no", skip to the Infrastructure - Pumping section)***

Disinfection	**Yes**	**No**	**Unknown**	**NA**
Do you regularly inspect and maintain your disinfection / chlorination equipment? ***Type of Equipment:*** _____ ***How often?*** _____ ***Disinfectant used:*** _____	☐	☐	☐	☐
Do you have back-up equipment? ***Type:*** _____	☐	☐	☐	☐
Do you have adequate contact time following disinfection and before the first user in the distribution system (30 minutes for ground water systems)? ***Contact time:*** _____	☐	☐	☐	☐
Can you detect a chlorine residual at taps at the ends of the distribution system? ***Free Chlorine Residual:*** _____ ***Total Chlorine Residual:*** _____ (if using chloramines)	☐	☐	☐	☐

Disinfection By-Products

Treatment for the Control of Disinfection By-Products	**Yes**	**No**	**Unknown**	**NA**
If you treat surface water, are you already practicing or could you adopt "enhanced coagulation" in your current plant?	☐	☐	☐	☐
If you treat surface water, could you still meet current contact-time requirements if disinfection were not allowed before sedimentation?	☐	☐	☐	☐

Treatment - Security

Treatment Security	**Yes**	**No**	**Unknown**	**NA**
Has the system implemented procedures to improve security of its facilities? (i.e. limiting access to sensitive sites, protecting computer and control equipment etc.)	☐	☐	☐	☐
Are chemicals used for treatment properly stored and secure?	☐	☐	☐	☐
Does the water system track chemical usage? (i.e. a sudden	☐	☐	☐	☐

increase in usage may signal potential contamination or tampering.

Infrastructure - Pumping

Condition of Pumping Equipment	**Yes**	**No**	**Unknown**	**NA**
Do you routinely inspect for signs of pump or pump motor problems? ***How often:*** _____	☐	☐	☐	☒
Once diagnosed, are problems corrected in a timely enough manner to avoid crisis financing, costly repairs, and unscheduled downtime?	☐	☐	☐	☒
Do you hire a qualified pump contractor to perform an inspection of all pumping equipment, identify potential problems, and perform maintenance, on an annual basis?	☐	☒	☐	☐
Standby/Emergency Power Equipment	**Yes**	**No**	**Unknown**	**NA**
Is there sufficient standby/emergency power capacity to supply 100% of the average daily demand of the system (excluding fire demand)?	☒	☐	☐	☐
Are any existing standby/emergency power equipment, controls and switches tested or exercised routinely under load conditions, for at least 30 minutes at a time?	☒	☐	☐	☐
Has the local electric utility been made aware of the standby/emergency power provisions made by the water system, so that they can reinforce and safeguard the electrical facilities serving the water operations?	☐	☐	☒	☐

Infrastructure - Storage

Storage Capacity	**Yes**	**No**	**Unknown**	**NA**
Does the system have sufficient gravity-flow (non-pumped) or emergency generator-supported pumping capability to ensure adequate distribution storage to provide safe and adequate service for up to 24 hours without power? ***If no, how long:*** _____	☒	☐	☐	☐
Is there reserve capacity in the tank for fire protection support? ***Amount:*** 45,000 gallons	☒	☐	☐	☐
Security Measures	**Yes**	**No**	**Unknown**	**NA**
Are any openings, such as vent pipes, screened to protect against the entrance of small animals, birds, and small insects?	☒	☐	☐	☐
Are access hatches locked?	☒	☐	☐	☐
Is the tank and the immediate surrounding area fenced?	☐	☒	☐	☐
Control Systems				
Is there a high and low water level signal system to control the pumps?	☒	☐	☐	☐

Is there a drain valve or hydrant to allow for draining of the tank?	☒	☐	☐	☐
Tank Maintenance				
Is the tank inspected at least every three years by a qualified tank contractor for evidence of corrosion or pitting, leakage, and structural weakness?	☒	☐	☐	☐
Is the tank contractor capable of analyzing the coating of paint on the interior and exterior surfaces of the tank to determine if it contains lead or other hazardous materials?	☒	☐	☐	☐

Infrastructure - Distribution

System Maintenance	**Yes**	**No**	**Unknown**	**NA**
Do you have an accurate map of your distribution system that indicates main sizes and valve locations?	☒	☐	☐	☐
Does the operator routinely flush, test, and maintain the hydrants in the system? ***How often:*** semi annually	☒	☐	☐	☐
Are the locations of valves in the mains and curb stops on the service lines precisely known?	☒	☐	☐	☐
Does the system keep a log of distribution system breaks to identify weak areas in the system?	☒	☐	☐	☐
Are histories, locations, size, and type of mains and service lines detailed on records in a secure area?	☒	☐	☐	☐
Are all valves exercised and lubricated periodically?	☒	☐	☐	☐
Is the system free of severe "water hammer" problems?	☒	☐	☐	☐
Are meter pits, pressure regulating valves, altitude valves, blow-offs, and other appurtenances maintained on a regular basis?	☒	☐	☐	☐
Unaccounted-for Water	**Yes**	**No**	**Unknown**	**NA**
Is unaccounted-for water in the water system monitored and analyzed each month?	☒	☐	☐	☐
Is the unaccounted-for water less than 15 percent of the total water delivered to the mains? ***List percentage of unaccounted for water:*** 9 %	☒	☐	☐	☐
	Yes	**No**	**Unknown**	**NA**
Are the normal operating pressures in the distribution system between 25 psi and 125 psi? ***Normal operating pressure:*** 50 psi	☒	☐	☐	☐
Do you have a routine leak detection and repair program?	☒	☐	☐	☐
Are all sources of supply and customers metered?	☐	☒	☐	☐
Are the meters calibrated and tested routinely to ensure their accuracy and reliability?	☐	☒	☐	☐
Water Quality in Distribution System	**Yes**	**No**	**Unknown**	**NA**
Does your system have an active cross-connection control program?	☐	☐	☐	☒

Are any inspections for cross-connections performed?	☐	☐	☐	☒
Is there a program for installing and testing backflow prevention devices where potential contamination is present?	☒	☐	☐	☐
Is there a program to eliminate "dead-ends" in the mains, where feasible?	☒	☐	☐	☐
Construction Standards	**Yes**	**No**	**Unknown**	**NA**
Are the majority of your mains 6 inches in diameter or larger? ***List percentage:*** _____	☒	☐	☐	☐
Is there a program to gradually replace sub-standard sized mains?	☒	1	☐	☐
Are there suitable rights-of-way and easements provided to the water system for expansion, maintenance, and replacement of mains and services?	☒	☐	☐	☐
Is there sufficient earth cover (six feet) to protect the mains from frost damage or heavy loads, if driven over?	☒	☐	☐	☐
Are materials of mains designed and selected to resist corrosion, electrolysis, and deterioration?	☒	☐	☐	☐
Distribution System Problems	**Yes**	**No**	**Unknown**	**NA**
Do you receive any complaints regarding water quality (taste, odor, color, etc.)? ***List number of complaints/year:*** 3 ***Most common complaint:*** color	☒	☐	☐	☐
Can you maintain adequate pressure in the distribution system under all conditions of flow?	☒	☐	☐	☐

The Management Portion of your System

Please mark the appropriate box: Yes, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Operation & Maintenance

	Yes	No	Unknown	NA
Operations Staff				
Does the person operating your system have current water treatment plant and water distribution operator certification credentials from DENR? ***If yes, list classification(s):*** Class I Water Distribution	☒	☐	☐	☐
Does your operator receive additional training on an ongoing basis to keep current on new developments in the field?	☒	☐	☐	☐
Future Operational Demands				
Does your water system obtain any regular or occasional technical assistance from outside sources, such as DENR, your engineer, other utilities or organizations specifically dedicated to providing technical assistance? ***If yes, who*** South Dakota Rural Water	☒	☐	☐	☐

Management & Administration

	Yes	No	Unknown	NA
Who's in Charge?				
Is there a clear plan of organization and control among the people responsible for management and operation of the system?	☒	☐	☐	☐
Does your system have written personnel policies and job descriptions signed by the employees?	☒	☐	☐	☐
Are the limits of the operator's authority clearly known?	☒	☐	☐	☐
Does everyone involved in operations know who is responsible for each area?	☒	☐	☐	☐
Is someone responsible for scheduling work?	☒	☐	☐	☐
Security				
Does the system have procedures for handling new and terminated employees (i.e. collecting keys, changing locks and computer passwords)?	☒	☐	☐	☐
Rules and Standards				
Do you have explicit rules and standards for system modifications?	☒	☐	☐	☐
Do you have rules governing new hook-ups?	☒	☐	☐	☐
Do you have a water main extension policy?	☐	☒	☐	☐
Do you have standard construction specifications to be followed?	☒	☐	☐	☐

	Yes	No	Unknown	NA
Do you have measures to assure cross-connection control and backflow prevention?	☒	☐	☐	☐
Do you have policies or rules describing customer rights and responsibilities?	☒	☐	☐	☐
Regulatory Compliance Program	**Yes**	**No**	**Unknown**	**NA**
Do you fully understand monitoring requirements and have a scheduling mechanism to assure compliance?	☒	☐	☐	☐
Do you know how to obtain clarification or explanation of requirements?	☒	☐	☐	☐
Do you have a mechanism to obtain the most recent information on regulatory requirements?	☒	☐	☐	☐
Do you maintain adequate records to document compliance? ***If yes, for how long?*** _____	☒	☐	☐	☐
Did your system have any violations of the primary drinking water standards in the last year?	☐	☒	☐	☐
Did your system have any monitoring or reporting violations in the last year?	☐	☒	☐	☐
Do you know what to do in the event of a violation?	☒	☐	☐	☐
Emergencies	**Yes**	**No**	**Unknown**	**NA**
Do you have an Emergency Response Plan?	☒	☐	☐	☐
Is there a contingency for making emergency interconnections to neighboring systems, and do you know they will work if needed?	☐	☐	☐	☒
Does everyone involved in operations know what they are to do in the event of contamination from a toxic hazardous waste spill in your source water or a main break or a tank failure?	☒	☐	☐	☐
Do you have a clear chain-of-command protocol for emergency action?	☒	☐	☐	☐
Is someone responsible for emergency operations, for communications with state regulators, for customer relations, for media relations? ***If yes, who (title):*** Finance Officer	☒	☐	☐	☐
Safety	**Yes**	**No**	**Unknown**	**NA**
Do you have a safety program defining measures to be taken if someone is injured?	☒	☐	☐	☐
Has the entire staff been properly trained in the location and use of safety equipment?	☒	☐	☐	☐
Does everyone understand the risks and safety measures involved in handling water treatment chemicals?	☒	☐	☐	☐
Do you have written operating procedures for both routine and emergency system operations?	☒	☐	☐	☐
Are you fully aware of Occupational Safety and Health Administration (OSHA) confined space (such as trenches/manholes) regulations?	☒	☐	☐	☐
Does the system work with customers to promote their awareness of security?	☐	☒	☐	☐
Does the system have a communication plan to alert customers of a natural or intentional threat to public health?	☒	☐	☐	☐

Maintenance	**Yes**	**No**	**Unknown**	**NA**
Do you have a planned maintenance management system -- a system for scheduling routine preventive maintenance (line flushing, pumps, meters, storage tanks, etc.)?	☒	☐	☐	☐
Do you have a system for assuring adequate inventory of essential spare parts and back-up equipment?	☒	☐	☐	☐
Do you have relationships with contractors and equipment vendors to assure prompt priority service?	☒	☐	☐	☐
Do you have records and data management systems for system operating and maintenance data, for regulatory compliance data, and for system management and administration?	☒	☐	☐	☐
Management Capability	**Yes**	**No**	**Unknown**	**NA**
Are you getting the outside services and technical assistance you need? Do you have adequate legal counsel, insurance, engineering advice, technical/operations assistance, rate case preparation, and financial advice?	☒	☐	☐	☐

The Financial Portion of your System

Please mark the appropriate box: Yes, *No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section does not apply to your system, please write NA for not applicable.***

Financial Planning Mechanisms	**Yes**	**No**	**Unknown**	**NA**
Does your system develop and follow an annual budget that is approved by the governing body?	☒	☐	☐	☐
Does the governing body review a monthly summary of revenues and expenses of the utility system?	☒	☐	☐	☐
Do you have within the annual budget separate reserve accounts for equipment replacement, capital improvement, depreciation or security upgrades? ***If so, list accounts:*** reserve, deposit	☒	☐	☐	☐
Does the system have reserve funds available in the event of an emergency?	☒	☐	☐	☐
Do you have a capital budget or capital improvement plan that projects future capital investment needs some distance (at least five years) into the future?	☐	☒	☐	☐
Do you have a process for scheduling and committing to capital projects?	☐	☒	☐	☐
Does your planning process take account of all the potential capital needs suggested by your answers to the technical questions in these worksheets?	☒	☐	☐	☐
Does your long-term planning incorporate analysis of alternative strategies that might offer cost saving to customers, such as consolidation with other nearby systems or sharing of operations and management expenses with other nearby systems?	☐	☐	☐	☒
Rates/Billing - Are they Adequate?	**Yes**	**No**	**Unknown**	**NA**
Do you regularly review your rates? ***How often?*** twice a year at minimum	☒	☐	☐	☐
Do you have a plan in place for periodic increases in rates?	☒	☐	☐	☐
Is the rate structure based on metered watered use? ***List rates per 1000 gallons:*** $20.00 min + .53/100 gallons (i.e. $22 minimum plus $2.50/1000 gallons)	☒	☐	☐	☐
Does the rate per 1000 gallons change as consumption increases? ***If so, please describe:***	☐	☒	☐	☐
Does the rate structure assure proportionality among users?	☒	☐	☐	☐
Do you have procedures for billing and collection?	☒	☐	☐	☐
Is your billing collection rate greater than 95%?	☒	☐	☐	☐
Do you have collection procedures specifically for delinquent accounts?	☒	☐	☐	☐

VIII

9:29 AM
05/06/15
Accrual Basis

City of Emery
Profit & Loss Budget vs. Actual (Fiscal-Year-To-Date - Summary)
January 1 through May 6, 2015

	Jan 1 - Ma...	Budget	$ Over Bu...	% of Budget
Ordinary Income/Expense				
Income				
310 · Taxes				
311 · General Property Taxes				
311.01 · Current Year Property Taxes	14,301.47	120,000.00	-105,698.53	11.9%
311.02 · Taxes 1 Year Back	450.78	750.00	-299.22	60.1%
311.03 · Taxes 2 Years Back	359.00	500.00	-141.00	71.8%
311.09 · Other	456.84	100.00	356.84	456.8%
Total 311 · General Property Taxes	15,568.09	121,350.00	-105,781.91	12.8%
313 · General Sales and Use Taxes	55,186.63	150,000.00	-94,813.37	36.8%
315 · Amusement Taxes	0.00	48.00	-48.00	0.0%
319 · Penalty&InterestOnDelinquentTax	249.56	150.00	99.56	166.4%
Total 310 · Taxes	71,004.28	271,548.00	-200,543.72	26.1%
320 · Licenses and Permits				
321 · Alcoholic Beverage Licenses	500.00	1,700.00	-1,200.00	29.4%
325 · Building Permits	10.00	50.00	-40.00	20.0%
328 · Livestock Permit	0.00	20.00	-20.00	0.0%
Total 320 · Licenses and Permits	510.00	1,770.00	-1,260.00	28.8%
330 · Intergovernmental Revenues				
335 · State Shared Revenue				
335.01 · Bank Franchise Tax	418.44	500.00	-81.56	83.7%
335.02 · Motor Vehicle CommercialProrate	666.58	1,750.00	-1,083.42	38.1%
335.03 · Liquor Tax Reversion	651.99	3,000.00	-2,348.01	21.7%
335.04 · Motor Vehicle Licenses (5%)	4,406.36	11,500.00	-7,093.64	38.3%
335.08 · LocalGovtHighwayAndBridgeFund	0.00	5,000.00	-5,000.00	0.0%
Total 335 · State Shared Revenue	6,143.37	21,750.00	-15,606.63	28.2%
Total 330 · Intergovernmental Revenues	6,143.37	21,750.00	-15,606.63	28.2%
338 · County Shared Revenue				
338.01 · County Road Tax (25%)	0.00	1,500.00	-1,500.00	0.0%
Total 338 · County Shared Revenue	0.00	1,500.00	-1,500.00	0.0%
340 · Charges for Goods and Services				
342 · Public Safety				
342.04 · Animal Control	25.00	0.00	25.00	100.0%
Total 342 · Public Safety	25.00	0.00	25.00	100.0%
346 · Culture-Recreation				
346.02 · Swimming Pool Fees				
346.03 Swimming Lessons	0.00	2,000.00	-2,000.00	0.0%
346.04 Swimming Pool Concession	0.00	2,500.00	-2,500.00	0.0%
Swimming Pool Memberships	0.00	1,645.16	-1,645.16	0.0%
Total 346.02 · Swimming Pool Fees	0.00	6,145.16	-6,145.16	0.0%
Total 346 · Culture-Recreation	0.00	6,145.16	-6,145.16	0.0%
Total 340 · Charges for Goods and Services	25.00	6,145.16	-6,120.16	0.4%
350 · Fines and Forfeits				
352 · Animal Control Fines	0.00	25.00	-25.00	0.0%
Total 350 · Fines and Forfeits	0.00	25.00	-25.00	0.0%
360 · Miscellaneous Revenue				
361 · Investment Earnings	102.15	400.00	-297.85	25.5%
369 · Other				
369.01 · Cable Television Franchise Fee	2,548.93	2,500.00	48.93	102.0%
369.03 · RecoveryOfPriorYearExpenditures	660.00	0.00	660.00	100.0%
369 · Other - Other	12.05	1,113.49	-1,101.44	1.1%
Total 369 · Other	3,220.98	3,613.49	-392.51	89.1%
Total 360 · Miscellaneous Revenue	3,323.13	4,013.49	-690.36	82.8%

City of Emery
Profit & Loss Budget vs. Actual (Fiscal-Year-To-Date - Summary)
January 1 through May 6, 2015

	Jan 1 - Ma...	Budget	$ Over Bu...	% of Budget
370-389 · Enterprise Operating Revenue				
370 · Daycare				
370.01 · Daycare Center Fees	28,066.15	65,000.00	-36,933.85	43.2%
370.02 · State Food Revenue	1,389.10	4,000.00	-2,610.90	34.7%
370.05 · Other Daycare Revenues	0.00	1,000.00	-1,000.00	0.0%
Total 370 · Daycare	29,455.25	70,000.00	-40,544.75	42.1%
381 · Water				
381.01 · Metered and Flat RateWaterSales	25,764.11	90,000.00	-64,235.89	28.6%
381.02 · Bulk Water Sales	136.30	500.00	-363.70	27.3%
381.90 · Transfers In	1,947.61	11,000.00	-9,052.39	17.7%
381.99 · Other	590.00	1,000.00	-410.00	59.0%
Total 381 · Water	28,438.02	102,500.00	-74,061.98	27.7%
383 · Sewer				
383.01 · Sewer Charges	20,446.20	75,000.00	-54,553.80	27.3%
Total 383 · Sewer	20,446.20	75,000.00	-54,553.80	27.3%
388 · Solid Waste				
388.10 · Solid Waste Collection	17,817.72	70,000.00	-52,182.28	25.5%
388.90 · Transfers In	1,335.68	6,000.00	-4,664.32	22.3%
388 · Solid Waste - Other	3.88	0.00	3.88	100.0%
Total 388 · Solid Waste	19,157.28	76,000.00	-56,842.72	25.2%
370-389 · Enterprise Operating Revenue - Other	50.00	0.00	50.00	100.0%
Total 370-389 · Enterprise Operating Revenue	97,546.75	323,500.00	-225,953.25	30.2%
391 · Other Financing Sources				
391.03 · Sale of Municipal Property	6,500.00	0.00	6,500.00	100.0%
Total 391 · Other Financing Sources	6,500.00	0.00	6,500.00	100.0%
Total Income	185,052.53	630,251.65	-445,199.12	29.4%
Gross Profit	185,052.53	630,251.65	-445,199.12	29.4%
Expense				
410 · General Government				
411 · Legislative				
411.1 · Board, Council or Commission				
Elections	0.00	600.00	-600.00	0.0%
Insurance	960.00	2,000.00	-1,040.00	48.0%
Personal Services				
Medicare	32.62	160.00	-127.38	20.4%
Salaries & Wages - No SDRS	4,650.00	9,000.00	-4,350.00	51.7%
Social Security	139.50	650.00	-510.50	21.5%
Personal Services - Other	56.68	0.00	58.68	100.0%
Total Personal Services	4,880.80	9,810.00	-4,929.20	49.8%
Publications	492.44	1,000.00	-507.56	49.2%
Services and Fees	849.49	1,000.00	-150.51	84.9%
Supplies	0.00	100.00	-100.00	0.0%
Travel & Conference	0.00	100.00	-100.00	0.0%
Total 411.1 · Board, Council or Commission	7,182.73	14,610.00	-7,427.27	49.2%
Total 411 · Legislative	7,182.73	14,610.00	-7,427.27	49.2%

City of Emery
Profit & Loss Budget vs. Actual (Fiscal-Year-To-Date - Summary)
January 1 through May 6, 2015

	Jan 1 - Ma...	Budget	$ Over Bu...	% of Budget
412 · Executive				
412.1 · Mayor				
Personal Services				
Medicare	7.32	50.00	-42.68	14.6%
Salaries & Wages - No SDRS	1,075.00	3,000.00	-1,925.00	35.8%
Social Security	31.31	180.00	-148.69	17.4%
Total Personal Services	1,113.63	3,230.00	-2,116.37	34.5%
Total 412.1 · Mayor	1,113.63	3,230.00	-2,116.37	34.5%
Total 412 · Executive	1,113.63	3,230.00	-2,116.37	34.5%
414 · Financial Administration				
414.1 · Legal (Attorney)	170.05	2,000.00	-1,829.95	8.5%
414.2 · Auditor/Clerk or Finance Office				
Equipment	0.00	96.77	-96.77	0.0%
Insurance				
Work Comp Insurance	-18.50	0.00	-18.50	100.0%
Insurance - Other	0.00	67.00	-67.00	0.0%
Total Insurance	-18.50	67.00	-85.50	-27.6%
Personal Services				
Medicare	345.66	130.00	215.66	265.9%
Retirement	0.00	750.00	-750.00	0.0%
Salaries & Wages	3,078.83	12,500.00	-9,421.17	24.6%
Social Security	1,477.98	625.00	852.98	236.5%
Unemployment Compensation	55.48	0.00	55.48	100.0%
Total Personal Services	4,957.95	14,005.00	-9,047.05	35.4%
Repairs and Maintenance	0.00	250.00	-250.00	0.0%
Services and Fees	874.60	2,000.00	-1,125.40	43.7%
Supplies	1,028.45	2,000.00	-971.55	51.4%
Travel and Conference	44.49	14.52	29.97	306.4%
Utilities	569.47	2,000.00	-1,430.53	28.5%
Total 414.2 · Auditor/Clerk or Finance Office	7,456.46	20,433.29	-12,976.83	36.5%
Total 414 · Financial Administration	7,626.51	22,433.29	-14,806.78	34.0%
419 · Other				
419.2 · General Government Buildings				
Improvements	1,045.60	500.00	545.60	209.1%
Insurance	0.00	1,750.00	-1,750.00	0.0%
Services & Fees	110.38	500.00	-389.62	22.1%
Supplies	0.00	400.00	-400.00	0.0%
Utilities	107.44	2,000.00	-1,892.56	5.4%
419.2 · General Government Buildings - Other	15.00	0.00	15.00	100.0%
Total 419.2 · General Government Buildings	1,278.42	5,150.00	-3,871.58	24.8%
Total 419 · Other	1,278.42	5,150.00	-3,871.58	24.8%
Total 410 · General Government	17,201.29	45,423.29	-28,222.00	37.9%
420 · Public Safety				
421 · Police	3,900.00	10,800.00	-6,900.00	36.1%
422 · Fire	-1,016.14	194.68	-1,210.82	-522.0%
429 · Other Protection	0.00	2,000.00	-2,000.00	0.0%
Total 420 · Public Safety	2,883.86	12,994.68	-10,110.82	22.2%
430 · Public Works				
431 · Highways and Streets				
431.2 · Highways, Streets and Roadways				
Improvements Not Buildings				
RR Crossings	0.00	37,500.00	-37,500.00	0.0%
Street Improvements	0.00	75,000.00	-75,000.00	0.0%
Total Improvements Not Buildings	0.00	112,500.00	-112,500.00	0.0%

City of Emery
Profit & Loss Budget vs. Actual (Fiscal-Year-To-Date - Summary)
January 1 through May 6, 2015

	Jan 1 - Ma...	Budget	$ Over Bu...	% of Budget
Insurance				
Work Comp Insurance	-18.50	0.00	-18.50	100.0%
Insurance - Other	17,421.00	9,000.00	8,421.00	193.6%
Total Insurance	17,402.50	9,000.00	8,402.50	193.4%
Machinery and Equipment	0.00	25,000.00	-25,000.00	0.0%
Personal Services				
Medicare	191.64	550.00	-358.36	34.8%
Retirement	0.00	150.00	-150.00	0.0%
Salaries & Wages	17,474.91	30,000.00	-12,525.09	58.2%
Social Security	819.41	2,200.00	-1,380.59	37.2%
Unemployment Compensation	72.69	180.00	-107.31	40.4%
Total Personal Services	18,558.65	33,080.00	-14,521.35	56.1%
Repairs and Maintenance	0.00	15,000.00	-15,000.00	0.0%
Services and Fees	4,100.00	3,500.00	600.00	117.1%
Supplies	7,531.28	17,000.00	-9,468.72	44.3%
Telephone	225.00	600.00	-375.00	37.5%
Travel and Conference	0.00	100.00	-100.00	0.0%
Total 431.2 · Highways, Streets and Roadways	47,817.43	215,780.00	-167,962.57	22.2%
431.6 · Street Lighting	4,917.47	13,000.00	-8,082.53	37.8%
Total 431 · Highways and Streets	52,734.90	228,780.00	-176,045.10	23.1%
432 · Sanitation				
432.3 · Solid Waste Collection				
Equipment	1,350.00	1,500.00	-150.00	90.0%
Insurance	0.00	2,000.00	-2,000.00	0.0%
Landfill Fees	3,612.57	12,000.00	-8,387.43	30.1%
Personal Services				
Medicare	42.20	160.00	-117.80	26.4%
Retirement	0.00	720.00	-720.00	0.0%
Salaries & Wages	5,131.49	12,000.00	-6,868.51	42.8%
Social Security	180.45	700.00	-519.55	25.8%
Unemployment Compensation	16.01	65.00	-48.99	24.6%
Total Personal Services	5,370.15	13,645.00	-8,274.85	39.4%
Repairs and Maintenance	1,851.99	1,500.00	351.99	123.5%
Supplies	19.98	4,193.55	-4,173.57	0.5%
Transfers Out	1,335.68	6,000.00	-4,664.32	22.3%
Total 432.3 · Solid Waste Collection	13,540.37	40,838.55	-27,298.18	33.2%
432.4 · SolidWasteDisposal(RubbleSites)				
Insurance	0.00	1,200.00	-1,200.00	0.0%
Personal Services				
Medicare	0.00	50.00	-50.00	0.0%
Salaries & Wages	554.70	3,500.00	-2,945.30	15.8%
Social Security	0.00	250.00	-250.00	0.0%
Unemployment Compensation	0.00	18.00	-18.00	0.0%
Total Personal Services	554.70	3,818.00	-3,263.30	14.5%
Publications	0.00	50.00	-50.00	0.0%
Total 432.4 · SolidWasteDisposal(RubbleSites)	554.70	5,068.00	-4,513.30	10.9%
432.5 · Sewage Collection and Disposal				
Improvements	0.00	10,000.00	-10,000.00	0.0%
Insurance	0.00	1,000.00	-1,000.00	0.0%
Machinery & Equipment	0.00	1,000.00	-1,000.00	0.0%
Personal Services				
Medicare	4.99	50.00	-45.01	10.0%
Retirement	0.00	210.00	-210.00	0.0%
Salaries & Wages	977.35	3,500.00	-2,522.65	27.9%
Social Security	21.32	210.00	-188.68	10.2%
Unemployment Compensation	1.89	20.00	-18.11	9.5%
Total Personal Services	1,005.55	3,990.00	-2,984.45	25.2%

City of Emery
Profit & Loss Budget vs. Actual (Fiscal-Year-To-Date - Summary)
January 1 through May 6, 2015

	Jan 1 - Ma...	Budget	$ Over Bu...	% of Budget
Repairs and Maintenance	1,594.75	5,500.00	-3,905.25	29.0%
Services and Fees	344.39	12,500.00	-12,155.61	2.8%
Supplies	0.00	750.00	-750.00	0.0%
USDA Loan Repayment	6,224.00	20,000.00	-13,776.00	31.1%
Utilities	228.60	700.00	-471.40	32.7%
Total 432.5 · Sewage Collection and Disposal	9,397.29	55,440.00	-46,042.71	17.0%
Total 432 · Sanitation	23,492.36	101,346.55	-77,854.19	23.2%
433 · Water				
433.1 · Source of Supply				
Hanson Rural Water Fees	10,170.90	45,000.00	-34,829.10	22.6%
Services and Fees	519.00	500.00	19.00	103.8%
Supplies	316.14	800.00	-483.86	39.5%
Utilities	0.00	100.00	-100.00	0.0%
Total 433.1 · Source of Supply	11,006.04	46,400.00	-35,393.96	23.7%
433.2 · Power and Pumping				
Utilities	1,137.72	500.00	637.72	227.5%
Total 433.2 · Power and Pumping	1,137.72	500.00	637.72	227.5%
433.4 · Distribution				
Improvements	0.00	5,000.00	-5,000.00	0.0%
Insurance	0.00	500.00	-500.00	0.0%
Repairs and Maintenance	532.08	1,000.00	-467.92	53.2%
Service and Fees	21.00	500.00	-479.00	4.2%
Supplies	0.00	2,000.00	-2,000.00	0.0%
Total 433.4 · Distribution	553.08	9,000.00	-8,446.92	6.1%
433.5 · Administration and General				
Insurance	0.00	500.00	-500.00	0.0%
Personal Services				
Medicare	14.90	80.00	-65.10	18.6%
Retirement	0.00	360.00	-360.00	0.0%
Salaries & Wages	1,574.61	6,000.00	-4,425.39	26.2%
Social Security	63.72	400.00	-336.28	15.9%
Unemployment Compensation	5.65	32.00	-26.35	17.7%
Total Personal Services	1,658.88	6,872.00	-5,213.12	24.1%
Publications	0.00	25.00	-25.00	0.0%
Services and Fees	0.00	10,500.00	-10,500.00	0.0%
Supplies	1,028.94	500.00	528.94	205.8%
USDA Loan Repayments	3,348.00	10,044.00	-6,696.00	33.3%
Total 433.5 · Administration and General	6,035.82	28,441.00	-22,405.18	21.2%
433.6 · Transfers Out	1,947.61	11,000.00	-9,052.39	17.7%
Total 433 · Water	20,680.27	95,341.00	-74,660.73	21.7%
Total 430 · Public Works	96,907.53	425,467.55	-328,560.02	22.8%
450 · Culture-Recreation				
451 · Recreation				
451.1 · CultureRecreationAdministration				
Work Comp Expense	-18.50	850.00	-868.50	-2.2%
Total 451.1 · CultureRecreationAdministration	-18.50	850.00	-868.50	-2.2%
451.23 · Ball Programs Expense				
Improvements	0.00	10,000.00	-10,000.00	0.0%
Insurance	0.00	3,250.00	-3,250.00	0.0%
Other	0.00	4,000.00	-4,000.00	0.0%

City of Emery
Profit & Loss Budget vs. Actual (Fiscal-Year-To-Date - Summary)
January 1 through May 6, 2015

	Jan 1 - Ma...	Budget	$ Over Bu...	% of Budget
Personal Services				
Medicare	0.00	23.00	-23.00	0.0%
Salaries & Wages	567.90	1,500.00	-932.10	37.9%
Social Security	0.00	110.00	-110.00	0.0%
Unemployment Compensation	0.00	9.00	-9.00	0.0%
Total Personal Services	567.90	1,642.00	-1,074.10	34.6%
Repairs and Maintenance	0.00	3,000.00	-3,000.00	0.0%
Services and Fees	0.00	100.00	-100.00	0.0%
Supplies	0.00	50.00	-50.00	0.0%
Utilities	30.03	200.00	-169.97	15.0%
Total 451.23 · Ball Programs Expense	597.93	22,242.00	-21,644.07	2.7%
451.24 · Swimming Pool Expense				
Capital Expenditures	0.00	1,500.00	-1,500.00	0.0%
Equipment	0.00	1,500.00	-1,500.00	0.0%
Insurance	0.00	1,400.00	-1,400.00	0.0%
Merchandise for Resale	0.00	1,500.00	-1,500.00	0.0%
Personal Services				
Medicare	0.00	316.65	-316.65	0.0%
Salaries & Wages	186.40	25,000.00	-24,813.60	0.7%
Social Security	0.00	1,500.00	-1,500.00	0.0%
Unemployment Compensation	0.00	180.00	-180.00	0.0%
Total Personal Services	186.40	26,996.65	-26,810.25	0.7%
Publications	0.00	300.00	-300.00	0.0%
Repairs and Maintenance	0.00	5,000.00	-5,000.00	0.0%
Services and Fees	0.00	1,500.00	-1,500.00	0.0%
Supplies	950.54	13,000.00	-12,049.46	7.3%
Utilities	0.00	2,000.00	-2,000.00	0.0%
Total 451.24 · Swimming Pool Expense	1,136.94	54,696.65	-53,559.71	2.1%
451.4 · Senior Citizens Activities				
Other	0.00	2,500.00	-2,500.00	0.0%
Services and Fees	0.00	2,500.00	-2,500.00	0.0%
Total 451.4 · Senior Citizens Activities	0.00	5,000.00	-5,000.00	0.0%
451 · Recreation - Other	15.00	0.00	15.00	100.0%
Total 451 · Recreation	1,731.37	82,788.65	-81,057.28	2.1%
452 · Parks				
452.2 · Park Areas				
Improvements	0.00	35,000.00	-35,000.00	0.0%
Insurance	0.00	2,000.00	-2,000.00	0.0%
Personal Services				
Medicare	0.00	20.00	-20.00	0.0%
Salaries & Wages	94.56	1,200.00	-1,105.44	7.9%
Social Security	0.00	85.00	-85.00	0.0%
Unemployment Compensation	0.00	7.50	-7.50	0.0%
Total Personal Services	94.56	1,312.50	-1,217.94	7.2%
Services and Fees	0.00	2,500.00	-2,500.00	0.0%
Supplies	0.00	1,500.00	-1,500.00	0.0%
Total 452.2 · Park Areas	94.56	42,312.50	-42,217.94	0.2%
452.6 · Park Lighting	57.78	500.00	-442.22	11.6%
Total 452 · Parks	152.34	42,812.50	-42,660.16	0.4%
Total 450 · Culture-Recreation	1,883.71	125,601.15	-123,717.44	1.5%
460 · Conservation and Development				
465 · EconomicDevelopment&Assistance				
465.3 · Promoting the City	0.00	5,000.00	-5,000.00	0.0%
Total 465 · EconomicDevelopment&Assistence	0.00	5,000.00	-5,000.00	0.0%

City of Emery
Profit & Loss Budget vs. Actual (Fiscal-Year-To-Date - Summary)
January 1 through May 6, 2015

	Jan 1 - Ma...	Budget	$ Over Bu...	% of Budget
466 · Economic Opportunity				
466.1 · Day Care Centers				
Food and Supplies	5,276.76	10,000.00	-4,723.24	52.8%
Furniture and Minor Equipment	0.00	250.00	-250.00	0.0%
Improvements	0.00	10,000.00	-10,000.00	0.0%
Insurance				
Work Comp Insurance	-18.50	0.00	-18.50	100.0%
Insurance - Other	0.00	3,000.00	-3,000.00	0.0%
Total Insurance	-18.50	3,000.00	-3,018.50	-0.6%
Personal Services				
Medicare	258.61	1,800.00	-1,541.39	14.4%
Retirement	0.00	3,600.00	-3,600.00	0.0%
Salaries & Wages	28,834.59	60,000.00	-31,165.41	48.1%
Social Security	1,105.78	4,000.00	-2,894.22	27.6%
Unemployment Compensation	98.09	450.00	-351.91	21.8%
Total Personal Services	30,297.07	69,850.00	-39,552.93	43.4%
Publications	0.00	100.00	-100.00	0.0%
Repairs and Maintenance	0.00	500.00	-500.00	0.0%
Services and Fees	1,012.82	1,200.00	-187.18	84.4%
Utilities	1,703.97	5,000.00	-3,296.03	34.1%
Total 466.1 · Day Care Centers	38,272.12	99,900.00	-61,627.88	38.3%
Total 466 · Economic Opportunity	38,272.12	99,900.00	-61,627.88	38.3%
Total 460 · Conservation and Development	38,272.12	104,900.00	-66,627.88	36.5%
510 · Other Financing Uses				
City scholarship	0.00	500.00	-500.00	0.0%
Total 510 · Other Financing Uses	0.00	500.00	-500.00	0.0%
Total Expense	157,148.51	714,886.67	-557,738.16	22.0%
Net Ordinary Income	27,904.02	-84,635.02	112,539.04	-33.0%
Other Income/Expense				
Other Expense				
Fund Balance Transfer	45,385.29	0.00	45,385.29	100.0%
Total Other Expense	45,385.29	0.00	45,385.29	100.0%
Net Other Income	-45,385.29	0.00	-45,385.29	100.0%
Net Income	-17,481.27	-84,635.02	67,153.75	20.7%

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION - MODIFIED CASH BASIS
PROPRIETARY FUNDS
For the Year Ended December 31, 2014

	Enterprise Funds					
	Water Fund	Sewer Fund	Solid Waste Fund	Daycare Fund	Totals	Internal Service Funds
Operating Revenue:						
370/380 Charges for Goods and Services	86,948.60	63,107.33	53,153.29	82,730.17	285,939.39	
Revenue Dedicated to Servicing Debt					0.00	
380.05 Lottery Sales					0.00	
369 Miscellaneous			57.35		57.35	
Total Operating Revenue	86,948.60	63,107.33	53,210.64	82,730.17	285,996.74	0.00
Operating Expenses:						
410 Personal Services	5,103.69	2,093.98	23,619.02	75,691.31	106,508.00	
420 Other Current Expense	77,903.00	22,362.10	4,996.44	25,791.09	131,052.63	
426.2 Materials					0.00	
430 Capital Assets					0.00	
Total Operating Expenses	83,006.69	24,456.08	28,615.46	101,482.40	237,560.63	0.00
Operating Income (Loss)	3,941.91	38,651.25	24,595.18	(18,752.23)	48,436.11	0.00
Nonoperating Revenue (Expense):						
330 Operating Grants					0.00	
361 Investment Earnings					0.00	
362 Rental Revenue					0.00	
441 Debt Service (Principal)					0.00	
442 Interest Expense (Enter as Negative)					0.00	
391.03 Sale of Municipal Property					0.00	
391.20 Long-Term Debt Issued					0.00	
(429)369.01 Other					0.00	
Total Nonoperating Revenue (Expense)	0.00	0.00	0.00	0.00	0.00	0.00

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION - MODIFIED CASH BASIS
PROPRIETARY FUNDS
For the Year Ended December 31, 2014

	Enterprise Funds					
	Water Fund	Sewer Fund	Solid Waste Fund	Daycare Fund	Totals	Internal Service Funds
Income (Loss) Before Contributions, Special Items, Extraordinary Items and Transfers	3,941.91	38,651.25	24,595.18	(18,752.23)	48,436.11	0.00
391.07 Capital Contributions					0.00	
391.1 Transfers In	8,512.53		5,583.15	15,000.00	29,095.68	
511 Transfers Out (Enter as Negative)	(8,512.53)		(5,583.15)		(14,095.68)	
391.06 (514) Special Items					0.00	
391.05 (515) Extraordinary Items					0.00	
Change in Net Position	3,941.91	38,651.25	24,595.18	(3,752.23)	63,436.11	0.00
Net Position - Beginning	110,091.69	93,101.48	94,985.95	99.64	298,278.76	
Adjustments:						
					0.00	
					0.00	
Adjusted Net Position - Beginning	110,091.69	93,101.48	94,985.95	99.64	298,278.76	0.00
NET POSITION - ENDING	114,033.60	131,752.73	119,581.13	(3,652.59)	361,714.87	0.00

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION - MODIFIED CASH BASIS
PROPRIETARY FUNDS
For the Year Ended December 31, 2014

	Enterprise Funds					
	Water Fund	Sewer Fund	Solid Waste Fund	Daycare Fund	Totals	Internal Service Funds
Operating Revenue:						
370/380 Charges for Goods and Services	86,948.60	63,107.33	53,153.29	82,730.17	285,939.39	
Revenue Dedicated to Servicing Debt					0.00	
380.05 Lottery Sales					0.00	
369 Miscellaneous			57.35		57.35	
Total Operating Revenue	86,948.60	63,107.33	53,210.64	82,730.17	285,996.74	0.00
Operating Expenses:						
410 Personal Services	5,103.69	2,093.98	23,619.02	75,691.31	106,508.00	
420 Other Current Expense	77,903.00	22,362.10	4,996.44	25,791.09	131,052.63	
426.2 Materials					0.00	
430 Capital Assets					0.00	
Total Operating Expenses	83,006.69	24,456.08	28,615.46	101,482.40	237,560.63	0.00
Operating Income (Loss)	3,941.91	38,651.25	24,595.18	(18,752.23)	48,436.11	0.00
Nonoperating Revenue (Expense):						
330 Operating Grants					0.00	
361 Investment Earnings					0.00	
362 Rental Revenue					0.00	
441 Debt Service (Principal)					0.00	
442 Interest Expense (Enter as Negative)					0.00	
391.03 Sale of Municipal Property					0.00	
391.20 Long-Term Debt Issued					0.00	
(429)369.01 Other					0.00	
Total Nonoperating Revenue (Expense)	0.00	0.00	0.00	0.00	0.00	0.00

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION - MODIFIED CASH BASIS
PROPRIETARY FUNDS
For the Year Ended December 31, 2014

	Enterprise Funds					
	Water Fund	Sewer Fund	Solid Waste Fund	Daycare Fund	Totals	Internal Service Funds
Income (Loss) Before Contributions, Special Items, Extraordinary Items and Transfers	3,941.91	38,651.25	24,595.18	(18,752.23)	48,436.11	0.00
391.07 Capital Contributions					0.00	
391.1 Transfers In	8,512.53		5,583.15	15,000.00	29,095.68	
511 Transfers Out (Enter as Negative)	(8,512.53)		(5,583.15)		(14,095.68)	
391.06 (514) Special Items					0.00	
391.05 (515) Extraordinary Items					0.00	
Change in Net Position	3,941.91	38,651.25	24,595.18	(3,752.23)	63,436.11	0.00
Net Position - Beginning	110,091.69	93,101.48	94,985.95	99.64	298,278.76	
Adjustments:						
					0.00	
					0.00	
Adjusted Net Position - Beginning	110,091.69	93,101.48	94,985.95	99.64	298,278.76	0.00
NET POSITION - ENDING	114,033.60	131,752.73	119,581.13	(3,652.59)	361,714.87	0.00

MUNICIPALITY OF EMERY
STATEMENT OF NET POSITION - MODIFIED CASH BASIS
PROPRIETARY FUNDS
December 31, 2014

	Enterprise Funds					
	Water Fund	Sewer Fund	Solid Waste Fund	Daycare Fund	Totals	Internal Service Funds
ASSETS:						
Current Assets:						
Cash and Cash Equivalents	114,033.60	131,752.73	119,581.13	(3,652.59)	361,714.87	
106 Cash with Fiscal Agent					0.00	
151 Investments					0.00	
Total Current Assets	114,033.60	131,752.73	119,581.13	(3,652.59)	361,714.87	0.00
Noncurrent Assets:						
107.1 Restricted Cash and Cash Equivalents					0.00	
107.2 Restricted Investments					0.00	
Total Noncurrent Assets	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL ASSETS	114,033.60	131,752.73	119,581.13	(3,652.59)	361,714.87	0.00
NET POSITION:						
253.20 Restricted for:						
253.21 Revenue Bond Debt Service					0.00	
253.22 Revenue Bond Retirement					0.00	
253.23 Revenue Bond Contingency					0.00	
253.24 Special Assessment Bond Guarantee					0.00	
253.25 Special Assessment Bond Sinking					0.00	
253.26 Equipment Repair and/or Replacement					0.00	
253.27 Landfill Closure and Post Closure Costs					0.00	
253.28 Permanently Restricted Purposes					0.00	
253.29 Other purposes					0.00	
253.90 Unrestricted	114,033.60	131,752.73	119,581.13	(3,652.59)	361,714.87	
TOTAL NET POSITION	114,033.60	131,752.73	119,581.13	(3,652.59)	361,714.87	0.00

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
For the Year Ended December 31, 2014

	General Fund	Fund	Other Governmental Funds	Total Governmental Funds
Revenues:				
310 Taxes:				
311 General Property Taxes	114,577.90			114,577.90
312 Airflight Property Tax				0.00
313 General Sales and Use Taxes	188,082.62			188,082.62
314 Gross Receipts Business Taxes				0.00
315 Amusement Taxes	24.00			24.00
316 911 Telephone Surcharge				0.00
317 Excise Tax				0.00
318 Tax Deed Revenue				0.00
319 Penalties and Interest on	488.54			488.54
Delinquent Taxes				0.00
Total Taxes	303,173.06	0.00	0.00	303,173.06
320 Licenses and Permits	1,750.00			1,750.00
330 Intergovernmental Revenue:				
331 Federal Grants				0.00
332 Federal Shared Revenue				0.00
333 Federal Payments in Lieu of Taxes				0.00
334 State Grants				0.00
335 State Shared Revenue:				
335.01 Bank Franchise Tax	468.16			468.16
335.02 Motor Vehicle Commercial Prorate	1,678.22			1,678.22
335.03 Liquor Tax Reversion	3,034.25			3,034.25
335.04 Motor Vehicle Licenses (5%)	12,451.91			12,451.91
335.06 Fire Insurance Premiums Reversion				0.00
335.08 Local Government Highway and Bridge Fund	7,641.11			7,641.11
335.09 911 Remittances				0.00
335.20 Other				0.00
336 State Payments in Lieu				

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
For the Year Ended December 31, 2014

	General Fund	Fund	Other Governmental Funds	Total Governmental Funds
of Taxes				0.00
338 County Shared Revenue:				
338.01 County Road Tax (25%)	1,022.52			1,022.52
338.02 County Highway and Bridge Reserve Tax (25%)				0.00
338.03 County Wheel Tax				0.00
338.99 Other				0.00
339 Other Intergovernmental Revenues				0.00
Total Intergovernmental Revenue	26,296.17	0.00	0.00	26,296.17
340 Charges for Goods and Services:				
341 General Government				0.00
342 Public Safety	25.00			25.00
343 Highways and Streets	387.50			387.50
344 Sanitation	3.73			3.73
345 Health				0.00
346 Culture and Recreation	13,013.62			13,013.62
347 Ambulance				0.00
348 Cemetery				0.00
349 Other	26.75			26.75
Total Charges for Goods and Services	13,456.60	0.00	0.00	13,456.60
350 Fines and Forfeits:				
351 Court Fines and Costs				0.00
352 Animal Control Fines				0.00
353 Parking Meter Fines				0.00
354 Library				0.00
359 Other				0.00
Total Fines and Forfeits	0.00	0.00	0.00	0.00
360 Miscellaneous Revenue:				

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
For the Year Ended December 31, 2014

	General Fund	Fund	Other Governmental Funds	Total Governmental Funds
361 Investment Earnings	282.44			282.44
362 Rentals				0.00
363 Special Assessments				0.00
364 Maintenance Assessments				0.00
367 Contributions and Donations from Private Sources	431.01			431.01
368 Liquor Operating Agreement Income				0.00
369 Other	2,624.25			2,624.25
Total Miscellaneous Revenue	3,337.70	0.00	0.00	3,337.70
Total Revenue	348,013.53	0.00	0.00	348,013.53
Expenditures:				
410 General Government:				
411 Legislative	13,836.80			13,836.80
412 Executive	2,411.36			2,411.36
413 Elections				0.00
414 Financial Administration	17,602.58			17,602.58
419 Other	2,113.47			2,113.47
Total General Government	35,964.21	0.00	0.00	35,964.21
420 Public Safety:				
421 Police	9,900.00			9,900.00
422 Fire	1,056.96			1,056.96
423 Protective Inspection				0.00
429 Other Protection	3,285.05			3,285.05
Total Public Safety	14,242.01	0.00	0.00	14,242.01

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
For the Year Ended December 31, 2014

	General Fund	Fund	Other Governmental Funds	Total Governmental Funds
430 Public Works:				
431 Highways and Streets	207,916.06			207,916.06
432 Sanitation	4,314.34			4,314.34
433 Water	84.82			84.82
434 Electricity				0.00
435 Airport				0.00
436 Parking Facilities				0.00
437 Cemeteries				0.00
438 Natural Gas				0.00
439 Transit				0.00
Total Public Works	212,315.22	0.00	0.00	212,315.22
440 Health and Welfare:				
441 Health				0.00
442 Home Health				0.00
443 Mental Health Centers				0.00
444 Humane Society				0.00
445 Drug Education				0.00
446 Ambulance				0.00
447 Hospitals, Nursing Homes and Rest Homes				0.00
449 Other				0.00
Total Health and Welfare	0.00	0.00	0.00	0.00
450 Culture and Recreation:				
451 Recreation	47,216.18			47,216.18
452 Parks	6,432.20			6,432.20
455 Libraries				0.00
456 Auditorium				0.00
457 Historical Preservation				0.00
458 Museums				0.00
Total Culture and Recreation	53,648.38	0.00	0.00	53,648.38

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
For the Year Ended December 31, 2014

	General Fund	Fund	Other Governmental Funds	Total Governmental Funds
460 Conservation and Development:				
463 Urban Redevelopment and Housing				0.00
465 Economic Development and Assistance (Industrial Development)				0.00
466 Economic Opportunity	1,035.00			1,035.00
Total Conservation and Development	1,035.00	0.00	0.00	1,035.00
470 Debt Service				0.00
480 Intergovernmental Expenditures				0.00
485 Capital Outlay				0.00
490 Miscellaneous:				
491 Judgments and Losses				0.00
492 Other Expenditures	500.00			500.00
499 Liquor Operating Agreements				0.00
Total Miscellaneous	500.00	0.00	0.00	500.00
Total Expenditures	317,704.82	0.00	0.00	317,704.82
Excess of Revenues Over (Under) Expenditures	30,308.71	0.00	0.00	30,308.71

MUNICIPALITY OF EMERY
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
For the Year Ended December 31, 2014

	General Fund	Fund	Other Governmental Funds	Total Governmental Funds
Other Financing Sources (Uses):				
391.01 Transfers In				0.00
511 Transfers Out	(15,000.00)			(15,000.00)
513 Payments to Refunded Debt Escrow Agent				0.00
391.03 Sale of Municipal Property	27,610.00			27,610.00
391.04 Compensation for Loss or Damage to Capital Assets				0.00
391.20 Long-Term Debt Issued				0.00
Total Other Financing Sources (Uses)	12,610.00	0.00	0.00	12,610.00
391.06 (514) Special Items				0.00
391.05 (515) Extraordinary Items				0.00
Net Change in Fund Balance	42,918.71	0.00	0.00	42,918.71
Fund Balance - Beginning	102,473.29			102,473.29
Adjustments:				
				0.00
				0.00
Adjusted Fund Balance - Beginning	102,473.29	0.00	0.00	102,473.29
FUND BALANCE- ENDING	145,392.00	0.00	0.00	145,392.00

MUNICIPALITY OF EMERY
SCHEDULE OF CHANGES IN LONG-TERM DEBT
For the Year Ended December 31, 2014

Indebtedness	Long-Term Debt 1-Jan-14	Add New Debt	Less Debt Retired	Long-Term Debt 31-Dec-14
Governmental Long-Term Debt:				
231.01 General Obligation Bonds				
231.02 Revenue Bonds				
231.03 Special Assessment Bonds				
236 Advance from Other Funds				
237 Other Long-Term Liabilities				
238 Net OPEB Obligation				
Enterprise Long-Term Debt: (only cash basis entities need to complete the enterprise section)				
231.01 General Obligation Bonds				
231.02 Revenue Bonds				
231.03 Special Assessment Bonds				
235 Accrued Landfill Closure and Postclosure Care Costs				
236 Advance from Other Funds				
237 Other Long-Term Liabilities	567,986.11		8,263.51	559,722.60
238 Net OPEB Obligation				
Total	567,986.11	0.00	8,263.51	559,722.60

(Do not include interest in the above figures)

MUNICIPALITY OF EMERY
BALANCE SHEET - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
December 31, 2014

	General Fund	Fund	Fund	Fund	Other Governmental Funds
ASSETS:					
Cash and Cash Equivalents	119,477.93				
106 Cash with Fiscal Agent					
151 Investments	25,914.07				
107.1 Restricted Cash and Cash Equivalents					
107.2 Restricted Investments					
TOTAL ASSETS	145,392.00	0.00	0.00	0.00	0.00
FUND BALANCES:					
263 Nonspendable					
264 Restricted					
265 Committed					
266 Assigned					
267 Unassigned	145,392.00				
TOTAL FUND BALANCES	145,392.00	0.00	0.00	0.00	0.00

Total Governmental Funds
119,477.93
0.00
25,914.07
0.00
0.00
145,392.00
0.00
0.00
0.00
0.00
145,392.00
145,392.00

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Annual Financial Report Search

Cities

City: EMERY
Year: 2011
Fund: ALL

Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2011	100	General Fund	10100	Cash and Cash Equivalents	19,613
EMERY	439	2011	600	Enterprise Funds	10100	Cash and Cash Equivalents	207,811

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Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2011	600	Enterprise Funds	23102	Bonds Payable - Revenue	584,596

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City: EMERY
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Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2011	100	General Fund	31100	General Property Taxes	103,920
EMERY	439	2011	100	General Fund	31300	General Sales and Use Taxes	116,174
EMERY	439	2011	100	General Fund	31900	Penalties and Interest on Delinquent Taxes	48
EMERY	439	2011	100	General Fund	32000	Licenses and Permits	1,450
EMERY	439	2011	100	General Fund	33501	Bank Franchise Tax	390
EMERY	439	2011	100	General Fund	33502	Motor Vehicle Commercial Prorate	1,617
EMERY	439	2011	100	General Fund	33503	Liquor Tax Reversion	2,745
EMERY	439	2011	100	General Fund	33504	Motor Vehicle Licenses (5%)	7,869
EMERY	439	2011	100	General Fund	33508	Local Government Highway and Bridge Fund	5,183
EMERY	439	2011	100	General Fund	33801	County Road Tax (25%)	1,023
EMERY	439	2011	100	General Fund	34100	General Government	12,736
EMERY	439	2011	100	General Fund	36100	Investment Earnings	507
EMERY	439	2011	100	General Fund	36900	Other	28,190
EMERY	439	2011	100	General Fund	39101	Transfers In	75,000
EMERY	439	2011	600	Enterprise Funds	38000	Charges for Goods and Services	203,212
EMERY	439	2011	600	Enterprise Funds	39101	Transfers In	18,178

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Annual Financial Report Search

Cities

City: EMERY
Year: 2011
Fund: ALL
Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2011	100	General Fund	41400	Financial Administration	53,146
EMERY	439	2011	100	General Fund	42100	Police	12,576
EMERY	439	2011	100	General Fund	42200	Fire	1,326
EMERY	439	2011	100	General Fund	42900	Other Protection	1,591
EMERY	439	2011	100	General Fund	43100	Highways and Streets	166,792
EMERY	439	2011	100	General Fund	43200	Sanitation	3,978
EMERY	439	2011	100	General Fund	45100	Recreation	78,358
EMERY	439	2011	100	General Fund	46500	Economic Development and Assistance (Industrial Development)	1,975
EMERY	439	2011	100	General Fund	49200	Other Expenditures	750
EMERY	439	2011	100	General Fund	51100	Transfers Out	18,178
EMERY	439	2011	600	Enterprise Funds	41000	Personal Services	69,909
EMERY	439	2011	600	Enterprise Funds	42000	Other Current Expense	83,344
EMERY	439	2011	600	Enterprise Funds	42620	Materials (Cost of Goods Sold)	47,053
EMERY	439	2011	600	Enterprise Funds	51100	Transfers Out	75,000

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Annual Financial Report Search

Cities

City: EMERY
Year: 2012
Fund: ALL

Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2012	100	General Fund	10100	Cash and Cash Equivalents	80,609
EMERY	439	2012	600	Enterprise Funds	10100	Cash and Cash Equivalents	206,377

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Cities

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Fund: ALL

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Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2012	600	Enterprise Funds	23102	Bonds Payable - Revenue	575,956

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Fund: ALL
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Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2012	100	General Fund	31100	General Property Taxes	103,371
EMERY	439	2012	100	General Fund	31300	General Sales and Use Taxes	132,090
EMERY	439	2012	100	General Fund	31900	Penalties and Interest on Delinquent Taxes	48
EMERY	439	2012	100	General Fund	32000	Licenses and Permits	1,450
EMERY	439	2012	100	General Fund	33100	Federal Grants	40,000
EMERY	439	2012	100	General Fund	33501	Bank Franchise Tax	1,408
EMERY	439	2012	100	General Fund	33502	Motor Vehicle Commercial Prorate	1,784
EMERY	439	2012	100	General Fund	33503	Liquor Tax Reversion	2,921
EMERY	439	2012	100	General Fund	33504	Motor Vehicle Licenses (5%)	9,096
EMERY	439	2012	100	General Fund	33508	Local Government Highway and Bridge Fund	6,588
EMERY	439	2012	100	General Fund	33801	County Road Tax (25%)	1,444
EMERY	439	2012	100	General Fund	34100	General Government	16,473
EMERY	439	2012	100	General Fund	36100	Investment Earnings	280
EMERY	439	2012	100	General Fund	36900	Other	11,744
EMERY	439	2012	600	Enterprise Funds	33000	Operating Grants	42,121
EMERY	439	2012	600	Enterprise Funds	38000	Charges for Goods and Services	249,679
EMERY	439	2012	600	Enterprise Funds	39101	Transfers In	11,666

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Annual Financial Report Search

Cities

City: EMERY
Year: 2012
Fund: ALL
Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2012	100	General Fund	41400	Financial Administration	40,054
EMERY	439	2012	100	General Fund	42100	Police	10,780
EMERY	439	2012	100	General Fund	42200	Fire	-120
EMERY	439	2012	100	General Fund	42900	Other Protection	723
EMERY	439	2012	100	General Fund	43100	Highways and Streets	100,780
EMERY	439	2012	100	General Fund	43200	Sanitation	4,731
EMERY	439	2012	100	General Fund	45100	Recreation	97,818
EMERY	439	2012	100	General Fund	46500	Economic Development and Assistance (Industrial Development)	1,020
EMERY	439	2012	100	General Fund	49200	Other Expenditures	250
EMERY	439	2012	100	General Fund	51100	Transfers Out	11,666
EMERY	439	2012	600	Enterprise Funds	41000	Personal Services	78,737
EMERY	439	2012	600	Enterprise Funds	42000	Other Current Expense	174,435
EMERY	439	2012	600	Enterprise Funds	42620	Materials (Cost of Goods Sold)	51,729

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Annual Financial Report Search

Cities

City: EMERY
Year: 2013
Fund: ALL

Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2013	100	General Fund	10100	Cash and Cash Equivalents	102,473
EMERY	439	2013	600	Enterprise Funds	10100	Cash and Cash Equivalents	298,279

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Cities

City: EMERY
Year: 2013
Fund: ALL

Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2013	600	Enterprise Funds	23102	Bonds Payable - Revenue	567,986

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Annual Financial Report Search

Cities

City: EMERY
Year: 2013
Fund: ALL
Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2013	100	General Fund	31100	General Property Taxes	111,425
EMERY	439	2013	100	General Fund	31300	General Sales and Use Taxes	148,548
EMERY	439	2013	100	General Fund	31900	Penalties and Interest on Delinquent Taxes	356
EMERY	439	2013	100	General Fund	32000	Licenses and Permits	1,810
EMERY	439	2013	100	General Fund	33501	Bank Franchise Tax	373
EMERY	439	2013	100	General Fund	33502	Motor Vehicle Commercial Prorate	1,561
EMERY	439	2013	100	General Fund	33503	Liquor Tax Reversion	2,825
EMERY	439	2013	100	General Fund	33504	Motor Vehicle Licenses (5%)	11,485
EMERY	439	2013	100	General Fund	33508	Local Government Highway and Bridge Fund	3,161
EMERY	439	2013	100	General Fund	33801	County Road Tax (25%)	1,023
EMERY	439	2013	100	General Fund	34100	General Government	13,393
EMERY	439	2013	100	General Fund	36100	Investment Earnings	250
EMERY	439	2013	100	General Fund	36900	Other	20,918
EMERY	439	2013	600	Enterprise Funds	38000	Charges for Goods and Services	297,259
EMERY	439	2013	600	Enterprise Funds	39101	Transfers In	13,575

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Annual Financial Report Search

Cities

City: EMERY
Year: 2013
Fund: ALL
Filter

Accounts

Asset: ALL Search
Liability: ALL Search
Equity: ALL Search
Revenue: ALL Search
Expenditure: ALL Search

City	Population	Year	Fund Type	Fund Type Description	Account	Account Description	Amount
EMERY	439	2013	100	General Fund	41400	Financial Administration	42,308
EMERY	439	2013	100	General Fund	42100	Police	9,980
EMERY	439	2013	100	General Fund	42200	Fire	1,112
EMERY	439	2013	100	General Fund	42900	Other Protection	633
EMERY	439	2013	100	General Fund	43100	Highways and Streets	142,916
EMERY	439	2013	100	General Fund	43200	Sanitation	5,345
EMERY	439	2013	100	General Fund	45100	Recreation	77,221
EMERY	439	2013	100	General Fund	46500	Economic Development and Assistance (Industrial Development)	1,903
EMERY	439	2013	100	General Fund	49200	Other Expenditures	750
EMERY	439	2013	100	General Fund	51100	Transfers Out	13,575
EMERY	439	2013	600	Enterprise Funds	41000	Personal Services	79,130
EMERY	439	2013	600	Enterprise Funds	42000	Other Current Expense	124,995
EMERY	439	2013	600	Enterprise Funds	42620	Materials (Cost of Goods Sold)	15,188
EMERY	439	2013	600	Enterprise Funds	43000	Capital Assets	382

MUNICIPALITY OF EMERY
STATEMENT OF ACTIVITIES - MODIFIED CASH BASIS
For the Year Ended December 31, 2014

Functions/Programs	Expenses	Program Revenues: Charges for Services	Program Revenues: Operating Grants and Contributions	Program Revenues: Capital Grants and Contributions	Net (Expense) Revenue and Changes in Net Position: Primary Government: Governmental Activities	Primary Government: Business-Type Activities	Primary Government: Total	Component Units
Primary Government:								
Governmental Activities:								
General Government	35,964.21				(35,964.21)		(35,964.21)	
Public Safety	14,242.01	25.00			(14,217.01)		(14,217.01)	
Public Works	212,315.22	23,184.99			(189,130.23)		(189,130.23)	
Health and Welfare					0.00		0.00	
Culture and Recreation	53,648.38	13,013.62			(40,634.76)		(40,634.76)	
Conservation and Development	1,035.00				(1,035.00)		(1,035.00)	
Intergovernmental Expenditures					0.00		0.00	
Miscellaneous Expenditures	500.00	1,776.75			1,276.75		1,276.75	
**Capital Outlay - Unallocated					0.00		0.00	
*Interest on Long-Term Debt					0.00		0.00	
Total Governmental Activities	317,704.82	38,000.36	0.00	0.00	(279,704.46)		(279,704.46)	
Business-type Activities:								
Water	83,006.69	86,948.60				3,941.91	3,941.91	
Sewer	24,456.08	63,107.33				38,651.25	38,651.25	
Solid Waste	28,615.46	53,210.64				24,595.18	24,595.18	
Daycare	101,482.40	82,730.17				(18,752.23)	(18,752.23)	
Total Business-Type Activities	237,560.63	285,996.74	0.00	0.00		48,436.11	48,436.11	
Total Primary Government	555,265.45	323,997.10	0.00	0.00	(279,704.46)	48,436.11	(231,268.35)	
Component Units:								
Housing and Redevelopment Commission								0.00
General Revenues:								
Taxes:								
Property Taxes					115,090.44		115,090.44	
Sales Taxes					188,082.62		188,082.62	
State Shared Revenues					3,502.41		3,502.41	
Grants and Contributions not Restricted to Specific Programs					431.01		431.01	
Unrestricted Investment Earnings					282.44		282.44	
Debt Issued							0.00	
Miscellaneous Revenue					30,234.25		30,234.25	
Special Items							0.00	
Extraordinary Items							0.00	
Transfers					(15,000.00)	15,000.00	0.00	
Total General Revenues, Special Items, Extraordinary Items and Transfers					322,623.17	15,000.00	337,623.17	0.00
Change in Net Position					42,918.71	63,436.11	106,354.82	0.00
Net Position-Beginning					102,473.29	298,278.76	400,752.05	
Adjustments:								
							0.00	
Adjusted Net Position-Beginning					102,473.29	298,278.76	400,752.05	
NET POSITION-ENDING					145,392.00	361,714.87	507,106.87	0.00

* The Municipality does not have interest expense related to the functions presented above. This amount includes indirect interest expense on general long-term debt.

** This amount excludes the capital purchases that are included in the direct expenses of the various functions. See Note ____.

The notes to the financial statements are an integral part of this statement.

MUNICIPALITY OF EMERY
SCHEDULE OF CHANGES IN LONG-TERM DEBT
For the Year Ended December 31, 2014

Indebtedness	Long-Term Debt 1-Jan-14	Add New Debt	Less Debt Retired	Long-Term Debt 31-Dec-14
Governmental Long-Term Debt:				
231.01 General Obligation Bonds				
231.02 Revenue Bonds				
231.03 Special Assessment Bonds				
236 Advance from Other Funds				
237 Other Long-Term Liabilities				
238 Net OPEB Obligation				
Enterprise Long-Term Debt: (only cash basis entities need to complete the enterprise section)				
231.01 General Obligation Bonds				
231.02 Revenue Bonds				
231.03 Special Assessment Bonds				
235 Accrued Landfill Closure and				
Postclosure Care Costs				
236 Advance from Other Funds				
237 Other Long-Term Liabilities	567,986.11		8,263.51	559,722.60
238 Net OPEB Obligation				
Total	567,986.11	0.00	8,263.51	559,722.60

(Do not include interest in the above figures)

ANNUAL REPORT FOR CITY OF EMERY
AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2014

	GOVERNMENTAL FUNDS--MODIFIED CASH BASIS			
	General Fund	Fund	Other Governmental Funds	Total Governmental Funds
Beginning Balance	102,473.29			102,473.29
Revenues and Other Sources:				
Taxes:				
Property Taxes	114,577.90			114,577.90
General Sales and Use Taxes	188,082.62			188,082.62
Amusement Taxes	24.00			24.00
Penalties and Interest on Delinquent Taxes	488.54			488.54
Licenses and Permits	1,750.00			1,750.00
Intergovernmental Revenues:				
Federal Grants				0.00
Federal Shared Revenue				0.00
Federal Payments in Lieu of Taxes				0.00
State Grants				0.00
State Shared Revenue	25,273.65			25,273.65
State Payments in Lieu of Taxes				0.00
County Shared Revenue:	1,022.52			1,022.52
Other Intergovernmental Revenue				0.00
Charges for Goods and Services:				
General Government				0.00
Public Safety	25.00			25.00
Highways and Streets	387.50			387.50
Sanitation	3.73			3.73
Health				0.00
Culture and Recreation	13,013.62			13,013.62
Other	26.75			26.75
Fines and Forfeits				
Miscellaneous Revenue and Other Sources:				
Investment Earnings	282.44			282.44
Contributions and Donations from Private Sources	431.01			431.01
Other Revenues	2,624.25			2,624.25
Sale of Municipal Property	27,610.00			27,610.00
Compensation for Loss or Damage to Capital Assets				0.00
Long Term Debt Issued				0.00
Total Revenue and Other Sources	375,623.53	0.00	0.00	375,623.53

Expenditures and Other Uses:				
Legislative	13,836.80			13,836.80
Executive	2,411.36			2,411.36
Elections				0.00
Financial Administration	17,602.58			17,602.58
Other General Government	2,113.47			2,113.47
Police	9,900.00			9,900.00
Fire	1,056.96			1,056.96
Protective Inspection				0.00
Other Protection	3,285.05			3,285.05
Highways and Streets	207,916.06			207,916.06
Sanitation	4,314.34			4,314.34
Water	84.82			84.82
Recreation	47,216.18			47,216.18
Parks	6,432.20			6,432.20
Economic Opportunity	1,035.00			1,035.00
Other Expenditures	500.00			500.00
Total Expenditures and Other Uses	317,704.82	0.00	0.00	317,704.82
Transfers In (Out)	-15,000.00			-15,000.00
Special Item (specify)				0.00
Extraordinary Item (specify)				0.00
Increase/Decrease in Fund Balance	42,918.71	0.00	0.00	42,918.71
Ending Balance:				
Nonspendable				0.00
Restricted				0.00
Committed				0.00
Assigned				0.00
Unassigned	145,392.00			145,392.00
Governmental Long-term Debt				0.00

PROPRIETARY FUNDS--MODIFIED CASH BASIS

	Water Fund	Sewer Fund	Solid Waste Fund	Daycare Fund
Beginning Balance	110091.69	93101.48	94985.95	99.64
Revenues	86948.6	63107.33	53210.64	82730.17
Expenses	83006.69	24456.08	28615.46	101482.4
Transfers In (Out)				15000
Ending Balance:				
Restricted for _____				
Unrestricted	114033.6	131752.73	119581.13	-3652.59
Long-term Debt	195730.27	363992.33		

The preceding financial data does not include fiduciary funds or component units. Information pertaining to those activities may be obtained by contacting the municipal finance officer at 123-4567.

Municipal funds are deposited as follows:

Depository	Amount
The Security State Bank - Checking	$ 481,192.80
The Security State Bank - CD	$ 25,914.07

MUNICIPALITY OF EMERY
STATEMENT OF NET POSITION - MODIFIED CASH BASIS
December 31, 2014

	Primary Government			
	Governmental Activities	Business-Type Activities	Total	Component Units
ASSETS:				
Cash and Cash Equivalents	119,477.93	361,714.87	481,192.80	
Investments	25,914.07		25,914.07	
Restricted Assets:				
Cash and cash equivalents			0.00	
Investments			0.00	
TOTAL ASSETS	145,392.00	361,714.87	507,106.87	0.00
NET POSITION:				
Restricted for: (See Note ___)				
Capital Projects Purposes			0.00	
Debt Service Purposes			0.00	
Permanently Restricted Purposes				
Expendable			0.00	
Non-Expendable			0.00	
Other Purposes			0.00	
Unrestricted (Deficit)	145,392.00	361,714.87	507,106.87	
TOTAL NET POSITION	145,392.00	361,714.87	507,106.87	0.00

The notes to the financial statements are an integral part of this statement.

City of Emery
City Budget
January through December 2015

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
Ordinary Income/Expense		
Income		
310 · Taxes		
311 · General Property Taxes		
311.01 · Current Year Property Taxes	120,000.00	
311.02 · Taxes 1 Year Back	750.00	
311.03 · Taxes 2 Years Back	500.00	
311.09 · Other	100.00	
Total 311 · General Property Taxes	121,350.00	
313 · General Sales and Use Taxes	150,000.00	
315 · Amusement Taxes	48.00	
319 · Penalty&InterestOnDelinquentTax	150.00	
Total 310 · Taxes	271,548.00	
320 · Licenses and Permits		
321 · Alcoholic Beverage Licenses	1,700.00	
325 · Building Permits	50.00	
328 · Livestock Permit	20.00	
Total 320 · Licenses and Permits	1,770.00	
330 · Intergovernmental Revenues		
335 · State Shared Revenue		
335.01 · Bank Franchise Tax	500.00	
335.02 · Motor Vehicle CommercialProrate	1,750.00	
335.03 · Liquor Tax Reversion	3,000.00	
335.04 · Motor Vehicle Licenses (5%)	11,500.00	
335.08 · LocalGovtHighwayAndBridgeFund	5,000.00	
Total 335 · State Shared Revenue	21,750.00	
Total 330 · Intergovernmental Revenues	21,750.00	
338 · County Shared Revenue		
338.01 · County Road Tax (25%)	1,500.00	
Total 338 · County Shared Revenue	1,500.00	
340 · Charges for Goods and Services		
346 · Culture-Recreation		
346.02 · Swimming Pool Fees		
346.03 Swimming Lessons	2,000.00	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
346.04 Swimming Pool Concession	2,500.00	
Swimming Pool Memberships	8,500.00	
Total 346.02 · Swimming Pool Fees	13,000.00	
Total 346 · Culture-Recreation	13,000.00	
Total 340 · Charges for Goods and Services	13,000.00	
350 · Fines and Forfeits		
352 · Animal Control Fines	25.00	
Total 350 · Fines and Forfeits	25.00	
360 · Miscellaneous Revenue		
361 · Investment Earnings	400.00	
369 · Other		
369.01 · Cable Television Franchise Fee	2,500.00	
369 · Other - Other	1,113.49	
Total 369 · Other	3,613.49	
Total 360 · Miscellaneous Revenue	4,013.49	
370-389 · Enterprise Operating Revenue		
370 · Daycare		
370.01 · Daycare Center Fees	0.00	
370.02 · State Food Revenue	0.00	
370.05 · Other Daycare Revenues		
Total 370 · Daycare	0.00	
381 · Water		
381.01 · Metered and Flat RateWaterSales	0.00	
381.02 · Bulk Water Sales	0.00	
381.90 · Transfers In	0.00	
381.99 · Other	0.00	
Total 381 · Water	0.00	
383 · Sewer		
383.01 · Sewer Charges	0.00	
Total 383 · Sewer	0.00	
388 · Solid Waste		
388.10 · Solid Waste Collection	0.00	
388.90 · Transfers In	0.00	6,000.00
Total 388 · Solid Waste	0.00	6,000.00

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
Total 370-389 · Enterprise Operating Revenue	0.00	6,000.00
391 · Other Financing Sources		
391.01 · Transfers In	0.00	
Total 391 · Other Financing Sources	0.00	
Total Income	313,606.49	6,000.00
Gross Profit	313,606.49	6,000.00
Expense		
410 · General Government		
411 · Legislative		
411.1 · Board, Council or Commission		
Elections	600.00	
Insurance	2,000.00	
Personal Services		
Medicare	160.00	
Salaries & Wages - No SDRS	9,000.00	
Social Security	650.00	
Total Personal Services	9,810.00	
Publications	1,000.00	
Services and Fees	1,000.00	
Supplies	100.00	
Travel & Conference	100.00	
Total 411.1 · Board, Council or Commission	14,610.00	
Total 411 · Legislative	14,610.00	
412 · Executive		
412.1 · Mayor		
Personal Services		
Medicare	50.00	
Salaries & Wages - No SDRS	3,000.00	
Social Security	180.00	
Total Personal Services	3,230.00	
Total 412.1 · Mayor	3,230.00	
Total 412 · Executive	3,230.00	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
414 · Financial Administration		
414.1 · Legal (Attorney)	2,000.00	
414.2 · Auditor/Clerk or Finance Office		
Equipment	500.00	
Insurance		
Work Comp Insurance	554.94	
Insurance - Other	67.00	
Total Insurance	621.94	
Personal Services		
Medicare	130.00	
Retirement	750.00	
Salaries & Wages	12,500.00	
Social Security	625.00	
Total Personal Services	14,005.00	
Repairs and Maintenance	250.00	
Services and Fees	2,000.00	
Supplies	2,000.00	
Travel and Conference	500.00	
Utilities	2,000.00	
Total 414.2 · Auditor/Clerk or Finance Office	21,876.94	
Total 414 · Financial Administration	23,876.94	
419 · Other		
419.2 · General Government Buildings		
Improvements	500.00	
Insurance	1,750.00	
Services & Fees	500.00	
Supplies	400.00	
Utilities	2,000.00	
Total 419.2 · General Government Buildings	5,150.00	
Total 419 · Other	5,150.00	
Total 410 · General Government	46,866.94	
420 · Public Safety		
421 · Police	10,800.00	
422 · Fire	194.68	
429 · Other Protection	2,000.00	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
Total 420 · Public Safety	12,994.68	
430 · Public Works		
431 · Highways and Streets		
431.2 · Highways, Streets and Roadways		
Improvements Not Buildings		
RR Crossings	37,500.00	
Street Improvements	75,000.00	
Total Improvements Not Buildings	112,500.00	
Insurance	9,000.00	
Machinery and Equipment	25,000.00	
Personal Services		
Medicare	550.00	
Retirement	150.00	
Salaries & Wages	30,000.00	
Social Security	2,200.00	
Unemployment Compensation	180.00	
Total Personal Services	33,080.00	
Repairs and Maintenance	15,000.00	
Services and Fees	3,500.00	
Supplies	17,000.00	
Telephone	600.00	
Travel and Conference	100.00	
Total 431.2 · Highways, Streets and Roadways	215,780.00	
431.6 · Street Lighting	13,000.00	
Total 431 · Highways and Streets	228,780.00	
432 · Sanitation		
432.3 · Solid Waste Collection		
Equipment	0.00	
Insurance	0.00	
Landfill Fees	0.00	
Personal Services		
Medicare	0.00	
Retirement	0.00	
Salaries & Wages	0.00	
Social Security	0.00	
Unemployment Compensation	0.00	
Total Personal Services	0.00	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
Repairs and Maintenance	0.00	
Supplies	0.00	
Transfers Out	0.00	
Total 432.3 · Solid Waste Collection	0.00	
432.4 · SolidWasteDisposal(RubbleSites)		
Insurance	1,200.00	
Personal Services		
Medicare	50.00	
Salaries & Wages	3,500.00	
Social Security	250.00	
Unemployment Compensation	18.00	
Total Personal Services	3,818.00	
Publications	50.00	
Total 432.4 · SolidWasteDisposal(RubbleSites)	5,068.00	
432.5 · Sewage Collection and Disposal		
Improvements	0.00	
Insurance	0.00	
Machinery & Equipment	0.00	
Personal Services		
Medicare	0.00	
Retirement	0.00	
Salaries & Wages	0.00	
Social Security	0.00	
Unemployment Compensation	0.00	
Total Personal Services	0.00	
Repairs and Maintenance	0.00	
Services and Fees	0.00	
Supplies	0.00	
USDA Loan Repayment	0.00	
Utilities	0.00	
Total 432.5 · Sewage Collection and Disposal	0.00	
Total 432 · Sanitation	5,068.00	
433 · Water		
433.1 · Source of Supply		
Hanson Rural Water Fees	0.00	
Services and Fees	0.00	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
Supplies	0.00	
Utilities	0.00	
Total 433.1 · Source of Supply	0.00	
433.2 · Power and Pumping		
Utiities	0.00	
Total 433.2 · Power and Pumping	0.00	
433.4 · Distribution		
Improvements	0.00	
Insurance	0.00	
Repairs and Maintenance	0.00	
Service and Fees	0.00	
Supplies	0.00	
Total 433.4 · Distribution	0.00	
433.5 · Administration and General		
Insurance	0.00	
Personal Services		
Medicare	0.00	
Retirement	0.00	
Salaries & Wages	0.00	
Social Security	0.00	
Unemployment Compensation	0.00	
Total Personal Services	0.00	
Publications	0.00	
Services and Fees	0.00	
Supplies	0.00	
USDA Loan Repayments	0.00	
Total 433.5 · Administration and General	0.00	
433.6 · Transfers Out	0.00	
Total 433 · Water	0.00	
Total 430 · Public Works	233,848.00	
450 · Culture-Recreation		
451 · Recreation		
451.1 · CultureRecreationAdministration		
Work Comp Expense	850.00	
Total 451.1 · CultureRecreationAdministration	850.00	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
451.23 · Ball Programs Expense		
Improvements	10,000.00	
Insurance	3,250.00	
Other	4,000.00	
Personal Services		
Medicare	23.00	
Salaries & Wages	1,500.00	
Social Security	110.00	
Unemployment Compensation	9.00	
Total Personal Services	1,642.00	
Repairs and Maintenance	3,000.00	
Services and Fees	100.00	
Supplies	50.00	
Utilities	200.00	
Total 451.23 · Ball Programs Expense	22,242.00	
451.24 · Swimming Pool Expense		
Capital Expenditures	1,500.00	
Equipment	1,500.00	
Insurance	1,400.00	
Merchandise for Resale	1,500.00	
Personal Services		
Medicare	479.57	
Salaries & Wages	25,000.00	
Social Security	1,500.00	
Unemployment Compensation	180.00	
Total Personal Services	27,159.57	
Publications	300.00	
Repairs and Maintenance	5,000.00	
Services and Fees	1,500.00	
Supplies	13,000.00	
Utilities	2,000.00	
Total 451.24 · Swimming Pool Expense	54,859.57	
451.4 · Senior Citizens Activities		
Other	2,500.00	
Services and Fees	2,500.00	
Total 451.4 · Senior Citizens Activities	5,000.00	
Total 451 · Recreation	82,951.57	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
452 · Parks		
452.2 · Park Areas		
Improvements	35,000.00	
Insurance	2,000.00	
Personal Services		
Medicare	20.00	
Salaries & Wages	1,200.00	
Social Security	85.00	
Unemployment Compensation	7.50	
Total Personal Services	1,312.50	
Services and Fees	2,500.00	
Supplies	1,500.00	
Total 452.2 · Park Areas	42,312.50	
452.6 · Park Lighting	500.00	
Total 452 · Parks	42,812.50	
Total 450 · Culture-Recreation	125,764.07	
460 · Conservation and Development		
465 · EconomicDevelopment&Assistance		
465.3 · Promoting the City	5,000.00	
Total 465 · EconomicDevelopment&Assistance	5,000.00	
466 · Economic Opportunity		
466.1 · Day Care Centers		
Food and Supplies	0.00	
Furniture and Minor Equipment	0.00	
Improvements	0.00	
Insurance		
Work Comp Insurance	0.00	
Insurance - Other	0.00	
Total Insurance	0.00	
Personal Services		
Medicare	0.00	
Retirement	0.00	
Salaries & Wages	0.00	
Social Security	0.00	
Unemployment Compensation	0.00	
Total Personal Services	0.00	

	Total General Fund	Reserve Fund (Solid Waste)
	Jan - Dec 15	Jan - Dec 15
Publications	0.00	
Repairs and Maintenance	0.00	
Services and Fees	0.00	
Utilities	0.00	
Total 466.1 · Day Care Centers	0.00	
Total 466 · Economic Opportunity	0.00	
Total 460 · Conservation and Development	5,000.00	
510 · Other Financing Uses		
City scholarship	500.00	
511 · Operating Transfers Out	15,000.00	
Total 510 · Other Financing Uses	15,500.00	
Total Expense	439,973.69	
Net Ordinary Income	-126,367.20	6,000.00
Net Income	**-126,367.20**	**6,000.00**

City of Emery
City Budget
January through December 2015

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
Ordinary Income/Expense		
Income		
310 · Taxes		
311 · General Property Taxes		
311.01 · Current Year Property Taxes		
311.02 · Taxes 1 Year Back		
311.03 · Taxes 2 Years Back		
311.09 · Other		
Total 311 · General Property Taxes		
313 · General Sales and Use Taxes		
315 · Amusement Taxes		
319 · Penalty&InterestOnDelinquentTax		
Total 310 · Taxes		
320 · Licenses and Permits		
321 · Alcoholic Beverage Licenses		
325 · Building Permits		
328 · Livestock Permit		
Total 320 · Licenses and Permits		
330 · Intergovernmental Revenues		
335 · State Shared Revenue		
335.01 · Bank Franchise Tax		
335.02 · Motor Vehicle CommercialProrate		
335.03 · Liquor Tax Reversion		
335.04 · Motor Vehicle Licenses (5%)		
335.08 · LocalGovtHighwayAndBridgeFund		
Total 335 · State Shared Revenue		
Total 330 · Intergovernmental Revenues		
338 · County Shared Revenue		
338.01 · County Road Tax (25%)		
Total 338 · County Shared Revenue		
340 · Charges for Goods and Services		
346 · Culture-Recreation		
346.02 · Swimming Pool Fees		
346.03 Swimming Lessons		

	Solid Waste - Other (Solid Waste) Jan - Dec 15	Total Solid Waste (Enterprise) Jan - Dec 15
346.04 Swimming Pool Concession		
Swimming Pool Memberships		
Total 346.02 · Swimming Pool Fees		
Total 346 · Culture-Recreation		
Total 340 · Charges for Goods and Services		
350 · Fines and Forfeits		
352 · Animal Control Fines		
Total 350 · Fines and Forfeits		
360 · Miscellaneous Revenue		
361 · Investment Earnings		
369 · Other		
369.01 · Cable Television Franchise Fee		
369 · Other - Other		
Total 369 · Other		
Total 360 · Miscellaneous Revenue		
370-389 · Enterprise Operating Revenue		
370 · Daycare		
370.01 · Daycare Center Fees		
370.02 · State Food Revenue		
370.05 · Other Daycare Revenues		
Total 370 · Daycare		
381 · Water		
381.01 · Metered and Flat RateWaterSales		
381.02 · Bulk Water Sales		
381.90 · Transfers In		
381.99 · Other		
Total 381 · Water		
383 · Sewer		
383.01 · Sewer Charges		
Total 383 · Sewer		
388 · Solid Waste		
388.10 · Solid Waste Collection	70,000.00	70,000.00
388.90 · Transfers In	0.00	6,000.00
Total 388 · Solid Waste	70,000.00	76,000.00

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
Total 370-389 · Enterprise Operating Revenue	70,000.00	76,000.00
391 · Other Financing Sources		
391.01 · Transfers In		
Total 391 · Other Financing Sources		
Total Income	70,000.00	76,000.00
Gross Profit	70,000.00	76,000.00
Expense		
410 · General Government		
411 · Legislative		
411.1 · Board, Council or Commission		
Elections		
Insurance		
Personal Services		
Medicare		
Salaries & Wages - No SDRS		
Social Security		
Total Personal Services		
Publications		
Services and Fees		
Supplies		
Travel & Conference		
Total 411.1 · Board, Council or Commission		
Total 411 · Legislative		
412 · Executive		
412.1 · Mayor		
Personal Services		
Medicare		
Salaries & Wages - No SDRS		
Social Security		
Total Personal Services		
Total 412.1 · Mayor		
Total 412 · Executive		

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
414 · Financial Administration		
414.1 · Legal (Attorney)		
414.2 · Auditor/Clerk or Finance Office		
Equipment		
Insurance		
Work Comp Insurance		
Insurance - Other		
Total Insurance		
Personal Services		
Medicare	0.00	0.00
Retirement		
Salaries & Wages		
Social Security	0.00	0.00
Total Personal Services	0.00	0.00
Repairs and Maintenance		
Services and Fees		
Supplies		
Travel and Conference		
Utilities		
Total 414.2 · Auditor/Clerk or Finance Office	0.00	0.00
Total 414 · Financial Administration	0.00	0.00
419 · Other		
419.2 · General Government Buildings		
Improvements		
Insurance		
Services & Fees		
Supplies		
Utilities		
Total 419.2 · General Government Buildings		
Total 419 · Other		
Total 410 · General Government	0.00	0.00
420 · Public Safety		
421 · Police		
422 · Fire		
429 · Other Protection		

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
Total 420 · Public Safety		
430 · Public Works		
431 · Highways and Streets		
431.2 · Highways, Streets and Roadways		
Improvements Not Buildings		
RR Crossings		
Street Improvements		
Total Improvements Not Buildings		
Insurance		
Machinery and Equipment		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Repairs and Maintenance		
Services and Fees		
Supplies		
Telephone		
Travel and Conference		
Total 431.2 · Highways, Streets and Roadways		
431.6 · Street Lighting		
Total 431 · Highways and Streets		
432 · Sanitation		
432.3 · Solid Waste Collection		
Equipment	1,500.00	1,500.00
Insurance	2,000.00	2,000.00
Landfill Fees	12,000.00	12,000.00
Personal Services		
Medicare	160.00	160.00
Retirement	720.00	720.00
Salaries & Wages	12,000.00	12,000.00
Social Security	700.00	700.00
Unemployment Compensation	65.00	65.00
Total Personal Services	13,645.00	13,645.00

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
Repairs and Maintenance	1,500.00	1,500.00
Supplies	12,000.00	12,000.00
Transfers Out	6,000.00	6,000.00
Total 432.3 · Solid Waste Collection	48,645.00	48,645.00
432.4 · SolidWasteDisposal(RubbleSites)		
Insurance		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Publications		
Total 432.4 · SolidWasteDisposal(RubbleSites)		
432.5 · Sewage Collection and Disposal		
Improvements		
Insurance		
Machinery & Equipment		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Repairs and Maintenance		
Services and Fees		
Supplies		
USDA Loan Repayment		
Utilities		
Total 432.5 · Sewage Collection and Disposal		
Total 432 · Sanitation	48,645.00	48,645.00
433 · Water		
433.1 · Source of Supply		
Hanson Rural Water Fees		
Services and Fees		

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
Supplies		
Utilities		
Total 433.1 · Source of Supply		
433.2 · Power and Pumping		
Utiities		
Total 433.2 · Power and Pumping		
433.4 · Distribution		
Improvements		
Insurance		
Repairs and Maintenance		
Service and Fees		
Supplies		
Total 433.4 · Distribution		
433.5 · Administration and General		
Insurance		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Publications		
Services and Fees		
Supplies		
USDA Loan Repayments		
Total 433.5 · Administration and General		
433.6 · Transfers Out		
Total 433 · Water		
Total 430 · Public Works	48,645.00	48,645.00
450 · Culture-Recreation		
451 · Recreation		
451.1 · CultureRecreationAdministration		
Work Comp Expense		
Total 451.1 · CultureRecreationAdministration		

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
451.23 · Ball Programs Expense		
Improvements		
Insurance		
Other		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Repairs and Maintenance		
Services and Fees		
Supplies		
Utilities		
Total 451.23 · Ball Programs Expense		
451.24 · Swimming Pool Expense		
Capital Expenditures		
Equipment		
Insurance		
Merchandise for Resale		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Publications		
Repairs and Maintenance		
Services and Fees		
Supplies		
Utilities		
Total 451.24 · Swimming Pool Expense		
451.4 · Senior Citizens Activities		
Other		
Services and Fees		
Total 451.4 · Senior Citizens Activities		
Total 451 · Recreation		

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
452 · Parks		
452.2 · Park Areas		
Improvements		
Insurance		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Services and Fees		
Supplies		
Total 452.2 · Park Areas		
452.6 · Park Lighting		
Total 452 · Parks		
Total 450 · Culture-Recreation		
460 · Conservation and Development		
465 · EconomicDevelopment&Assistance		
465.3 · Promoting the City		
Total 465 · EconomicDevelopment&Assistance		
466 · Economic Opportunity		
466.1 · Day Care Centers		
Food and Supplies		
Furniture and Minor Equipment		
Improvements		
Insurance		
Work Comp Insurance		
Insurance - Other		
Total Insurance		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		

	Solid Waste - Other (Solid Waste)	Total Solid Waste (Enterprise)
	Jan - Dec 15	Jan - Dec 15
Publications		
Repairs and Maintenance		
Services and Fees		
Utilities		
Total 466.1 · Day Care Centers		
Total 466 · Economic Opportunity		
Total 460 · Conservation and Development		
510 · Other Financing Uses		
City scholarship		
511 · Operating Transfers Out		
Total 510 · Other Financing Uses		
Total Expense	48,645.00	48,645.00
Net Ordinary Income	21,355.00	27,355.00
Net Income	**21,355.00**	**27,355.00**

City of Emery
City Budget
January through December 2015

	Sewer (Enterprise) Jan - Dec 15	Reserve Fund (Water) Jan - Dec 15
Ordinary Income/Expense		
Income		
310 · Taxes		
311 · General Property Taxes		
311.01 · Current Year Property Taxes		
311.02 · Taxes 1 Year Back		
311.03 · Taxes 2 Years Back		
311.09 · Other		
Total 311 · General Property Taxes		
313 · General Sales and Use Taxes		
315 · Amusement Taxes		
319 · Penalty&InterestOnDelinquentTax		
Total 310 · Taxes		
320 · Licenses and Permits		
321 · Alcoholic Beverage Licenses		
325 · Building Permits		
328 · Livestock Permit		
Total 320 · Licenses and Permits		
330 · Intergovernmental Revenues		
335 · State Shared Revenue		
335.01 · Bank Franchise Tax		
335.02 · Motor Vehicle CommercialProrate		
335.03 · Liquor Tax Reversion		
335.04 · Motor Vehicle Licenses (5%)		
335.08 · LocalGovtHighwayAndBridgeFund		
Total 335 · State Shared Revenue		
Total 330 · Intergovernmental Revenues		
338 · County Shared Revenue		
338.01 · County Road Tax (25%)		
Total 338 · County Shared Revenue		
340 · Charges for Goods and Services		
346 · Culture-Recreation		
346.02 · Swimming Pool Fees		
346.03 Swimming Lessons		

	Sewer (Enterprise) Jan - Dec 15	Reserve Fund (Water) Jan - Dec 15
346.04 Swimming Pool Concession		
Swimming Pool Memberships		
Total 346.02 · Swimming Pool Fees		
Total 346 · Culture-Recreation		
Total 340 · Charges for Goods and Services		
350 · Fines and Forfeits		
352 · Animal Control Fines		
Total 350 · Fines and Forfeits		
360 · Miscellaneous Revenue		
361 · Investment Earnings		
369 · Other		
369.01 · Cable Television Franchise Fee		
369 · Other - Other		
Total 369 · Other		
Total 360 · Miscellaneous Revenue		
370-389 · Enterprise Operating Revenue		
370 · Daycare		
370.01 · Daycare Center Fees		
370.02 · State Food Revenue		
370.05 · Other Daycare Revenues		
Total 370 · Daycare		
381 · Water		
381.01 · Metered and Flat RateWaterSales		
381.02 · Bulk Water Sales		
381.90 · Transfers In		11,000.00
381.99 · Other		
Total 381 · Water		11,000.00
383 · Sewer		
383.01 · Sewer Charges	75,000.00	
Total 383 · Sewer	75,000.00	
388 · Solid Waste		
388.10 · Solid Waste Collection		
388.90 · Transfers In		
Total 388 · Solid Waste		

	Sewer (Enterprise)	Reserve Fund (Water)
	Jan - Dec 15	Jan - Dec 15
Total 370-389 · Enterprise Operating Revenue	75,000.00	11,000.00
391 · Other Financing Sources		
391.01 · Transfers In		
Total 391 · Other Financing Sources		
Total Income	75,000.00	11,000.00
Gross Profit	75,000.00	11,000.00
Expense		
410 · General Government		
411 · Legislative		
411.1 · Board, Council or Commission		
Elections		
Insurance		
Personal Services		
Medicare		
Salaries & Wages - No SDRS		
Social Security		
Total Personal Services		
Publications		
Services and Fees		
Supplies		
Travel & Conference		
Total 411.1 · Board, Council or Commission		
Total 411 · Legislative		
412 · Executive		
412.1 · Mayor		
Personal Services		
Medicare		
Salaries & Wages - No SDRS		
Social Security		
Total Personal Services		
Total 412.1 · Mayor		
Total 412 · Executive		

	Sewer (Enterprise) Jan - Dec 15	Reserve Fund (Water) Jan - Dec 15
414 · Financial Administration		
414.1 · Legal (Attorney)		
414.2 · Auditor/Clerk or Finance Office		
Equipment		
Insurance		
Work Comp Insurance		
Insurance - Other		
Total Insurance		
Personal Services		
Medicare	0.00	
Retirement		
Salaries & Wages		
Social Security	0.00	
Total Personal Services	0.00	
Repairs and Maintenance		
Services and Fees		
Supplies		
Travel and Conference		
Utilities		
Total 414.2 · Auditor/Clerk or Finance Office	0.00	
Total 414 · Financial Administration	0.00	
419 · Other		
419.2 · General Government Buildings		
Improvements		
Insurance		
Services & Fees		
Supplies		
Utilities		
Total 419.2 · General Government Buildings		
Total 419 · Other		
Total 410 · General Government	0.00	
420 · Public Safety		
421 · Police		
422 · Fire		
429 · Other Protection		

	Sewer (Enterprise)	Reserve Fund (Water)
	Jan - Dec 15	Jan - Dec 15
Total 420 · Public Safety		
430 · Public Works		
431 · Highways and Streets		
431.2 · Highways, Streets and Roadways		
Improvements Not Buildings		
RR Crossings		
Street Improvements		
Total Improvements Not Buildings		
Insurance		
Machinery and Equipment		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Repairs and Maintenance		
Services and Fees		
Supplies		
Telephone		
Travel and Conference		
Total 431.2 · Highways, Streets and Roadways		
431.6 · Street Lighting		
Total 431 · Highways and Streets		
432 · Sanitation		
432.3 · Solid Waste Collection		
Equipment		
Insurance		
Landfill Fees		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		

	Sewer (Enterprise) Jan - Dec 15	Reserve Fund (Water) Jan - Dec 15
Repairs and Maintenance		
Supplies		
Transfers Out		
Total 432.3 · Solid Waste Collection		
432.4 · SolidWasteDisposal(RubbleSites)		
Insurance		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Publications		
Total 432.4 · SolidWasteDisposal(RubbleSites)		
432.5 · Sewage Collection and Disposal		
Improvements	10,000.00	
Insurance	1,000.00	
Machinery & Equipment	1,000.00	
Personal Services		
Medicare	50.00	
Retirement	210.00	
Salaries & Wages	3,500.00	
Social Security	210.00	
Unemployment Compensation	20.00	
Total Personal Services	3,990.00	
Repairs and Maintenance	5,500.00	
Services and Fees	12,500.00	
Supplies	750.00	
USDA Loan Repayment	20,000.00	
Utilities	700.00	
Total 432.5 · Sewage Collection and Disposal	55,440.00	
Total 432 · Sanitation	55,440.00	
433 · Water		
433.1 · Source of Supply		
Hanson Rural Water Fees		
Services and Fees		

	Sewer (Enterprise) Jan - Dec 15	Reserve Fund (Water) Jan - Dec 15
Supplies		
Utilities		
Total 433.1 · Source of Supply		
433.2 · Power and Pumping		
Utiities		
Total 433.2 · Power and Pumping		
433.4 · Distribution		
Improvements		
Insurance		
Repairs and Maintenance		
Service and Fees		
Supplies		
Total 433.4 · Distribution		
433.5 · Administration and General		
Insurance		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Publications		
Services and Fees		
Supplies		
USDA Loan Repayments		
Total 433.5 · Administration and General		
433.6 · Transfers Out		
Total 433 · Water		
Total 430 · Public Works	55,440.00	
450 · Culture-Recreation		
451 · Recreation		
451.1 · CultureRecreationAdministration		
Work Comp Expense		
Total 451.1 · CultureRecreationAdministration		

	Sewer (Enterprise)	Reserve Fund (Water)
	Jan - Dec 15	Jan - Dec 15
451.23 · Ball Programs Expense		
Improvements		
Insurance		
Other		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Repairs and Maintenance		
Services and Fees		
Supplies		
Utilities		
Total 451.23 · Ball Programs Expense		
451.24 · Swimming Pool Expense		
Capital Expenditures		
Equipment		
Insurance		
Merchandise for Resale		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Publications		
Repairs and Maintenance		
Services and Fees		
Supplies		
Utilities		
Total 451.24 · Swimming Pool Expense		
451.4 · Senior Citizens Activities		
Other		
Services and Fees		
Total 451.4 · Senior Citizens Activities		
Total 451 · Recreation		

	Sewer (Enterprise)	Reserve Fund (Water)
	Jan - Dec 15	Jan - Dec 15
452 · Parks		
452.2 · Park Areas		
Improvements		
Insurance		
Personal Services		
Medicare		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		
Services and Fees		
Supplies		
Total 452.2 · Park Areas		
452.6 · Park Lighting		
Total 452 · Parks		
Total 450 · Culture-Recreation		
460 · Conservation and Development		
465 · EconomicDevelopment&Assistance		
465.3 · Promoting the City		
Total 465 · EconomicDevelopment&Assistance		
466 · Economic Opportunity		
466.1 · Day Care Centers		
Food and Supplies		
Furniture and Minor Equipment		
Improvements		
Insurance		
Work Comp Insurance		
Insurance - Other		
Total Insurance		
Personal Services		
Medicare		
Retirement		
Salaries & Wages		
Social Security		
Unemployment Compensation		
Total Personal Services		

	Sewer (Enterprise) Jan - Dec 15	Reserve Fund (Water) Jan - Dec 15
Publications		
Repairs and Maintenance		
Services and Fees		
Utilities		
Total 466.1 · Day Care Centers		
Total 466 · Economic Opportunity		
Total 460 · Conservation and Development		
510 · Other Financing Uses		
City scholarship		
511 · Operating Transfers Out		
Total 510 · Other Financing Uses		
Total Expense	55,440.00	
Net Ordinary Income	19,560.00	11,000.00
Net Income	19,560.00	11,000.00

City of Emery
City Budget
January through December 2015

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
Ordinary Income/Expense			
Income			
310 · Taxes			
311 · General Property Taxes			
311.01 · Current Year Property Taxes			
311.02 · Taxes 1 Year Back			
311.03 · Taxes 2 Years Back			
311.09 · Other			
Total 311 · General Property Taxes			
313 · General Sales and Use Taxes			
315 · Amusement Taxes			
319 · Penalty&InterestOnDelinquentTax			
Total 310 · Taxes			
320 · Licenses and Permits			
321 · Alcoholic Beverage Licenses			
325 · Building Permits			
328 · Livestock Permit			
Total 320 · Licenses and Permits			
330 · Intergovernmental Revenues			
335 · State Shared Revenue			
335.01 · Bank Franchise Tax			
335.02 · Motor Vehicle CommercialProrate			
335.03 · Liquor Tax Reversion			
335.04 · Motor Vehicle Licenses (5%)			
335.08 · LocalGovtHighwayAndBridgeFund			
Total 335 · State Shared Revenue			
Total 330 · Intergovernmental Revenues			0.00
338 · County Shared Revenue			
338.01 · County Road Tax (25%)			
Total 338 · County Shared Revenue			
340 · Charges for Goods and Services			
346 · Culture-Recreation			
346.02 · Swimming Pool Fees			
346.03 Swimming Lessons			

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
346.04 Swimming Pool Concession			
Swimming Pool Memberships			
Total 346.02 · Swimming Pool Fees			
Total 346 · Culture-Recreation			
Total 340 · Charges for Goods and Services			
350 · Fines and Forfeits			
352 · Animal Control Fines			
Total 350 · Fines and Forfeits			
360 · Miscellaneous Revenue			
361 · Investment Earnings			
369 · Other			
369.01 · Cable Television Franchise Fee			
369 · Other - Other			
Total 369 · Other			
Total 360 · Miscellaneous Revenue			
370-389 · Enterprise Operating Revenue			
370 · Daycare			
370.01 · Daycare Center Fees			65,000.00
370.02 · State Food Revenue			4,000.00
370.05 · Other Daycare Revenues			1,000.00
Total 370 · Daycare			70,000.00
381 · Water			
381.01 · Metered and Flat RateWaterSales	90,000.00	90,000.00	
381.02 · Bulk Water Sales	500.00	500.00	
381.90 · Transfers In		11,000.00	
381.99 · Other	1,000.00	1,000.00	
Total 381 · Water	91,500.00	102,500.00	
383 · Sewer			
383.01 · Sewer Charges			
Total 383 · Sewer			
388 · Solid Waste			
388.10 · Solid Waste Collection			
388.90 · Transfers In			
Total 388 · Solid Waste			

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
Total 370-389 · Enterprise Operating Revenue	91,500.00	102,500.00	70,000.00
391 · Other Financing Sources			
391.01 · Transfers In			15,000.00
Total 391 · Other Financing Sources			15,000.00
Total Income	91,500.00	102,500.00	85,000.00
Gross Profit	91,500.00	102,500.00	85,000.00
Expense			
410 · General Government			
411 · Legislative			
411.1 · Board, Council or Commission			
Elections			
Insurance			
Personal Services			
Medicare			
Salaries & Wages - No SDRS			
Social Security			
Total Personal Services			
Publications			
Services and Fees			
Supplies			
Travel & Conference			
Total 411.1 · Board, Council or Commission			
Total 411 · Legislative			
412 · Executive			
412.1 · Mayor			
Personal Services			
Medicare			
Salaries & Wages - No SDRS			
Social Security			
Total Personal Services			
Total 412.1 · Mayor			
Total 412 · Executive			

	Water - Other (Water)	Total Water (Enterprise)	(Enterprise)
	Jan - Dec 15	Jan - Dec 15	Jan - Dec 15
414 · Financial Administration			
414.1 · Legal (Attorney)			
414.2 · Auditor/Clerk or Finance Office			
Equipment			
Insurance			
Work Comp Insurance			
Insurance - Other			
Total Insurance			
Personal Services			
Medicare	0.00	0.00	0.00
Retirement			
Salaries & Wages			
Social Security	0.00	0.00	0.00
Total Personal Services	0.00	0.00	0.00
Repairs and Maintenance			
Services and Fees			
Supplies			
Travel and Conference			
Utilities			
Total 414.2 · Auditor/Clerk or Finance Office	0.00	0.00	0.00
Total 414 · Financial Administration	0.00	0.00	0.00
419 · Other			
419.2 · General Government Buildings			
Improvements			
Insurance			
Services & Fees			
Supplies			
Utilities			
Total 419.2 · General Government Buildings			
Total 419 · Other			
Total 410 · General Government	0.00	0.00	0.00
420 · Public Safety			
421 · Police			
422 · Fire			
429 · Other Protection			

	Water - Other (Water)	Total Water (Enterprise)	(Enterprise)
	Jan - Dec 15	Jan - Dec 15	Jan - Dec 15
Total 420 · Public Safety			
430 · Public Works			
431 · Highways and Streets			
431.2 · Highways, Streets and Roadways			
Improvements Not Buildings			
RR Crossings			
Street Improvements			
Total Improvements Not Buildings			
Insurance			
Machinery and Equipment			
Personal Services			
Medicare			
Retirement			
Salaries & Wages			
Social Security			
Unemployment Compensation			
Total Personal Services			
Repairs and Maintenance			
Services and Fees			
Supplies			
Telephone			
Travel and Conference			
Total 431.2 · Highways, Streets and Roadways			
431.6 · Street Lighting			
Total 431 · Highways and Streets			
432 · Sanitation			
432.3 · Solid Waste Collection			
Equipment			
Insurance			
Landfill Fees			
Personal Services			
Medicare			
Retirement			
Salaries & Wages			
Social Security			
Unemployment Compensation			
Total Personal Services			

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
Repairs and Maintenance			
Supplies			
Transfers Out			
Total 432.3 · Solid Waste Collection			
432.4 · SolidWasteDisposal(RubbleSites)			
Insurance			
Personal Services			
Medicare			
Salaries & Wages			
Social Security			
Unemployment Compensation			
Total Personal Services			
Publications			
Total 432.4 · SolidWasteDisposal(RubbleSites)			
432.5 · Sewage Collection and Disposal			
Improvements			
Insurance			
Machinery & Equipment			
Personal Services			
Medicare			
Retirement			
Salaries & Wages			
Social Security			
Unemployment Compensation			
Total Personal Services			
Repairs and Maintenance			
Services and Fees			
Supplies			
USDA Loan Repayment			
Utilities			
Total 432.5 · Sewage Collection and Disposal			
Total 432 · Sanitation			
433 · Water			
433.1 · Source of Supply			
Hanson Rural Water Fees	45,000.00	45,000.00	
Services and Fees	500.00	500.00	

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
Supplies	800.00	800.00	
Utilities	100.00	100.00	
Total 433.1 · Source of Supply	46,400.00	46,400.00	
433.2 · Power and Pumping			
Utiities	500.00	500.00	
Total 433.2 · Power and Pumping	500.00	500.00	
433.4 · Distribution			
Improvements	5,000.00	5,000.00	
Insurance	500.00	500.00	
Repairs and Maintenance	1,000.00	1,000.00	
Service and Fees	500.00	500.00	
Supplies	2,000.00	2,000.00	
Total 433.4 · Distribution	9,000.00	9,000.00	
433.5 · Administration and General			
Insurance	500.00	500.00	
Personal Services			
Medicare	80.00	80.00	
Retirement	360.00	360.00	
Salaries & Wages	6,000.00	6,000.00	
Social Security	400.00	400.00	
Unemployment Compensation	32.00	32.00	
Total Personal Services	6,872.00	6,872.00	
Publications	25.00	25.00	
Services and Fees	10,500.00	10,500.00	
Supplies	500.00	500.00	
USDA Loan Repayments	10,044.00	10,044.00	
Total 433.5 · Administration and General	28,441.00	28,441.00	
433.6 · Transfers Out	11,000.00	11,000.00	
Total 433 · Water	95,341.00	95,341.00	
Total 430 · Public Works	95,341.00	95,341.00	
450 · Culture-Recreation			
451 · Recreation			
451.1 · CultureRecreationAdministration			
Work Comp Expense			
Total 451.1 · CultureRecreationAdministration			

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
451.23 · Ball Programs Expense			
Improvements			
Insurance			
Other			
Personal Services			
Medicare			
Salaries & Wages			
Social Security			
Unemployment Compensation			
Total Personal Services			
Repairs and Maintenance			
Services and Fees			
Supplies			
Utilities			
Total 451.23 · Ball Programs Expense			
451.24 · Swimming Pool Expense			
Capital Expenditures			
Equipment			
Insurance			
Merchandise for Resale			
Personal Services			
Medicare			
Salaries & Wages			
Social Security			
Unemployment Compensation			
Total Personal Services			
Publications			
Repairs and Maintenance			
Services and Fees			
Supplies			
Utilities			
Total 451.24 · Swimming Pool Expense			
451.4 · Senior Citizens Activities			
Other			
Services and Fees			
Total 451.4 · Senior Citizens Activities			
Total 451 · Recreation			

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
452 · Parks			
452.2 · Park Areas			
Improvements			
Insurance			
Personal Services			
Medicare			
Salaries & Wages			
Social Security			
Unemployment Compensation			
Total Personal Services			
Services and Fees			
Supplies			
Total 452.2 · Park Areas			
452.6 · Park Lighting			
Total 452 · Parks			
Total 450 · Culture-Recreation			
460 · Conservation and Development			
465 · EconomicDevelopment&Assistance			
465.3 · Promoting the City			
Total 465 · EconomicDevelopment&Assistance			
466 · Economic Opportunity			
466.1 · Day Care Centers			
Food and Supplies			10,000.00
Furniture and Minor Equipment			250.00
Improvements			10,000.00
Insurance			
Work Comp Insurance			783.52
Insurance - Other			3,000.00
Total Insurance			3,783.52
Personal Services			
Medicare			1,800.00
Retirement			3,600.00
Salaries & Wages			60,000.00
Social Security			4,000.00
Unemployment Compensation			450.00
Total Personal Services			69,850.00

	Water - Other (Water) Jan - Dec 15	Total Water (Enterprise) Jan - Dec 15	(Enterprise) Jan - Dec 15
Publications			100.00
Repairs and Maintenance			500.00
Services and Fees			1,200.00
Utilities			5,000.00
Total 466.1 · Day Care Centers			100,683.52
Total 466 · Economic Opportunity			100,683.52
Total 460 · Conservation and Development			100,683.52
510 · Other Financing Uses			
City scholarship			
511 · Operating Transfers Out			
Total 510 · Other Financing Uses			
Total Expense	95,341.00	95,341.00	100,683.52
Net Ordinary Income	-3,841.00	7,159.00	-15,683.52
Net Income	**-3,841.00**	**7,159.00**	**-15,683.52**

City of Emery
City Budget
January through December 2015

8:34 AM
04/01/2015
Accrual Basis

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
Ordinary Income/Expense		
Income		
310 · Taxes		
311 · General Property Taxes		
311.01 · Current Year Property Taxes		120,000.00
311.02 · Taxes 1 Year Back		750.00
311.03 · Taxes 2 Years Back		500.00
311.09 · Other		100.00
Total 311 · General Property Taxes		121,350.00
313 · General Sales and Use Taxes		150,000.00
315 · Amusement Taxes		48.00
319 · Penalty&InterestOnDelinquentTax		150.00
Total 310 · Taxes		271,548.00
320 · Licenses and Permits		
321 · Alcoholic Beverage Licenses		1,700.00
325 · Building Permits		50.00
328 · Livestock Permit		20.00
Total 320 · Licenses and Permits		1,770.00
330 · Intergovernmental Revenues		
335 · State Shared Revenue		
335.01 · Bank Franchise Tax		500.00
335.02 · Motor Vehicle CommercialProrate		1,750.00
335.03 · Liquor Tax Reversion		3,000.00
335.04 · Motor Vehicle Licenses (5%)		11,500.00
335.08 · LocalGovtHighwayAndBridgeFund		5,000.00
Total 335 · State Shared Revenue		21,750.00
Total 330 · Intergovernmental Revenues	0.00	21,750.00
338 · County Shared Revenue		
338.01 · County Road Tax (25%)		1,500.00
Total 338 · County Shared Revenue		1,500.00
340 · Charges for Goods and Services		
346 · Culture-Recreation		
346.02 · Swimming Pool Fees		
346.03 Swimming Lessons		2,000.00

	Daycare Total Enterprise	TOTAL
	Jan - Dec 15	Jan - Dec 15
346.04 Swimming Pool Concession		2,500.00
Swimming Pool Memberships		8,500.00
Total 346.02 · Swimming Pool Fees		13,000.00
Total 346 · Culture-Recreation		13,000.00
Total 340 · Charges for Goods and Services		13,000.00
350 · Fines and Forfeits		
352 · Animal Control Fines		25.00
Total 350 · Fines and Forfeits		25.00
360 · Miscellaneous Revenue		
361 · Investment Earnings		400.00
369 · Other		
369.01 · Cable Television Franchise Fee		2,500.00
369 · Other - Other		1,113.49
Total 369 · Other		3,613.49
Total 360 · Miscellaneous Revenue		4,013.49
370-389 · Enterprise Operating Revenue		
370 · Daycare		
370.01 · Daycare Center Fees	65,000.00	65,000.00
370.02 · State Food Revenue	4,000.00	4,000.00
370.05 · Other Daycare Revenues	1,000.00	1,000.00
Total 370 · Daycare	70,000.00	70,000.00
381 · Water		
381.01 · Metered and Flat RateWaterSales	90,000.00	90,000.00
381.02 · Bulk Water Sales	500.00	500.00
381.90 · Transfers In	11,000.00	11,000.00
381.99 · Other	1,000.00	1,000.00
Total 381 · Water	102,500.00	102,500.00
383 · Sewer		
383.01 · Sewer Charges	75,000.00	75,000.00
Total 383 · Sewer	75,000.00	75,000.00
388 · Solid Waste		
388.10 · Solid Waste Collection	70,000.00	70,000.00
388.90 · Transfers In	6,000.00	6,000.00
Total 388 · Solid Waste	76,000.00	76,000.00

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
Total 370-389 · Enterprise Operating Revenue	323,500.00	323,500.00
391 · Other Financing Sources		
391.01 · Transfers In	15,000.00	15,000.00
Total 391 · Other Financing Sources	15,000.00	15,000.00
Total Income	338,500.00	652,106.49
Gross Profit	338,500.00	652,106.49
Expense		
410 · General Government		
411 · Legislative		
411.1 · Board, Council or Commission		
Elections		600.00
Insurance		2,000.00
Personal Services		
Medicare		160.00
Salaries & Wages - No SDRS		9,000.00
Social Security		650.00
Total Personal Services		9,810.00
Publications		1,000.00
Services and Fees		1,000.00
Supplies		100.00
Travel & Conference		100.00
Total 411.1 · Board, Council or Commission		14,610.00
Total 411 · Legislative		14,610.00
412 · Executive		
412.1 · Mayor		
Personal Services		
Medicare		50.00
Salaries & Wages - No SDRS		3,000.00
Social Security		180.00
Total Personal Services		3,230.00
Total 412.1 · Mayor		3,230.00
Total 412 · Executive		3,230.00

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
414 · Financial Administration		
414.1 · Legal (Attorney)		2,000.00
414.2 · Auditor/Clerk or Finance Office		
Equipment		500.00
Insurance		
Work Comp Insurance		554.94
Insurance - Other		67.00
Total Insurance		621.94
Personal Services		
Medicare	0.00	130.00
Retirement		750.00
Salaries & Wages		12,500.00
Social Security	0.00	625.00
Total Personal Services	0.00	14,005.00
Repairs and Maintenance		250.00
Services and Fees		2,000.00
Supplies		2,000.00
Travel and Conference		500.00
Utilities		2,000.00
Total 414.2 · Auditor/Clerk or Finance Office	0.00	21,876.94
Total 414 · Financial Administration	0.00	23,876.94
419 · Other		
419.2 · General Government Buildings		
Improvements		500.00
Insurance		1,750.00
Services & Fees		500.00
Supplies		400.00
Utilities		2,000.00
Total 419.2 · General Government Buildings		5,150.00
Total 419 · Other		5,150.00
Total 410 · General Government	0.00	46,866.94
420 · Public Safety		
421 · Police		10,800.00
422 · Fire		194.68
429 · Other Protection		2,000.00

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
Total 420 · Public Safety		12,994.68
430 · Public Works		
431 · Highways and Streets		
431.2 · Highways, Streets and Roadways		
Improvements Not Buildings		
RR Crossings		37,500.00
Street Improvements		75,000.00
Total Improvements Not Buildings		112,500.00
Insurance		9,000.00
Machinery and Equipment		25,000.00
Personal Services		
Medicare		550.00
Retirement		150.00
Salaries & Wages		30,000.00
Social Security		2,200.00
Unemployment Compensation		180.00
Total Personal Services		33,080.00
Repairs and Maintenance		15,000.00
Services and Fees		3,500.00
Supplies		17,000.00
Telephone		600.00
Travel and Conference		100.00
Total 431.2 · Highways, Streets and Roadways		215,780.00
431.6 · Street Lighting		13,000.00
Total 431 · Highways and Streets		228,780.00
432 · Sanitation		
432.3 · Solid Waste Collection		
Equipment	1,500.00	1,500.00
Insurance	2,000.00	2,000.00
Landfill Fees	12,000.00	12,000.00
Personal Services		
Medicare	160.00	160.00
Retirement	720.00	720.00
Salaries & Wages	12,000.00	12,000.00
Social Security	700.00	700.00
Unemployment Compensation	65.00	65.00
Total Personal Services	13,645.00	13,645.00

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
Repairs and Maintenance	1,500.00	1,500.00
Supplies	12,000.00	12,000.00
Transfers Out	6,000.00	6,000.00
Total 432.3 · Solid Waste Collection	48,645.00	48,645.00
432.4 · SolidWasteDisposal(RubbleSites)		
Insurance		1,200.00
Personal Services		
Medicare		50.00
Salaries & Wages		3,500.00
Social Security		250.00
Unemployment Compensation		18.00
Total Personal Services		3,818.00
Publications		50.00
Total 432.4 · SolidWasteDisposal(RubbleSites)		5,068.00
432.5 · Sewage Collection and Disposal		
Improvements	10,000.00	10,000.00
Insurance	1,000.00	1,000.00
Machinery & Equipment	1,000.00	1,000.00
Personal Services		
Medicare	50.00	50.00
Retirement	210.00	210.00
Salaries & Wages	3,500.00	3,500.00
Social Security	210.00	210.00
Unemployment Compensation	20.00	20.00
Total Personal Services	3,990.00	3,990.00
Repairs and Maintenance	5,500.00	5,500.00
Services and Fees	12,500.00	12,500.00
Supplies	750.00	750.00
USDA Loan Repayment	20,000.00	20,000.00
Utilities	700.00	700.00
Total 432.5 · Sewage Collection and Disposal	55,440.00	55,440.00
Total 432 · Sanitation	104,085.00	109,153.00
433 · Water		
433.1 · Source of Supply		
Hanson Rural Water Fees	45,000.00	45,000.00
Services and Fees	500.00	500.00

	Daycare Total Enterprise	TOTAL
	Jan - Dec 15	Jan - Dec 15
Supplies	800.00	800.00
Utilities	100.00	100.00
Total 433.1 · Source of Supply	46,400.00	46,400.00
433.2 · Power and Pumping		
Utiities	500.00	500.00
Total 433.2 · Power and Pumping	500.00	500.00
433.4 · Distribution		
Improvements	5,000.00	5,000.00
Insurance	500.00	500.00
Repairs and Maintenance	1,000.00	1,000.00
Service and Fees	500.00	500.00
Supplies	2,000.00	2,000.00
Total 433.4 · Distribution	9,000.00	9,000.00
433.5 · Administration and General		
Insurance	500.00	500.00
Personal Services		
Medicare	80.00	80.00
Retirement	360.00	360.00
Salaries & Wages	6,000.00	6,000.00
Social Security	400.00	400.00
Unemployment Compensation	32.00	32.00
Total Personal Services	6,872.00	6,872.00
Publications	25.00	25.00
Services and Fees	10,500.00	10,500.00
Supplies	500.00	500.00
USDA Loan Repayments	10,044.00	10,044.00
Total 433.5 · Administration and General	28,441.00	28,441.00
433.6 · Transfers Out	11,000.00	11,000.00
Total 433 · Water	95,341.00	95,341.00
Total 430 · Public Works	199,426.00	433,274.00
450 · Culture-Recreation		
451 · Recreation		
451.1 · CultureRecreationAdministration		
Work Comp Expense		850.00
Total 451.1 · CultureRecreationAdministration		850.00

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
451.23 · Ball Programs Expense		
Improvements		10,000.00
Insurance		3,250.00
Other		4,000.00
Personal Services		
Medicare		23.00
Salaries & Wages		1,500.00
Social Security		110.00
Unemployment Compensation		9.00
Total Personal Services		1,642.00
Repairs and Maintenance		3,000.00
Services and Fees		100.00
Supplies		50.00
Utilities		200.00
Total 451.23 · Ball Programs Expense		22,242.00
451.24 · Swimming Pool Expense		
Capital Expenditures		1,500.00
Equipment		1,500.00
Insurance		1,400.00
Merchandise for Resale		1,500.00
Personal Services		
Medicare		479.57
Salaries & Wages		25,000.00
Social Security		1,500.00
Unemployment Compensation		180.00
Total Personal Services		27,159.57
Publications		300.00
Repairs and Maintenance		5,000.00
Services and Fees		1,500.00
Supplies		13,000.00
Utilities		2,000.00
Total 451.24 · Swimming Pool Expense		54,859.57
451.4 · Senior Citizens Activities		
Other		2,500.00
Services and Fees		2,500.00
Total 451.4 · Senior Citizens Activities		5,000.00
Total 451 · Recreation		82,951.57

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
452 · Parks		
452.2 · Park Areas		
Improvements		35,000.00
Insurance		2,000.00
Personal Services		
Medicare		20.00
Salaries & Wages		1,200.00
Social Security		85.00
Unemployment Compensation		7.50
Total Personal Services		1,312.50
Services and Fees		2,500.00
Supplies		1,500.00
Total 452.2 · Park Areas		42,312.50
452.6 · Park Lighting		500.00
Total 452 · Parks		42,812.50
Total 450 · Culture-Recreation		125,764.07
460 · Conservation and Development		
465 · EconomicDevelopment&Assistance		
465.3 · Promoting the City		5,000.00
Total 465 · EconomicDevelopment&Assistance		5,000.00
466 · Economic Opportunity		
466.1 · Day Care Centers		
Food and Supplies	10,000.00	10,000.00
Furniture and Minor Equipment	250.00	250.00
Improvements	10,000.00	10,000.00
Insurance		
Work Comp Insurance	783.52	783.52
Insurance - Other	3,000.00	3,000.00
Total Insurance	3,783.52	3,783.52
Personal Services		
Medicare	1,800.00	1,800.00
Retirement	3,600.00	3,600.00
Salaries & Wages	60,000.00	60,000.00
Social Security	4,000.00	4,000.00
Unemployment Compensation	450.00	450.00
Total Personal Services	69,850.00	69,850.00

	Daycare Total Enterprise Jan - Dec 15	TOTAL Jan - Dec 15
Publications	100.00	100.00
Repairs and Maintenance	500.00	500.00
Services and Fees	1,200.00	1,200.00
Utilities	5,000.00	5,000.00
Total 466.1 · Day Care Centers	100,683.52	100,683.52
Total 466 · Economic Opportunity	100,683.52	100,683.52
Total 460 · Conservation and Development	100,683.52	105,683.52
510 · Other Financing Uses		
City scholarship		500.00
511 · Operating Transfers Out		15,000.00
Total 510 · Other Financing Uses		15,500.00
Total Expense	300,109.52	740,083.21
Net Ordinary Income	38,390.48	-87,976.72
Net Income	**38,390.48**	**-87,976.72**

Resolution No. 137

WHEREAS, the City of Emery hereby states that the rates for water usage for dwellings, customers, and businesses in Emery are as follows:

(a) For the first one thousand (1000) gallons, or less, of water each month the minimum sum of Twenty dollars and no cents ($20.00), and for all water used over one thousand (1,000) gallons per month, the sum of fifty three cents (.53) per hundred gallons, or part thereof. This shall be paid for as a regular water payment and be credited to the Water Fund. The City shall make charges to such customers at rates fixed pursuant to resolution of the City Council.

THEREFORE BE IT RESOLVED, that the above rates shall be in effect as of July 1, 2014 or until determined otherwise by new resolution, by the Council of the City of Emery.

Passed and approved this 9th day of June 2014, by the City Council of the City of Emery, South Dakota, by the following vote:

Ayes: __6__
Nays: __0__
Absent: __0__

SEAL

City of Emery

By: _____
Joshua A. Kayser
Mayor

ATTEST:

_____
Kara D. Kayser
Finance Officer

CITY OF EMERY

RESOLUTION AUTHORIZING APPLICATION

**AUTHORIZING RESOLUTION # 143

RESOLUTION APPROVING AN APPLICATION FOR FINANCIAL ASSISTANCE, AUTHORIZING THE EXECUTION AND SUBMITTAL OF THE APPLICATION, AND DESIGNATING A REPRESENTATIVE TO CERTIFY AND SIGN PAYMENT REQUESTS.

WHEREAS, The *City of Emery* **(the "*CITY*")** has identified the need to replace its existing water distribution system; and

WHEREAS, the *CITY* has determined that financial assistance will be necessary to undertake the Project and an application for financial assistance to the South Dakota Board of Water and Natural Resources (the "***BOARD***") has been prepared; and

WHEREAS, it is necessary to designate an authorized representative to execute and submit the Application on behalf of the ***CITY*** and to certify and sign payment requests in the event financial assistance is awarded for the Project,

NOW THEREFORE, BE IT RESOLVED,

1. The **CITY hereby** approves the submission of an Application for financial assistance in an amount not to exceed ***$2,200,000*** at an interest rate of 3% for 30 years to the South Dakota Board of Water and Natural Resources for the Project.

2. The **Mayor** is hereby authorized to execute the Application and submit it to the South Dakota Board of Water and Natural Resources, and to execute and deliver such other documents and perform all acts necessary to effectuate the Application for financial assistance.

3. The **Mayor** is hereby designated as the authorized representative of the City to do all things on its behalf to certify and sign payment requests in the event financial assistance is awarded for the Project.

Dated this 2nd day of March 2014

ADOPTED:

Joshua Kayser, Mayor

ATTEST:

Kara Kayser, Finance Officer

JOHNSON ENGINEERING COMPANY

CONSULTING ENGINEERS & SURVEYORS

1800 BROADWAY AVENUE, SUITE 3
YANKTON, SOUTH DAKOTA 57078
PHONE: 605/665-5571
FAX: 605/665-8243

September 16, 2013

Mayor & City Council, City of Emery
P.O. Box 38
Emery, SD 57332

Re: City – Wide Water and Sanitary Sewer System Improvements Cost Estimate Update

Dear Mayor and City Council,

We have completed an update to the original cost estimate dated July 23, 2012 for the above referenced project. The cost estimate below is for the project as shown in the preliminary plans and project manual submitted to you by letter dated June 27, 2012.

Estimated Construction Costs for Water Improvements	$ 1,041,773.95
Estimated Construction Costs for Sanitary Sewer Improvements	$ 1,647,174.11
Design Engineering	$ 176,000.00
Construction Phase Engineering	$ 161,300.00
Administration and Legal Estimate	$ 80,700.00
Contingencies at 10%	$ 268,900.00
Estimated Project Costs for Water and Sanitary Sewer Improvements	$ 3,375,848.06

The above project cost estimate does not include any final surfacing. The surfacing which the City has indicated an interest in in the past is asphalt surface treatment with a small amount of asphalt concrete. The estimated project cost for this asphalt project is $1,689,265.11. The total estimated project cost for all water, sanitary sewer and asphalt surfacing is $5,065,113.17.

We also updated the cost estimate for gravel surfacing for all City streets. This estimated project cost is $756,724.20. The total estimated project cost for all water, sanitary sewer and gravel surfacing is $4,132,572.26.

The City requested an average cost of water, sanitary sewer and surfacing construction costs per block. The estimated construction cost shown below on a per block basis do not include contingencies, administration and legal, design engineering or construction phase engineering costs.

	Estimated Construction Cost per Block
Water – approximately 43 blocks	$24,300
Sanitary Sewer – approximately 42 blocks	$39,300
Asphalt Surface Treatment – approximately 43 blocks	$31,200
Gravel Surfacing – approximately 43 blocks	$13,900

Please see the attached sheets for detailed cost estimates. Please contact me if you would like me to present this information at a City Council meeting, have any questions or require further information.

Sincerely,
Johnson Engineering Co.

Daniel K. Johnson

enclosures

City of Emery Water and Sewer Replacement
Opinion of Probable Construction and Project Costs
Based on Preliminary Plans dated June 27, 2012
Johnson Engineering Company
Date: 9/16/2013

Water Improvements

Mobilization	1	LS	$	45,000.00	$	45,000.00
Remove Fire Hydrant	18	EA	$	183.75	$	3,307.50
Remove Valve Box	13	EA	$	110.25	$	1,433.25
Remove Gate Valve	5	EA	$	110.25	$	551.25
8" PVC Water Main	1,131	LF	$	28.35	$	32,063.85
6" PVC Water Main	15,471	LF	$	25.20	$	389,869.20
6" PVC Water Main by HDD	807	LF	$	48.00	$	38,736.00
8" Gate Valve	2	EA	$	1,186.50	$	2,373.00
6" Gate Valve	71	EA	$	934.50	$	66,349.50
8" Cross	1	EA	$	385.00	$	385.00
8" 90 deg. Bend	1	EA	$	346.50	$	346.50
8" 45 deg. Bend	4	EA	$	283.94	$	1,135.75
8" x 6" Reducer	4	EA	$	252.00	$	1,008.00
8" Tee	1	EA	$	444.00	$	444.00
8" x 6" Reducing Tee	3	EA	$	388.50	$	1,165.50
6" 90 deg. Bend	15	EA	$	273.00	$	4,095.00
6" 45 deg. Bend	14	EA	$	227.50	$	3,185.00
6" Tee	47	EA	$	352.80	$	16,581.60
6" Fire Hydrant	36	EA	$	2,940.00	$	105,840.00
Tie-in to Existing 4" to 8" Water Main	15	EA	$	735.00	$	11,025.00
Water Main Bedding Material	3865	ton	$	10.00	$	38,650.00
Special Foundation Material	582	ton	$	11.03	$	6,416.55
6" Water Main Cased Hwy / Railroad Bore	345	LF	$	210.00	$	72,450.00
Water Service Connection	164	EA	$	1,150.00	$	188,600.00
Locate Owner's Existing Utility Line	50	EA	$	215.25	$	10,762.50
Subtotal of Estimated Construction Costs					$	1,041,773.95

Sanitary Sewer Improvements

Mobilization	1	LS	$	90,000.00	$	90,000.00
Abandon Manhole	40	EA	$	924.98	$	36,999.16
48" Manhole (up to 8' deep)	56	EA	$	3,174.86	$	177,792.38
Additional Depth for 48" Manhole	329	LF	$	325.83	$	107,196.77
12" Sewer PVC, 20' - 22' deep	737	LF	$	98.61	$	72,671.89
12" Sewer PVC, 18' - 20' deep	714	LF	$	92.61	$	66,119.97
12" Sewer PVC, 16' - 18' deep	360	LF	$	85.61	$	30,817.80
12" Sewer PVC, 14' - 16' deep	1245	LF	$	58.61	$	72,963.23
12" Sewer PVC, 12' - 14' deep	1054	LF	$	39.61	$	41,743.67
12" Sewer PVC, 6' - 8' deep	200	LF	$	33.61	$	6,721.00
10" Sewer PVC, 14' - 16' deep	1447	LF	$	49.05	$	70,978.24
10" Sewer PVC, 12' - 14' deep	361	LF	$	34.05	$	12,292.77
8" Sewer PVC, 18' - 20' deep	724	LF	$	70.17	$	50,803.08
8" Sewer PVC, 16' - 18' deep	711	LF	$	65.17	$	46,335.87
8" Sewer PVC, 14' - 16' deep	3436	LF	$	45.17	$	155,204.12
8" Sewer PVC, 12' - 14' deep	3426	LF	$	30.17	$	103,362.42
8" Sewer PVC, 10' - 12' deep	450	LF	$	29.17	$	13,126.50
8" Sewer PVC, 8' - 10' deep	297	LF	$	28.17	$	8,366.49
8" Cased Highway / Railroad Sewer Main Bore	345	LF	$	286.00	$	98,670.00
Sanitary Sewer Bedding Material	4519.5	ton	$	15.00	$	67,792.50
Special Foundation Material	550	ton	$	11.03	$	6,063.75
Sanitary Sewer Bypass Pumping	1	LS	$	50,000.00	$	50,000.00
Well or Well Point Dewatering	3799	LF	$	10.00	$	37,990.00
Sewer Service Connection	177	EA	$	950.00	$	168,150.00
Locate Existing Sewer Service	177	EA	$	250.00	$	44,250.00
Locate Owner's Existing Utility Line	50	EA	$	215.25	$	10,762.50
Subtotal of Sanitary Sewer Estimated Construction Costs					$	1,647,174.11

Subtotal of All Estimated Construction Costs	$	2,688,948.06
Contingencies	$	268,900.00
Administration & Legal	$	80,700.00
Design Engineering	$	176,000.00
Constuction Phase Engineering	$	161,300.00
Total Estimated Project Cost	$	3,375,848.06

City of Emery Water and Sewer Replacement
Opinion of Probable Construction and Project Costs
Johnson Engineering Company
Date: 9/16/2013

Grading and Surfacing Improvements for Asphalt Final Surfacing

Mobilization	1	LS	$	62,000.00	$	62,000.00
Clearing	1	LS	$	20,000.00	$	20,000.00
Unclassified Excavation	17,543	CY	$	5.67	$	99,468.81
Base Course (placed to a depth of 14")	35,086.0	ton	$	15.37	$	539,166.56
Gravel Surfacing	2,274.0	ton	$	22.66	$	51,528.84
Gravel Cushion	194.0	ton	$	16.74	$	3,247.95
Water for Granular Material	420.0	Mgal	$	21.10	$	8,861.16
Remove Sidewalk	484.0	SY	$	10.23	$	4,951.32
Remove Concrete Driveway	25.0	SY	$	6.15	$	153.73
Remove Curb and Gutter	248.0	LF	$	5.50	$	1,364.00
Remove Asphalt Concrete Pavement	24,505.2	SY	$	5.63	$	138,013.29
Remove Concrete Pavement	2,150.0	SY	$	3.59	$	7,709.90
4" Sidewalk	4,354.0	SF	$	5.47	$	23,803.32
4" Concrete Driveway Pavement	224.0	SF	$	5.00	$	1,120.00
Special Concrete Curb and Gutter	248.0	LF	$	25.94	$	6,433.12
MC-70 Asphalt for Prime	28.6	ton	$	962.67	$	27,532.36
AE150S Asphalt for Surface Treatment	35.8	ton	$	609.58	$	21,822.96
Blotting Sand for Prime	24.3	ton	$	52.53	$	1,276.48
Type 1B Cover Aggregate	720.0	ton	$	40.78	$	29,361.60
Woven Geotextile Separator	45,098	SY	$	2.44	$	110,039.12
Asphalt Concrete Composite	1,166.0	ton	$	113.10	$	131,874.60
Seeding, Fertilizing and Mulching	4.6	acre	$	2,000.00	$	9,200.00
High Flow Silt Fence	2,400	LF	$	4.04	$	9,696.00
Traffic Control	6,000	Units	$	2.49	$	14,940.00
Traffic Control, Miscellaneous	1	LS	$	16,000.00	$	16,000.00
Subtotal of Grading and Asphalt Surfacing Estimated Construction Costs					$	1,339,565.11
Contingencies					$	134,000.00
Administration & Legal					$	40,200.00
Design Engineering					$	95,100.00
Constuction Phase Engineering					$	80,400.00
Total Estimated Project Cost					$	1,689,265.11

City of Emery Water and Sewer Replacement
Opinion of Probable Construction and Project Costs
Johnson Engineering Company
Date: 9/16/2013

Grading and Surfacing Improvements for Gravel Final Surfacing

Mobilization	1	LS	$	27,000.00	$	27,000.00
Clearing	1	LS	$	20,000.00	$	20,000.00
Unclassified Excavation	5,006	CY	$	5.67	$	28,384.02
Gravel Surfacing	12,286.0	ton	$	22.66	$	278,400.76
Gravel Cushion	194.0	ton	$	16.74	$	3,247.95
Water for Granular Material	120.0	Mgal	$	21.10	$	2,531.76
Remove Sidewalk	484.0	SY	$	10.23	$	4,951.32
Remove Concrete Driveway	25.0	SY	$	6.15	$	153.73
Remove Curb and Gutter	248.0	LF	$	5.50	$	1,364.00
Remove Asphalt Concrete Pavement	24,505.2	SY	$	5.63	$	138,013.29
Remove Concrete Pavement	2,150.0	SY	$	3.59	$	7,709.90
4" Sidewalk	4,354.0	SF	$	5.47	$	23,803.32
4" Concrete Driveway Pavement	224.0	SF	$	5.00	$	1,120.00
Special Concrete Curb and Gutter	248.0	LF	$	27.17	$	6,738.16
Seeding, Fertilizing and Mulching	4.6	acre	$	2,000.00	$	9,200.00
High Flow Silt Fence	2,400	LF	$	4.24	$	10,164.00
Traffic Control	6,000	Units	$	2.61	$	15,642.00
Traffic Control, Miscellaneous	1	LS	$	16,000.00	$	16,000.00
Subtotal of Grading and Gravel Surfacing Estimated Construction Costs					$	594,424.20
Contingencies					$	59,400.00
Administration & Legal					$	17,800.00
Design Engineering					$	49,400.00
Constuction Phase Engineering					$	35,700.00
Total Estimated Project Cost					$	756,724.20

CITY OF EMERY

CAPACITY ASSESSMENT WORKSHEETS

6.8.14. Financial Spreadsheet

Applicant: City of Emery
Completed by: Kara Kayser, Finance Officer and Brian McGinnis PDDIII
Date: 3/30/2015

4 Year Projections	Last Year Actual	Current Year Budget Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected
Enter Year:	2014	2015	2016	2017	2018
1. Beginning Cash on Hand	$ 110,101.00	$ 114,042.91	$ 121,201.91	$ 126,473.06	$ 14,812.93
2. Cash Receipts:					
a. Unmetered Water Revenue	$ 948.60	$ 500.00	$ 510.00	$ 520.20	$ 530.60
b. Metered Water Revenue	$ 85,000.00	$ 90,000.00	$ 91,800.00	$ 93,636.00	$ 95,508.72
c. Other Water Revenue	$ 1,000.00	$ 1,000.00	$ 1,020.00	$ 1,040.40	$ 1,061.21
d.Total Water Revenues (2a thru 2c)	$ 86,948.60	$ 91,500.00	$ 93,330.00	$ 95,196.60	$ 97,100.53
e. Connection Fees	$ 100.00	$ 100.00	$ 102.00	$ 104.04	$ 106.12
f. Interest and Dividend Income		$ -		$ -	$ -
g. Other Income	$ -	$ -	$ -	$ -	$ -
h.Total Cash Revenues (2d thru 2g)	$ 87,048.60	$ 91,600.00	$ 93,432.00	$ 95,300.64	$ 97,206.65
i. Transfers in/Additional Rev Needed	$ 8,512.53	$ 11,000.00	$ 11,220.00	$ 11,444.40	$ 11,673.29
j. Loans, Grants or other Cash Injection	$ -	$ -	$ -	$ -	$ -
Please specify	$ -	$ -	$ -	$ -	$ -
		$ -	$ -	$ -	$ -
	$ -	$ -	$ -	$ -	$ -
3. Total Cash Receipts (2h thru 2j)	$ 95,561.13	$ 102,600.00	$ 104,652.00	$ 106,745.04	$ 108,879.94
4. Total Cash Available (1+3)	$ 205,662.13	$ 216,642.91	$ 225,853.91	$ 233,218.10	$ 123,692.87
5. Operating Expenses					
a. Salaries and wages	$ 5,103.69	$ 6,972.00	$ 7,320.60	$ 7,686.63	$ 8,070.96
b. Employee Pensions and Benefits	$ -	$ -	$ -	$ -	$ -
c. Purchased Water	$ 38,945.70	$ 45,000.00	$ 47,250.00	$ 49,612.50	$ 52,093.13
d. Purchased Power	$ 2,596.55	$ 600.00	$ 630.00	$ 661.50	$ 694.58
e. Fuel for Power Production		$ -	$ -	$ -	$ -
f. Chemicals	$ -	$ -	$ -	$ -	$ -
g. Materials and Supplies	$ 25,416.75	$ 20,825.00	$ 21,866.25	$ 22,959.56	$ 24,107.54
h. Contractual Services - Engineering	$ -	$ -	$ -	$ -	$ -
i. Contractual Services - Other	$ -	$ -	$ -	$ -	$ -
j. Rental of Equipment/Real Property	$ -	$ -	$ -	$ -	$ -
k. Transportation Expenses	$ -	$ -		$ -	$ -
l. Laboratory	$ 1,000.00	$ 1,000.00	$ 1,050.00	$ 1,102.50	$ 1,157.63
m. Insurance		$ -		$ -	$ -
n. Regulatory Commission Expenses	$ -	$ -	$ -	$ -	$ -
o. Repairs/Maintenance				$ -	$ -
p. Miscellaneous			$ -	$ -	$ -
q.Total Cash 0&M Expenses (5a thru 5p)	$ 73,062.69	$ 74,397.00	$ 78,116.85	$ 82,022.69	$ 86,123.83
r. Replacement Expenditures				$ -	$ -
s.Total OM&R Expenditures (5q+r)	$ 73,062.69	$ 74,397.00	$ 78,116.85	$ 82,022.69	$ 86,123.83
t. Loan Principal and Loans	$ 2,891.89	$ 2,891.89	$ 2,891.89	$ 46,286.41	$ 46,286.41
u. Loan Interest Payments	$ 7,152.11	$ 7,152.11	$ 7,152.11	$ 78,652.07	$ 78,652.07
v. Transfers Out	$ 8,512.53	$ 11,000.00	$ 11,220.00	$ 11,444.00	$ 11,673.29
w. Capital Purchases (specify):			$ -		$ -
	$ -	$ -	$ -	$ -	$ -
	$ -	$ -	$ -	$ -	$ -
x. Other	$ -	$ -	$ -	$ -	$ -
6. Total Cash Paid Out (5s thru 5x)	$ 91,619.22	$ 95,441.00	$ 99,380.85	$ 218,405.17	$ 222,735.60
7. Ending Cash Position (4 - 6)	$ 114,042.91	$ 121,201.91	$ 126,473.06	$ 14,812.93	$ (99,042.73)
8. Number of Customer Accounts	$ 197	$ 200	$ 205	$ 207	$ 210
9. Average Annual User Charge per Account (2d/8)	$ 441.36	$ 457.50	$ 455.27	$ 459.89	$ 462.38
10. Coverage Ratio (2h-5s)/(5t+5u)	15.9410	16.5270	17.0797	1.4193	1.4674
11. Operating Ratio (2d/5s)	1.1901	1.2299	1.1947	1.1606	1.1275
12. Additions to Reserve Funds for the Year					
a. Debt Service Reserve	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 12,500.00	$ 12,500.00
b. Bond Retirement Reserve	$ -	$ -			
c. Capital Improvement Reserve	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00
d. Replacement Reserve	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
e. O&M Reserve	$ 37,600.00	$ 37,600.00	$ 39,500.00	$ 41,500.00	$ 43,500.00
13. Total Reserves (12a thru 12e)	$ 113,600.00	$ 113,600.00	$ 115,500.00	$ 129,000.00	$ 131,000.00
14. Year End Operating Cash (7-13)	$ 442.91	$ 7,601.91	$ 10,973.06	$ (114,187.07)	$ (230,042.73)

Facility Plan for
Water Distribution, Wastewater Collection, and Storm Water Collection Systems
in
Emery, South Dakota

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of South Dakota.

SPN #10906

December 2001

By _____
Harlan J. Quehzer, P.E.

Registration No. SD #2726

Date March 1, 2002

SCHMUCKER, PAUL, NOHR & ASSOCIATES
CONSULTING ENGINEERS - SURVEYORS
620 NORTH LAWLER, PO BOX 398
MITCHELL, SOUTH DAKOTA 57301

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1 INTRODUCTION

1.1 Purpose

The City of Emery contracted with the engineering firm of Schmucker, Paul, Nohr and Associates (SPN) to complete an investigation of its existing water distribution system; sewage collection and treatment system; and storm water sewer and drainage system. The purpose of the study is to identify problems and deficiencies that exist within these systems and to identify possible alternatives for the correction of the identified problems and deficiencies.

The results of the completed study are presented in this facility plan. The facility plan contains the information on which the City Council of Emery can make cost-effective decisions. The City Council will, after appropriate public input, determine what its best options are to make any needed improvements that are identified in the facility plan. As loan and grant funding will undoubtedly be desired to make the improvements that are recommended herein, the identified project(s) will need to be placed on the State Water Plan. The facility plan that is herewith presented will be a valuable tool for the community to utilize in its efforts to make needed public improvements.

1.2 Scope

The scope of the study authorized by the city council in the Agreement for Engineering services dated December 7, 2001 includes:

1) The completion of an analysis of the existing water distribution system relating to water losses in the system, an identification of system age, an evaluation of current water pressures and fire flow capacities and an evaluation of current and future needs.
2) The completion of an analysis of the existing wastewater collection and treatment system relating to wastewater flows at the treatment facility including the identification of potential sources of inflow into the wastewater collection system.

3) The review of the State of South Dakota Department of Environment and Natural Resources' (SD DENR) requirements and Emery's wastewater discharge permit and past history of operation records to determine compliance with regulatory standards.
4) The completion of an evaluation of the capability of the current wastewater treatment facility to meet present and future requirements, the identification and evaluation of alternate solutions available to Emery and the recommendation of those solutions, which in SPN's judgment meet Emery's requirements for the project(s).
5) The completion of an analysis of the existing storm water sewer and drainage system, an identification of drainage needs and the identification and evaluation of alternate solutions available to meet the identified needs.
6) The completion of a general economic analysis of Emery's requirements applicable to various alternatives.

2 COMMUNITY DESCRIPTION

The City of Emery is located in southeastern Hanson County, South Dakota, approximately 25 miles southeast of Mitchell, the regional trade center for the area. It is located on SD State Highway 262, about six miles southeast of the intersections of State Highway 25 and Interstate Highway 90. Emery is a rural community with a population of 439, according to the 2000 census. More than 26% of its population was over the age of 65 at the time the census data was collected.

Emery is typical of many of South Dakota's municipalities. It serves the surrounding agricultural area by providing basic shopping and other essential services to the surrounding community. It has very few empty buildings and most are in good repair. The community is also within easy commuting distance of Mitchell, which has several retail and manufacturing facilities that can provide employment opportunities for Emery's residents. A public grade school and high school serve the town and surrounding farming community.

Although regional manufacturing employment opportunities enhance the economic activity of the area, farming and associated agricultural businesses provide the primary economic resource in and around Emery. Most of the farm income is derived from the sale of cash crops, livestock and livestock products.

2.1 Population Characteristics

According to 2000 census data, Emery has a population of 439 persons. Census data relating to household incomes from the 2000 census was not available at the time this report was being prepared. However, information supplied by the Governor's Office of Economic Development based on the latest data that is available indicates that 18.1% of the Emery's population has an income that is at or below the poverty level and 51.52% of the residents have incomes that are at or below the low-moderate income threshold established for the area. The 1990 median household income was $14,375, which is $7,545 below the median household income for Hanson County.

2.2 Projected Population

It is not economically feasible to make frequent changes in the capacity of a wastewater treatment system or water distribution system. Therefore, a system is generally designed to meet a flow or demand capacity over a selected design period. This design period is selected as a compromise between high costs to future users associated with frequent construction programs and high costs to present users associated with providing future growth capacity. It is customary to use at least 20 years as a design period when determining the capacity of a wastewater treatment system or water distribution system. As most of Emery's wastewater collection system and water distribution system was constructed in or about 1922, it is evident that the systems are operating beyond the 20-year design period. Therefore, new projections of population and flow are included in this report in order to evaluate the systems at future flows.

To project the future population of Emery, the census data shown in Table 2.1 was plotted on a graph. The graph of this data, shown in Figure 2.1, indicates that Emery has been experiencing a steady growth rate over the last 20 years. This is expected to continue, as discussion continues on further housing development. Therefore, to project Emery's population the trend line of growth for the last 20 years was extended into the future. The resulting future population estimates are included with the historic data in Table 2.1 and as shown on Figure 2.1. The projected population that will be used throughout this report for the year 2030 will be 500 people.

Table 2-1 Historical Population Statistics and Projected Population

YEAR	POPULATION	YEAR	POPULATION
1940	482	1990	417
1950	480	2000	439
1960	502	2010	460*
1970	452	2020	480*
1980	399	2030	500*

*1930 THROUGH 2000 ACTUAL CENSUS DATA; 2010 AND 2020 DATA IS PROJECTED.

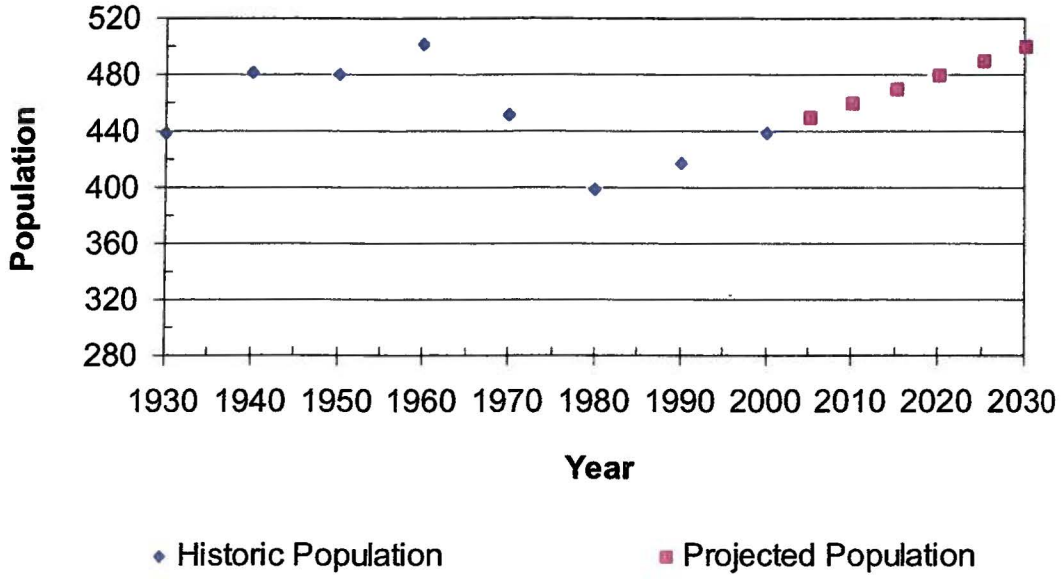

Figure 2-1 Historical Population Statistics and Projected Population

2.3 Environmental Review Information

As part of the environmental assessment requirement for the facility planning process, the project sponsor is required to contact various state and federal agencies. Information related to the various contacts made and responses received from those agencies that responded are found in Appendix A. Other information related to the environment is to be provided as part of the overall information contained in the facility plan.

2.3.1 Climate

Generally, the area's climate is described as a continental climate, characterized by relatively long, cold winters and fairly hot summers. Average temperatures can range from 30 degrees (F) below zero in the winter to above 100 degrees (F) in the summer. Based on data obtained from the nearby Bridgewater reporting station, the area around Emery receives about 22 to 23 inches of precipitation annually. About 74% of the total annual precipitation (17 inches) falls as rain between April and September (the growing season), while precipitation received from November through March is generally received as snowfall. Average annual lake evaporation between March and October is about 36 to 38 inches.

2.3.2 Historical and Archaeological Sites

The State Historical Preservation Office was contacted for input on the proposed improvements. Since the project is confined to previously disturbed areas, no effect on historic properties is expected. Correspondence related to this contact will be placed in Appendix A upon receipt.

2.3.3 Floodplains and Wetlands

The US Fish and Wildlife Service, the US Army Corps of Engineers and the South Dakota Department of Game, Fish and Parks, were contacted for input related to the proposed improvements. No floodplains or wetlands in the area are expected to be involved in the project. No permits required by the Clean Water Act are anticipated to be required. Correspondence related to this contact will be placed in Appendix A upon receipt.

2.3.4 Agricultural Lands

The US Department of Agriculture's State Soils Scientist was contacted for input on the proposed improvements. Since the project is confined to previously disturbed areas, no effect on historic properties is expected. Correspondence related to this contact will be placed in Appendix A upon receipt.

2.3.5 Wild and Scenic Rivers

Research indicates that there are no designated wild and scenic rivers in the area. Therefore, the proposed improvements will have no impact on this resource.

2.3.6 Fish and Wildlife Protection

The US Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks were contacted for input on the proposed improvements. No impacts to endangered wildlife or critical habitats are expected in the area due to the project. Correspondence related to this contact will be placed in Appendix A upon receipt.

2.3.7 Water Quality and Quantity

The South Dakota Department of Environment and Natural Resources was contacted for input on the proposed improvements. No effect on water quality and quantity is expected due to the project. Correspondence related to this contact will be placed in Appendix A upon receipt.

2.3.8 Direct and Indirect Impacts

Soil erosion, noise pollution, traffic obstruction, and increased surface runoff due to dewatering operations sometimes impact the environments during this type of project. However, these impacts are temporary and will not influence the environment over the long term. Enhanced human health and safety and more efficient delivery and treatment of municipal waste are positive impacts to the environment that will have long-lasting value.

2.3.9 Mitigating Adverse Impacts

Adverse impacts will be minimized to the greatest extent possible by the implementation of accepted cautionary measures. Temporary and permanent erosion control will be included in construction contracts. Protection of public health, safety, and welfare will also be incorporated into the specifications and contract documents. Appropriate permits will be obtained before discharging and trench or storm waters. Additionally, should any permanent adverse impacts result from the project, mitigating measures will be followed to the satisfaction of the appropriate review agency.

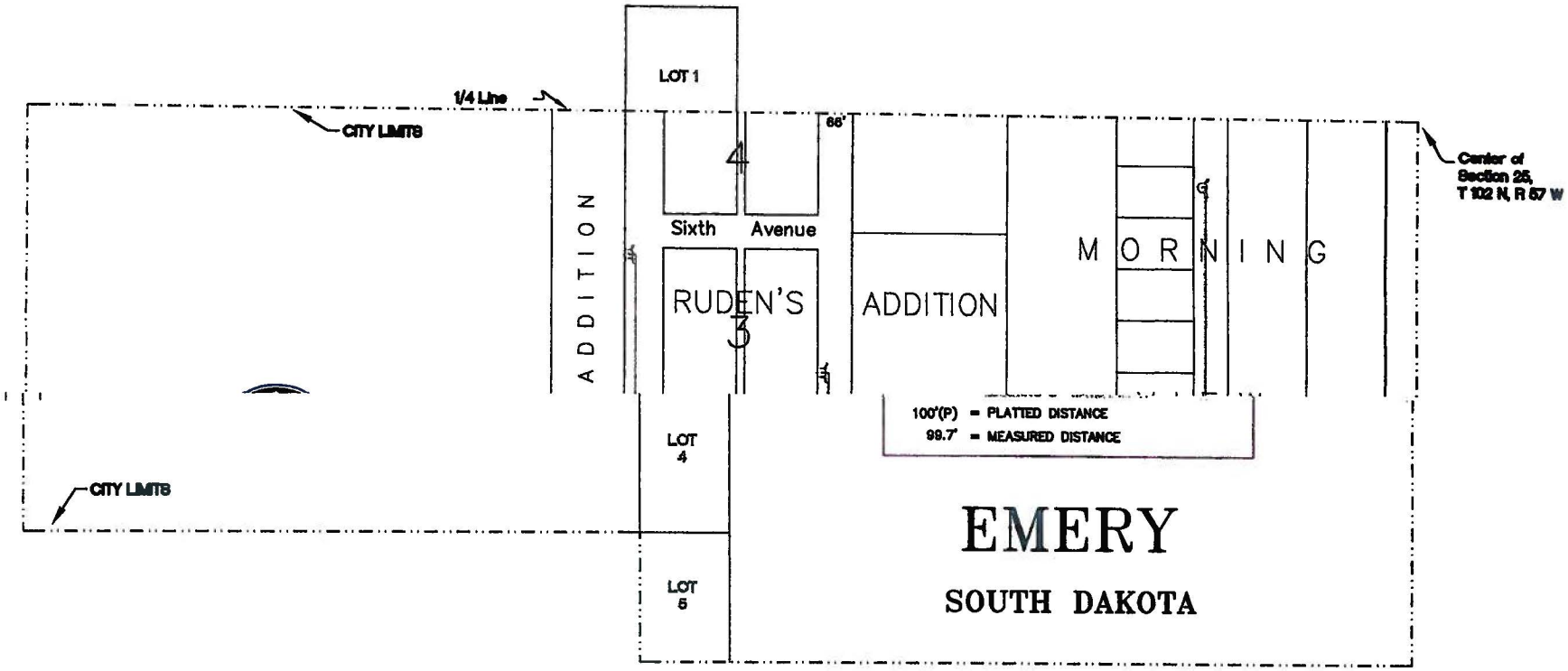

Figure 3-1

EXISTING WATER DISTRIBUTION SYSTEM

3 EVALUATION OF EXISTING FACILITIES

3.1 Water System

The City of Emery currently provides water service to approximately 215 connections. Water is supplied to the City of Emery by the Hanson Rural Water System (HRWS).

Research of available information indicates that the core of the existing water distribution system was constructed in 1922. Some new lines have been installed as the community expanded and piecemeal rehabilitation has been occurring over the past 15 to 20 years. However, much of the originally installed piping is still in service. Emery's current water distribution system consisting of four, six, and eight-inch cast iron water main, is shown in figure 3-1.

City officials have reported that the water distribution system includes some lead service lines. The exact location and number of these types of service lines are unknown. Therefore, a specific program for replacement has not been developed as part of this study. It is, however, recommended that when lead service lines are encountered during any repair or replacement project, the lead material be removed and replaced with material acceptable to the SD DENR.

3.1.1 Water Usage

To evaluate the ability of the City of Emery's potential to meet the needs of the future, a review of past water usage records was completed. The process used to estimate future water demand included a determination of the current average per capita demand combined with a projection of the future population. Water purchase and sales records dated from January 1995 to December 2001 were available. Table 3-1 was created using these water use records. For additional tables and figures, which relate to Emery water usage, see Appendix B.

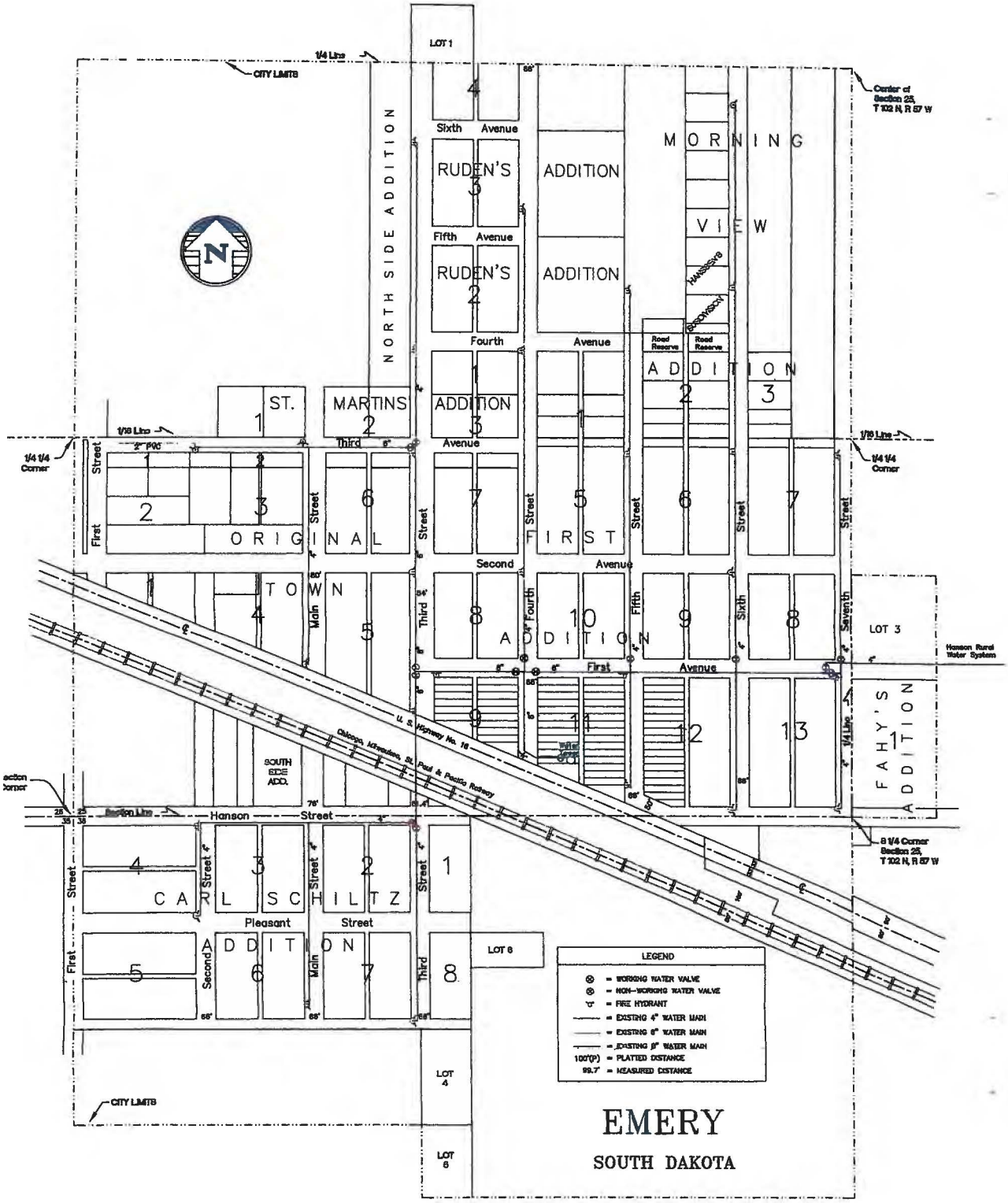

Figure 3-1
EXISTING WATER DISTRIBUTION SYSTEM

The sources and methods used to develop the information presented in Table 3-1 is described in the following:

- Water purchased per month; based on data provided by HRWS.
- Water sold per month; based data provided by the Town of Emery.
- Water accounted for per month; calculated by adding to the water sold per month an estimated amount of 0.4 million gallons per year. (This represents the town's uses at the swimming pool and in the park split equally and added to the months July, August, and September).
- The percentage of unaccounted for water per month and year; calculated by dividing the difference between water purchased and water accounted for by the water purchased.
- Per capita per day usage for each month; calculated by dividing the water accounted for by the population and the days per month.
- Annual sum of water usages; calculated by summing up the columns.
- Two average day values were calculated for each year. The accounted for use and the water purchased for each year was calculated by dividing the sum of the water for each month by the days in the year.
- The 1990 and 2000 census values were used to interpolate or extrapolate the population for each year.

Table 3-1 Water Usage Data

	1995					1996					1997				
	Bought	Sold	Unacc.	Precip.	Per Capita	Bought	Sold	Unacc.	Precip.	Per Capita	Bought	Sold	Unacc.	Precip.	Per Capita
Month	MG	MG	for %	in.	gpcpd	MG	MG	for %	in.	gpcpd	MG	MG	for %	in.	gpcpd
January	0.84	0.52	38	0.1	40	0.83	0.73	12	0.65	55	0.87	0.83	5	0.05	62
February	0.83	0.44	47	0.05	37	0.71	0.84	-19	0.05	68	1.02	0.78	24	1.55	64
March	0.77	0.54	30	3.8	41	0.82	0.65	21	0.35	49	0.82	0.79	3	0	59
April	0.73	0.48	34	3.8	37	0.75	0.88	-18	1.15	68	0.75	0.78	-4	2.65	60
May	0.96	0.45	53	8.4	34	0.81	0.80	1	7.45	60	0.90	0.82	10	4.2	61
June	0.71	0.55	22	2.15	43	1.11	1.04	6	2.15	81	0.90	0.90	0	6.9	69
July	1.10	0.78	29	3.25	59	1.32	1.02	22	1.3	77	1.40	0.94	33	3.1	70
August	1.12	0.76	32	3.2	57	1.68	1.26	25	4.3	94	1.23	1.06	13	2.75	79
September	1.55	0.73	53	3.4	57	1.45	1.21	16	6.5	93	1.38	1.22	11	2.75	94
October	1.30	0.56	57	5.3	42	1.55	1.10	29	1.85	82	1.30	0.92	29	1.7	69
November	0.88	0.43	51	0.75	34	1.04	0.78	25	1.05	60	1.07	1.09	-2	0	84
December	0.71	0.61	15	0	46	0.96	0.84	12	0.65	63	0.88	1.05	-18	0	78
Annual (mgy)	11.49	6.84				13.01	11.15				12.52	11.17			
Average Day (mgd)	0.031	0.019				0.036	0.030				0.034	0.031			
Accounted Use (mgy)*	7.24					11.55					11.57				
Population	428					430					432				
Average Day (gpcpd)	43.8					70.9					70.9				
Average Unacc %	37.0					11.2					7.5				

Table 3-1 Water Usage Data, Continued

	1998					1999				
Month	Bought MG	Sold MG	Unacc. for %	Precip. in.	Per Capita gpcpd	Bought MG	Sold MG	Unacc. for %	Precip. in.	Per Capita gpcpd
January	0.87	0.90	-4	0.1	67	1.00	1.07	-7	0.1	79
February	0.78	0.67	14	0.4	55	0.90	0.68	25	0.5	56
March	0.85	0.93	-10	2.95	69	0.81	0.66	18	0.5	49
April	0.71	0.84	-18	4.05	64	0.74	0.79	-7	6.1	60
May	0.86	0.73	15	1.05	54	0.90	0.65	28	4.7	48
June	0.94	0.94	-1	5.6	72	0.87	0.93	-8	4.6	71
July	1.25	1.01	19	3.5	75	1.45	0.79	45	5.55	58
August	1.18	0.97	18	4.75	72	2.84	0.93	67	3.2	68
September	0.91	0.92	-1	1.7	71	1.26	0.94	25	6.05	72
October	1.61	1.02	36	7.6	76	1.48	0.76	49	0.4	56
November	0.83	0.72	13	1.5	55	0.89	0.91	-2	0	70
December	0.84	0.79	5	0	58	0.97	0.91	6	0.05	67
Annual (mgy)	11.63	10.47				14.11	10.02			
Average Day (mgd)	0.032	0.029				0.039	0.027			
Accounted Use (mgy)*	10.87					10.42				
Population	435					437				
Average Day (gpcpd)	65.9					62.8				
Average Unacc %	6.5					26.1				

Table 3-1 Water Usage Data, Continued

	2000					2001				
	Bought	Sold	Unacc.	Precip.	Per Capita	Bought	Sold	Unacc.	Precip.	Per Capita
Month	MG	MG	for %	in.	gpcpd	MG	MG	for %	in.	gpcpd
January	0.90	0.79	13	0.52	58	0.81	0.86	-6	1.5	63
February	0.85	0.77	9	1.3	60	0.95	0.73	23	0.65	59
March	0.90	0.74	18	1.2	54	0.78	0.75	3	0.35	55
April	0.84	0.83	1	2.4	63	0.85	0.77	10	7.6	58
May	0.94	0.74	21	6.8	54	0.93	0.84	9	2.75	62
June	1.12	0.86	23	5.25	65	0.88	0.84	5	3.55	64
July	1.40	1.09	22	3.6	80	1.41	1.12	21	8.11	82
August	1.47	1.00	32	5.7	74	1.50	1.10	27	1.6	80
September	1.37	1.14	17	0.82	86	1.42	1.12	21	4.05	84
October	1.42	1.34	5	1.85	98	1.50	0.88	41	1.9	64
November	1.22	1.03	16	2.15	78	1.04	0.93	11	NA	70
December	1.00	0.70	30	NA	51	0.92	0.68	26	NA	50
Annual (mgy)	13.41	11.02		NA		12.98	10.61		NA	
Average Day (mgd)	0.037	0.030				0.036	0.029			
Accounted Use (mgy)*	11.42					11.01				
Population	439					441				
Average Day (gpcpd)	68.6					65.9				
Average Unacc %	14.8					15.2				
Average Water Purchased Per Year =					12.7	MG				
Average Water Accounted for Per Year =					10.6	MG				
Average Percentage of Unaccounted for Water =					17%					
Average Per Capita Usage =					63.8	gpcpd				
Max Month =					1.34	MG				
City Use per Year =					0.40	MG				

* Water use of 400,000 gallons per year was not tabulated in with monthly data and represents the city use for the pool, flushing lines, and park watering.

Table 3-1 indicates much variability in the per capita usage and unaccounted for categories. Some percentages are negative, which is as a matter of practicality impossible. One of the extreme examples occurred on the records of October and November of 1999, where the loss percentage went from 49% to -2%. Some possible reasons for the extreme variability or negative values are listed below along with some supporting rationale for the reasons:

- *Over-filling the water tank* – City officials report that Hanson Rural Water Service (HRWS) has had trouble with the valve and controls that fill the elevated storage tank. Because of this problem, the tank has overflowed a few times, which would have produced a large quantity of unaccounted water.
- *Malfunctioning meters* – Since many of the meters in Emery are old, it is reasonable to assume some of them may not be operable or at least not accurate. Since the readings from a malfunctioning meter will generally be low, the inaccuracy would reflect the "non-sale" of water thus indicating a loss in the system,.
- *Errors made while collecting the meter readings* – If the city checks their meters on a given day and HRWS checks their meter on a different day, then some short term error may result, because of the time lapse between the readings.
- *Errors made while logging the meter readings* – Some error is always possible when copying or typing out the recorded meter reading information.
- *Customers paying water bills late* – The water sales are determined based on the amount of money received from the customers. When customers pay late, water usage for the month tends to be lower, which indicates a higher loss. Conversely, the month in which the payment is received indicates a lower loss, because more water is reported as being used for that month than what was really used.

Based on the data shown in Table 3-1, the average per capita usage for the period of 1995-2001 has been determined to be approximately 63.8 gpcpd. This is lower than typical values of 100 to 125 gpcpd, but is not uncommon for smaller communities in South Dakota. Since the water records that were available do not include any data during significant dry periods, it is our opinion that the average day per capita usage over the design period will be slightly higher than that indicated by the data of record. Therefore, an average day per capita usage of 80 gpcpd has been selected as the design average day per capita flow for Emery and will be used throughout the remainder of this report.

An analysis of the water usage data from 1995 through 2001 indicates the City of Emery purchased approximately 12.7 million gallons per year (mgy) from HRWS. Of this amount, approximately 10.2 mgy were billed through household and business meters. In addition, it was estimated by city personnel that the community utilized approximately 0.40 mgy for other beneficial uses, including watering the park, filling the swimming pool, fighting fires and flushing lines. The difference, 2.1 mgy or approximately 17% of the water purchased from HRWS during the period of record is regarded as "unaccounted for water" and can be attributed primarily to non-operable and inaccurate meters as well as leakage losses. Table 3-2 shows a summary of the yearly data for the years 1995 through 2001. Again, the variability in the percent water unaccounted is evident and could be due to one or more of the many factors mentioned above.

Table 3-2 Summary of Water Usages and Unaccounted For Water Losses

	Millions of Gallons							
	1995	1996	1997	1998	1999	2000	2001	Yearly Average
Total Water Purchased	11.49	13.01	12.52	11.63	14.11	13.41	12.98	12.73
Total Water Sold	6.84	11.15	11.17	10.47	10.02	11.02	10.61	10.18
Total Accounted Water Not Sold	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total Water - Accounted	7.24	11.55	11.57	10.87	10.42	11.42	11.01	10.58
Total Unaccounted Water	4.25	1.45	0.94	0.76	3.68	1.99	1.97	2.15
Percent Unaccounted Water	37%	11%	8%	7%	26%	15%	15%	17%

Line leakage during the past several years is reported to be a growing problem. Repair activities indicate that many of the leaks discovered are small-volume leaks that do not readily surface. These are generally located at or near the curb stop valves on the service lines. Unless distribution lines are replaced, the problems associated with leakage and low line pressure will persist and become increasingly more prevalent. Fortunately, over the period of record, the average percentage of unaccounted water is only slightly higher than the generally accepted industry average of 15 percent. This does not, by itself, warrant the replacement of major portions of the water distribution system.

Water loss is not often thought of as financial loss. However, when a community purchases water from another source, the financial loss becomes apparent. All water that is purchased for distribution and resale within Emery's system is paid for based on flows through a master meter at the point of delivery. If the existing percentage of water loss in Emery's distribution system continues to be around 17%, the city must charge its customers 117% of the water purchase cost just to recoup the cost of the water loss. As a result, it is important that unaccounted-for water loss is continuously monitored and efforts made to limit the unaccounted for water loss to the lowest level possible. Every effort should be made to achieve the generally accepted standard of 15 percent but in no case should the level be allowed to exceed 20% without an intensive investigation of the causes.

3.1.2 Projection of Water Demand

Emery is not expected to have any new industries or commercial activities that might place additional flow requirements on the system. Therefore, Using the 2030 design population of 500 people and the average per capita flow of 80 gpcpd, the design daily average flow is calculated to be 40,000 gpd.

To meet the highest peak day usage that may occur in the future, a peaking factor must be determined. The data in Table 3-1 shows that the average daily water usage during a given month ranged from 19,000 to 31,000 gpd with an overall average of 27,944 gpd. The maximum usage during a single month was 1.34 MG. This occurred in October 2000. Typically the ratio of peak month day to average day is in the range of 1.2 to 1.5 (Salvato, 1985). The actual ratio for the City of Emery is calculated to be 1.55 (43,225 gpd for October ÷ 27,944 gpd average), which is slightly higher than the normal range of values.

Small towns usually have a maximum day peaking factor of 1.5 to 2.5 times the average annual day usage (Salvato, 1982). Our experiences have shown that communities the size of Emery have a peaking factor that ranges from 2 to 2.5. This is greater than the typical published values because the demand characteristics of a small town have extreme variations versus the more steady demand in larger cities. Since the actual peak month day ratio was slightly higher than the normal range of typical values, it is our opinion that the peaking factor for Emery should not be expected to be less than 2.5. This factor will be used throughout the remainder of the report.

It must be noted at this point that an attempt has been made to determine design flow parameters as accurately as possible. However, if any error is to be made in the selection of parameters, it must be on the high side to ensure an adequate supply of water for the city throughout the design period. Utilizing the following criteria and projected populations, future values of design average day and peak day usages were calculated and are presented in Table 3-3.

Future water demand projections are the basis for establishing water distribution system capacity and storage. The design average usage for 2030 is 40,000 gpd or approximately 27.8 gpm, while the design maximum usage is 100,000 gpd or approximately 69.4 gpm. Since HRWS is currently under contract to provide a continuous flow of 83 gpm, it is reasonable to assume the rural water system will meet the peak demand until 2030.

Table 3-3 Estimated Future Water Requirements

Year	Projected Population [a]	Average Day Gallons per Day[b]	Peak Day Gallons per Day[c]	Peak Day Gallons per Minute[d]
2005	450	36000	90000	62.5
2010	460	36800	92000	63.9
2015	470	37600	94000	65.3
2020	480	38400	96000	66.7
2025	490	39200	98000	68.1
2030	500	40000	100000	69.4

a Based on population projections shown in Figure 3-1.

b Calculated by multiplying the projected population by an average per capita daily flow of 80 gpcpd

c Calculated by multiplying the annual average day by the annual average peak day to annual average day flow ratio of 2.5

d Calculated by dividing the Peak Day by a 1440-hour day

3.1.3 Water Sources

Emery obtains its drinking water from the HRWS. The contract between the City of Emery and the HRWS currently provides for a peak flow rate of 83 gpm on a 24-hour basis to the City of Emery. The city of Emery also maintains a well that can be used as a supplemental source of water in the event of emergencies. Unfortunately, no detailed records could be obtained on the well. The best estimates of the city personnel are that the well can produce 200 gpm.

A standard requirement for water supply and distribution systems is that they be able to provide water for the demand of a peak day. If the rural water connection maintains the current delivery rate of 83 gpm over a 24-hour period, the supply will continue to meet the peak day domestic demands of the City of Emery.

3.1.4 Storage

Emery's water distribution system includes a 60,000-gallon elevated steel storage tank. Research of available information indicates that the storage tank was constructed in 1922. Although the plans for the reservoir are not available, data from manufacturers of similar tanks indicated that the diameter of the reservoir to be approximately 20 feet with a normal operating range of 20 feet from low level to overflow. Field observations at the base of the tower indicate that the overflow is approximately 107 feet above the ground. This would put the normal operating level at 87 feet above ground and the bottom of the tank bowl at approximately 77 feet above the ground. Emery's elevated storage tank is reported to be in fair condition and will probably provide the City with several more years of relatively trouble free service, providing proper maintenance procedures for the structure are followed. A complete evaluation of the storage tank is beyond the scope of this study.

Water storage facilities are generally designed to serve three major purposes:

a) Meet the fluctuating water demands on the distribution system by storing excess water during periods of low demand and releasing it during periods of high demand
b) Furnish water for emergencies such as fire fighting and accidental breakdowns in the system
c) Provide operating pressures that pressurize the distribution system.

The Emery water system uses available storage to meet all the purposes indicated above.

3.1.5 Water Distribution System

3.1.5.1 Water Valves

During our evaluation of the water distribution system, it was found that there are very few operable mainline valves in the existing system. The operating mainline valves are located at the water tower (1), at the intersection of First Avenue and Fourth Street (3) and at the intersection of First Avenue and Seventh Street (1). The lack of operational valves in the water distribution system makes it difficult, if not impossible, to properly operate and maintain the system by limiting the operator's ability to isolate segments of the distribution system for repairs. The lack of operable valves also limits the ability to direct flows to specific segments of the system during the flushing and cleaning of the system. It is recommended that new valves be installed at locations within the water distribution system as appropriate to improve the ability to isolate segments of the system for operation and maintenance purposes. Each of the alternatives for water system distribution as discussed in the following sections will include the installation of new mainline valves at various locations within the system.

City personnel have reported that as many as ½ of the service line valves in the distribution system are also non-operable. City officials have found it very difficult, and in some cases impossible to stop water service to customers who are delinquent in the payment of their water bills. This makes the task of administering the water system extremely difficult for the Town Board. It is recommended that any water system improvement project include the identification and replacement of non-operable service line valves. Therefore each of the alternatives for water system distribution as discussed in the following sections will include the installation of service line valves on approximately 50% of the service connections within the city's distribution system.

3.1.5.2 Hydrants

The SD DENR, which is the state regulatory agency for public water supplies, requires that fire hydrants be served by watermains with a minimum diameter of six-inches. Hydrants used only for flushing dead-end lines may be located on four-inch mains. The city personnel report that there are no hydrants with pumper nozzles connected to watermains that are less than 6 inches in diameter. Figure 3-1 shows the current main sizes of the city's distribution system. A SD DENR criterion also recommends that there be relatively few dead-end lines in a city's water distribution system. Emery's distribution system consists of many dead ends, most of which are four-inch lines. Of the 29 hydrants in Emery, 13 of them are located on dead end lines, and only 9 of them are on lines larger than four inches.

During the evaluation of the system, all of the hydrants were reported to be operational. It was reported, however, that approximately 5 hydrants do not drain properly. The city maintenance personnel routinely pump the water from these hydrants as part of their winterization of the distribution system.

The replacement of the hydrants that do not currently drain is not considered to be essential to the operation of the system. However, as part of any watermain replacement or improvement alternative considered in subsequent sections of this report, the replacement of hydrants will be included as appropriate.

3.1.5.3 Pressure Analysis

Anecdotal evidence indicates that the line pressures in some areas of the community are lower than recommended or desired. SD DENR 1990 Recommended Design Criteria states in Section 8.4.2:

> *"A water distribution system shall be designed so as to provide a pressure of 20 pounds per square inch at each service outlet or connection under any or all conditions or demands that can be placed on the system. Under normal conditions, minimum pressures should be approximately 60 psi and not less than 35 psi."*

Section 7.3.1 of the Recommended Standards for Water Works by the Committee of the Great Lakes 1997 further recommends a minimum working pressure of 35 psi with a normal working pressure of 60 to 80 psi. The AWWA Distribution System Handbook by Mays 1976 states on page 3.8 that low operating pressures of less than 30 psi can result in annoying reductions in water flow when more than one water-using device is in service.

To verify this anecdotal evidence, a computerized hydraulic analysis of the distribution system was completed. The analysis is based on normal summer period water usage for the current number of 215 users. During the hydrant flow and pressure testing conducted on November 1, 2001, measurements and observations indicated that the maximum static pressure that could be expected in the system would be approximately 45 psi. Given the tank characteristics noted in Section 3.1.4 of this report, it has been assumed that the average static pressure would be approximately 40 psi. This is, therefore, the basis of the pressure analysis as discussed in the following. The results of this analysis are shown graphically on Figure 3-2.

As can be seen on Figure 3-2, the normal operating pressures are indeed below the minimum recommended pressure of 35 psi in nearly all areas of the community. In that area on 4th Street north of 3rd Avenue, the expected residual pressure drops very close to the absolute minimum residual of 20 psi. These low-pressure problems can be directly

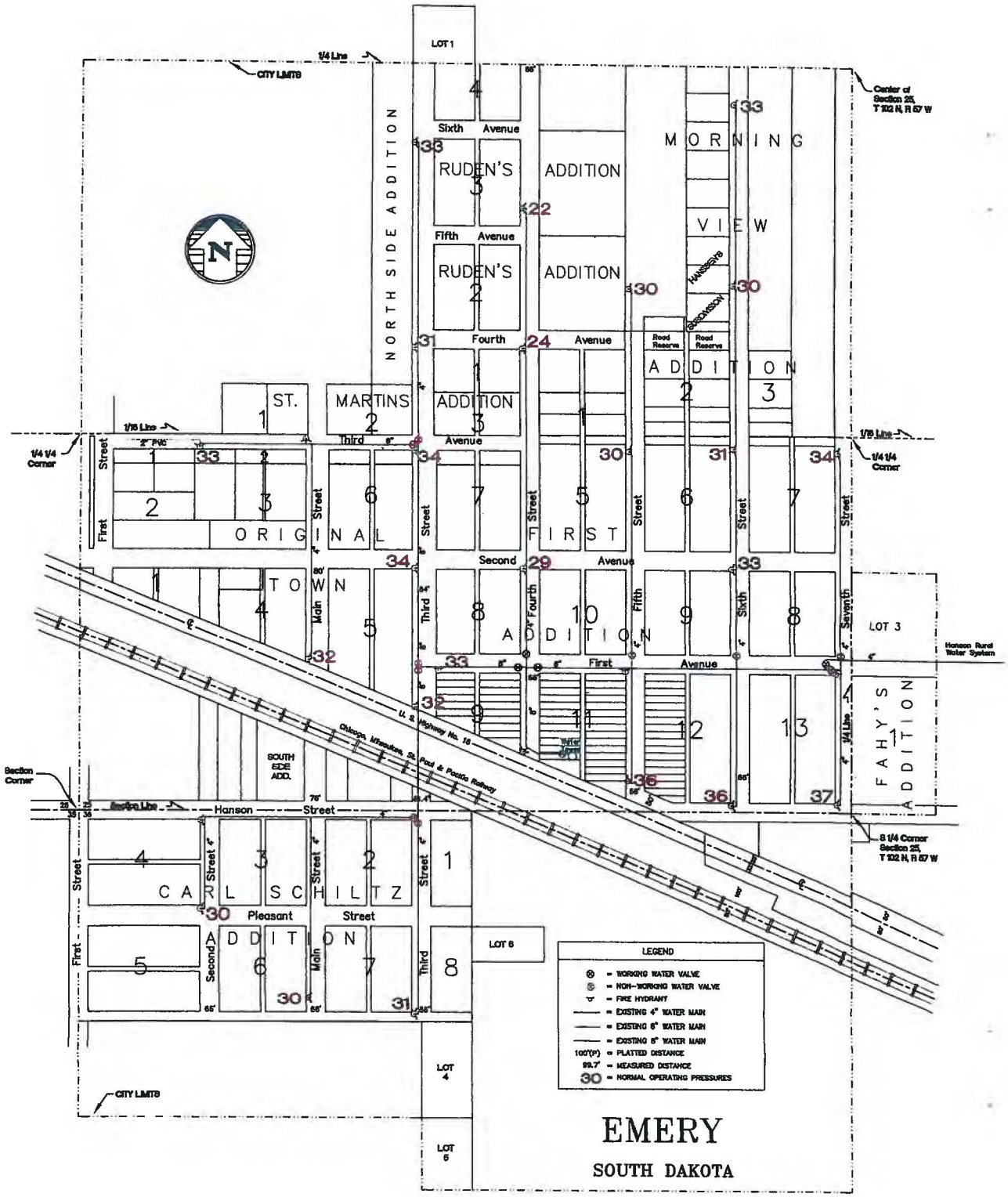

Figure 3-2
EXISTING WATER DISTRIBUTION SYSTEM
NORMAL OPERATING PRESSURES

attributed to the absence of looping and dead-end lines. Internal corrosion in the older cast iron distribution system piping also causes significant pressure losses contributing to the low-pressure problems being experienced in the system.

As is evident from a review of the existing water distribution system layout (refer to Figure 3-1 and Figure 3-2), many of the lines are not connected in a way that forms loops in the system. The looping of a water distribution system allows for multi-directional water flow thus reducing pressure losses in the system. The installation of water piping to complete the looping of the system will result in an improvement of normal operating pressures at nearly all locations in the community.

Without looping and multi-directional flow of water in the distribution system, water is supplied, for the most part, through a long single pipeline. In this type of distribution system, total water usage decreases the closer one gets toward the end of the lines. This results in decreased movement of water in the pipe and exceptionally long retention times of the water in various segments of the pipe. Long retention times in a pipe can have a detrimental effect on the quality of the water in that pipe such as:

a) A decrease in the disinfectant levels in the water;
b) An increase in the potential for the formation of carcinogenic disinfection process by-products; and,
c) An increased potential for the formation of biological growth.

As discussed previously, the installation of piping to connect the ends of the dead-end lines (looping of the system) allows water movement in the distribution system from multiple directions as the needs change. This results in shorter retention times and a decreased potential for a decline in water quality within the distribution system. For this reason, it is recommended that improvements be undertaken for the addition of water distribution system piping to eliminate the dead-end lines in the current system by completing the looping of the system.

These factors coupled with the fact that much of the cast iron water main has reached or is nearing the end of its useful life expectancy, indicate that distribution system rehabilitation is needed.

3.1.5.4 Fire Flow Analysis

On November 01, 2001, a hydrant flow and pressure test was performed. At the time of the testing, the water tower was nearly full. The static pressure measured at a location near the base of the tower was 44 psi. The static pressure remained consistently in the range of 44 psi throughout the testing period. The results of the testing program are shown in Table 3-4.

Table 3-4 Results from Hydrant Flow and Pressure Testing

Hydrant Location	Static Pressure psi	Residual Pressure psi	Flow Rate gpm
5th Ave & 4th St	44	12	80
N of 4th Ave & 5th St	44	6	100
3 bl N 2nd Ave & 6th St	43	0	120
1 bl N 2nd Ave & 7th St	44	35	130
1 bl N 5th Ave & 3rd St	44	22	120
1 bl W 3rd Ave & Main	44	32	240
Hwy 16 & Main	44	36	120
Pleasant & 2nd	44	12	120
1 bl S Pleasant & Main	44	21	120
Hwy 16 & 4th St	43	38	530
Hanson & 7th	44	35	250
Hanson & 6th	44	38	240

On the basis of the data collected during the November 1, 2001, testing, a computerized model was calibrated and developed to complete a hydraulic analysis of the potential hydrant delivery capabilities within the Emery water distribution system. The computerized model is based on the assumption that the residual pressures at any given location in the system will not be allowed to fall below the minimum recommended pressure of 20 psi. The model is also based on the assumption that not more than one hydrant will be open at any given time. The results of the analysis are shown graphically in Figure 3-3.

The Insurance Service Office (ISO) provides guidelines relative to the minimum requirements for fire flows. The ISO guidelines are based on a number of variables including size of structure, construction material, occupancy, and exposure and connections to other structures. For 1- and 2-family dwellings not exceeding 2 stories in height, the following needed fire flows are required:

Distance Between Buildings	Fire Flow Requirement
Over 100 feet	500 gpm
31 to 100 feet	750 gpm
11 to 30 feet	1,000 gpm
10 feet or less	1,500 gpm

As for the business district, the needed fire flow is dependent on the size, construction and use of each structure. To determine the required fire flow requirements, an inspection and analysis of each structure would be required. Rather than performing these inspections and analyses, a minimum needed fire flow of 2,000 gpm has been assumed.

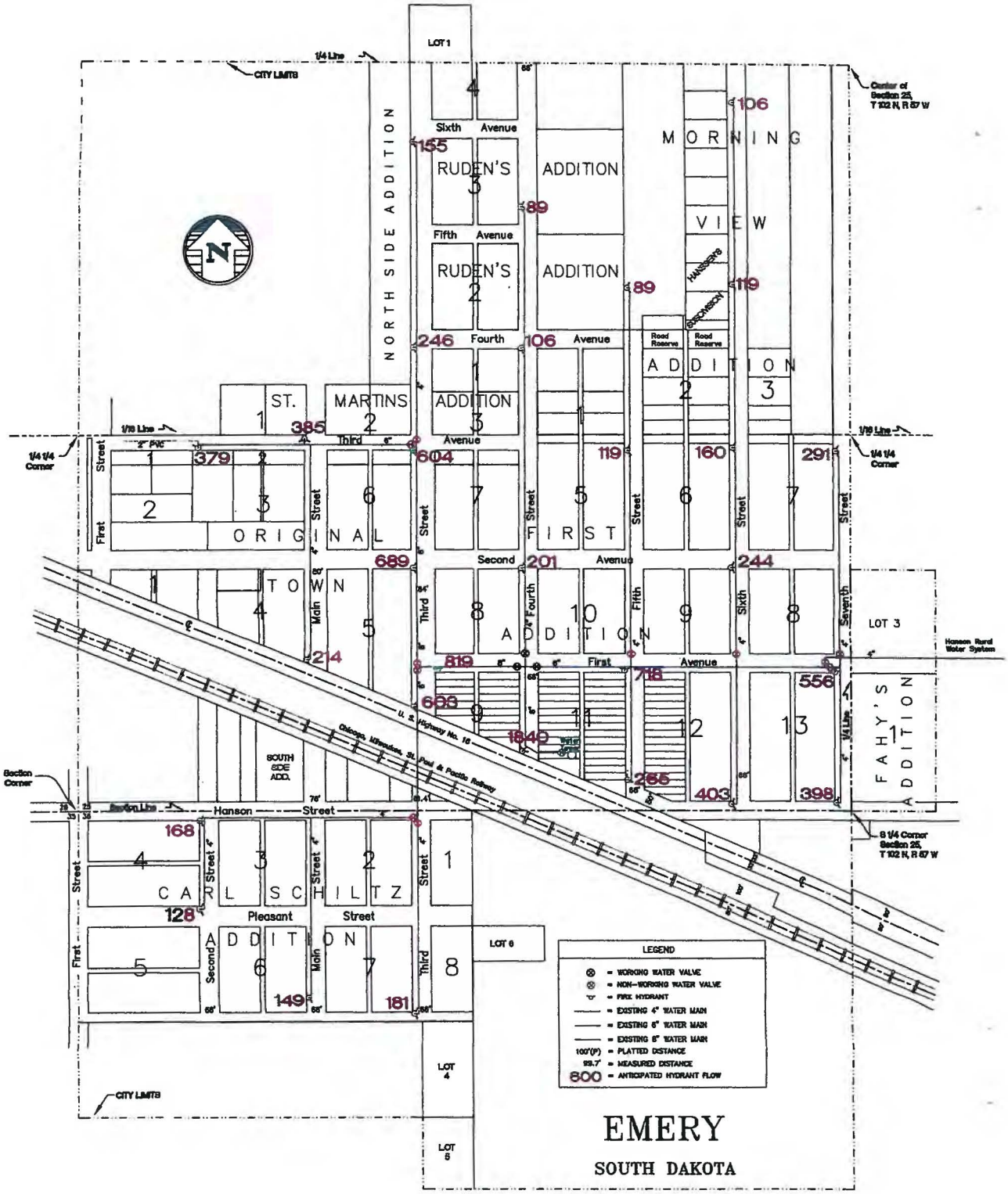

Figure 3-3
EXISTING WATER DISTRIBUTION SYSTEM
ANTICIPATED HYDRANT FLOWS

As shown on Figure 3-3, minimum residential fire flow requirements are achieved only in that area along First Avenue from Third Street to Seventh Street. While the expected hydrant flows on Third Street from US Highway 16 to Third Avenue appear to meet the minimum requirements for a residential area, this area is essentially the main business district. Therefore, it can be concluded that the hydrant flows in this area do not meet the minimum requirements set forth by ISO for a business district. The remainder of the community is expected to experience limited flow from the hydrants that are far below the flow rates recommended by ISO.

Minimum fire suppression requirements for the central business district of a community such as Emery state that the minimum fire flow should be available for at least two hours. At the assume fire flow rate of 2,000 gpm, the total available fire flow requirement would be 240,000 gallons. Assuming that the existing well could be operated and would provide a flow rate of 200 gpm, the well could possibly produce 24,000 gallons of water during this period. The HRWS connection is limited to 83 gpm. During this two hour period, a total of 10,000 gallons could be provided through the HRWS connection. Deducting the water that could be supplied by the well and HRWS from the total fire flow recommendations, the City of Emery should have a minimum of 206,000 gallons of available storage to provide the additional water needed for business district fire fighting purposes. According to the above indicated fire suppression standards, it appears that Emery does not have adequate storage capacity for fire suppression. However, upgrading the town's water storage is beyond the scope of this project.

3.2 Wastewater System

The original wastewater system was constructed in 1922. The wastewater treatment process consisted of an Imhoff tank with a sludge pond for the solids that were removed. In the late 1960's, the present single-cell, bi-level treatment pond was constructed. At the time it was constructed, the design criterion called for the sizing of the facility to be based on one acre of water surface area per 100 people to be served. Therefore, the design population of 610 as projected to the year 1987, resulted in a treatment facility with 6.1 acres of water surface. In 1997, a depth indicator, outlet structure, valve, flow measuring manhole, and an outfall structure were added to the wastewater pond.

3.2.1 Collection System

Research of available information indicates that the core of the existing collection system was constructed in 1922. It has been extended as required by community growth. The bulk of the system is constructed of 8 and 10 inch vitrified clay pipe with approximately 50 manholes. Newer segments of the collection system were also constructed of vitrified clay pipe with PVC lines being used only in most recent construction activities. Manholes for the original portion of the system were constructed of brick, while replacement manholes and those used for more recent construction are pre-cast concrete. Figure 3-4 indicates the size, and layout of the existing collection system.

A limited Infiltration / Inflow analysis of the sanitary sewer system was performed using the wastewater flow measurement data obtained from an ISCO Model 4150 Flow Logger that was installed in a manhole near the wastewater treatment pond from November 21 through December 10, 2001. A summary of the daily wastewater flows for the period is presented in Table 3-5. Additional detailed data is contained in Appendix C of this report.

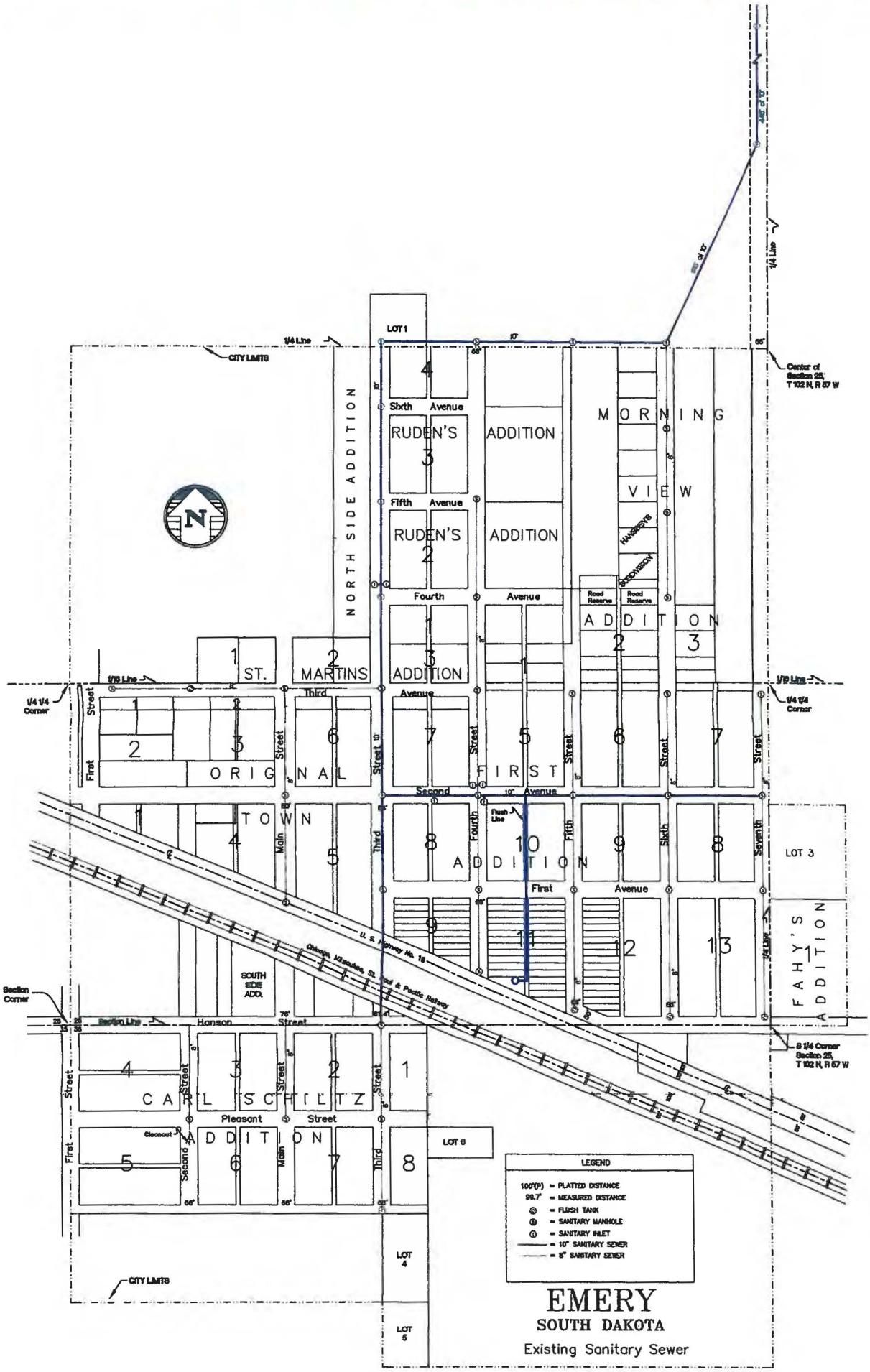

Figure 3-4
EXISTING SANITARY SEWER

Table 3-5 Recorded Daily Wastewater Flows

Date	Daily Flow (gpd)	Per Capita Flow (gpcpd)
November 21, 2001	64,279	146
November 22, 2001	44,246	101
November 23, 2001	143,308	326
November 24, 2001	118,814	271
November 25, 2001	126,009	287
November 26, 2001	117,010	267
November 27, 2001	84,707	193
November 28, 2001	41,071	94
November 29, 2001	47,856	109
November 30, 2001	29,553	67
December 1, 2001	31,431	72
December 2, 2001	32,425	74
December 3, 2001	32,077	73
December 4, 2001	32,897	75
December 5, 2001	36,668	84
December 6, 2001	37,065	84
December 7, 2001	37,446	85
December 8, 2001	41,169	94
December 9, 2001	43,427	99
December 10, 2001	39,837	91
Averages	59,065	135

3.2.1.1 Infiltration Analysis

Water that enters the sanitary sewer system through cracked pipes, leaking pipe joints and the walls of manholes is defined as infiltration. Infiltration can only occur when the groundwater table is at or above the opening in the sewer piping or manholes. Evidence of infiltration is apparent by consistently above average wastewater flows in months and years of high groundwater levels. As would be expected, above normal precipitation results in increased levels of the ground water table. This increased level in the groundwater table then subjects a larger portion of the sanitary sewer system to infiltration.

The current SD DENR standard for acceptable leakage in sanitary sewers is 200 gallons per inch of diameter per mile of length per day. Using this standard and an estimated length of 11,000 feet of 8 inch sewer, 6,900 feet of 10 inch sewer and 13,600 feet of 4 inch sewer service line, an acceptable rate of flow for infiltration is about 5.56 gallons per minute or 8,000 gpd.

The rate of infiltration into the Emery sanitary sewer system was estimated by evaluating the wastewater flow in the system during the late night and early morning hours. Figure 3-5 demonstrates the wastewater flow data that was measured during the period of December 3 through December 6, 2001. The wastewater flows indicate a minimum flow of 17 gpm. Although the actual rate of infiltration as measured is over 3 times higher than the standard acceptable rate of infiltration as determined by the current SD DENR criterion, it is generally not considered to be cost effective to replace all of the sanitary sewer mains and service lines to eliminate the infiltration. Therefore, for purposes of this study and report, an average infiltration rate of 17 gpm or 24,500 gpd will be used.

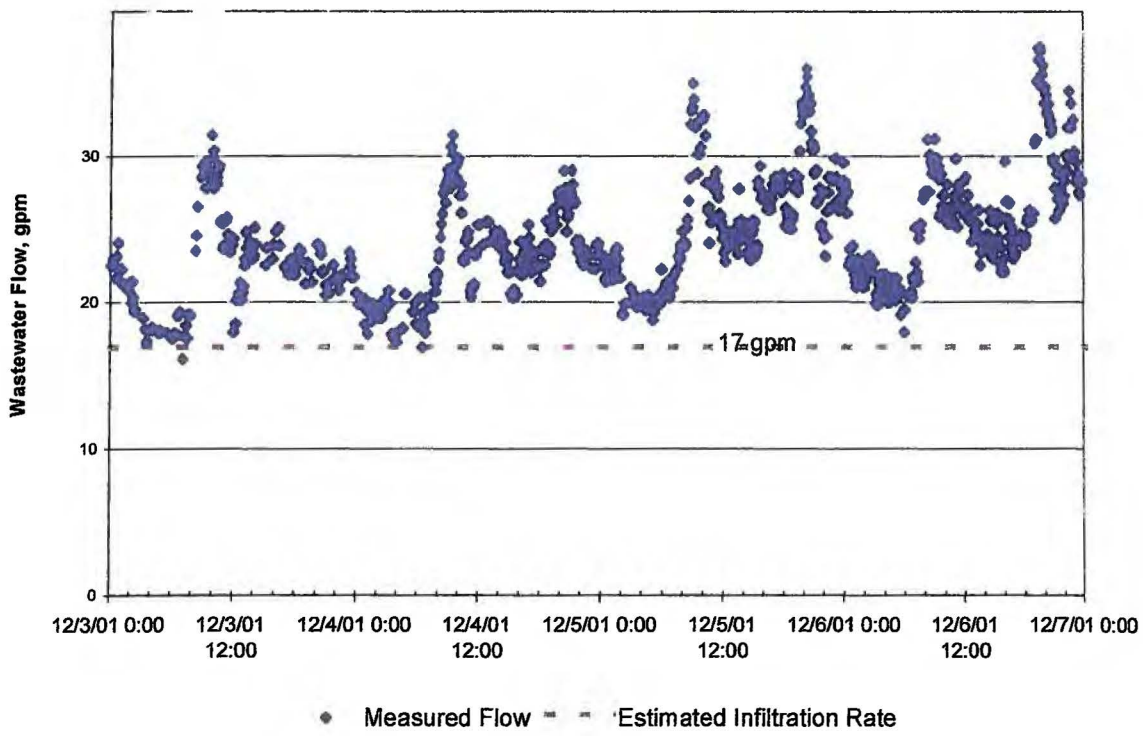

Figure 3-5 Infiltration/Inflow Estimation

3.2.1.2 Inflow Analysis

Inflow is defined as the flow that enters the sanitary sewer collection system through connections with the storm water drainage system, perforated manhole covers, improperly abandoned service lines, roof drains, basement sump pumps and other drainage systems. Inflow is generally the result of individual precipitation events and periods of snow melt. The intensity of the event can also play a large role in the degree of the impact to the system. In other words, a 2-inch rainfall over a period of a couple of hours will generally result in a larger inflow that a 2-inch event over a 12 hour period.

The City of Emery currently has a combined storm and sanitary sewer system in at least a portion of the community. There are six known street inlets connected to the sanitary sewer system. The combined system has, at times, resulted in excessive wastewater flows in the system. Because of this situation, some of the residents have reported trouble with their sewer lines backing up into their basements during periods of high runoff. This situation should be eliminated as it can result in dangerous health hazards to the residents and a financial liability to the city of Emery.

Two cisterns located near the City's pump house also drain into the sanitary sewer system through a line that runs two blocks north of the pump house through the alley to the sanitary sewer line on 2nd Avenue. In the past, these cisterns were used for the temporary storage of the water from the backwashing of the filters used to treat the water from the water supply well. The water from the cisterns was released at a slower controlled rate into the sanitary sewer to prevent hydraulic overloading that could result in flooding of basements. These cisterns are currently still being used only to store the water from the flushing of the well, which is kept available in case of emergencies. The well is flushed into the cisterns about twice a week for a period of approximately 7 minutes each time. At an estimated well capacity of 200 gpm, the amount of water that eventually reaches the sanitary sewer is estimated to be approximately 2,800 gallons per week.

Table 3-5 in Section 3.2.1 of this report shows unusually high wastewater flows for the period November 23 through November 27, 2001. Beginning on the 23rd of November and ending on the 24th of November, the area experienced a rainfall event. The National Climatic Data Center (NCDC) reported for the recording period ending November 24, 2001, a total of 1.55 inches of rain had fallen at Bridgewater, South Dakota. As a result of this relatively small storm, the per capita wastewater flow rose to 323 gpcpd during this period. The flow data as measured for the period beginning midnight of November 23 and ending midnight November 24, 2001, is shown in Figure 3-6. In comparison, the flow data that was obtained for the period beginning midnight of November 30 and ending midnight December 1, 2001, is shown in Figure 3-7. During the 30th of November, the ground was covered with snow, the temperature was cool and no significant runoff occurred. SD DENR's threshold where infiltration / inflow is considered possibly excessive is 120 gpcpd. On this basis, the infiltration rate into the City of Emery's sanitary sewer system can be considered to be very high.

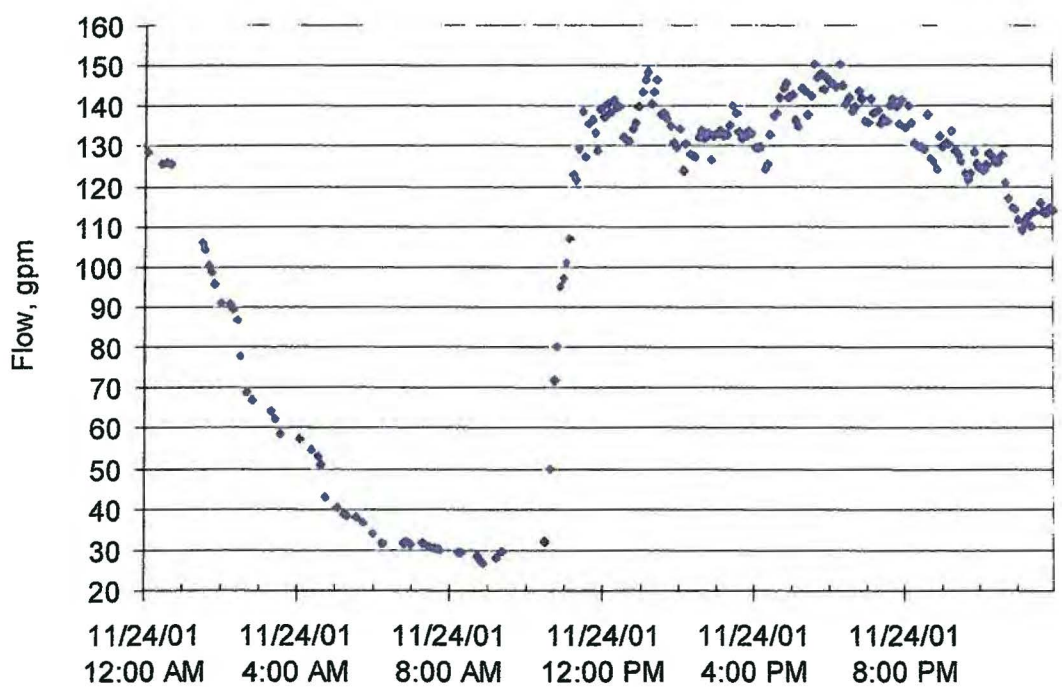

Figure 3-6 Sanitary Sewer Flow for November 24, 2001

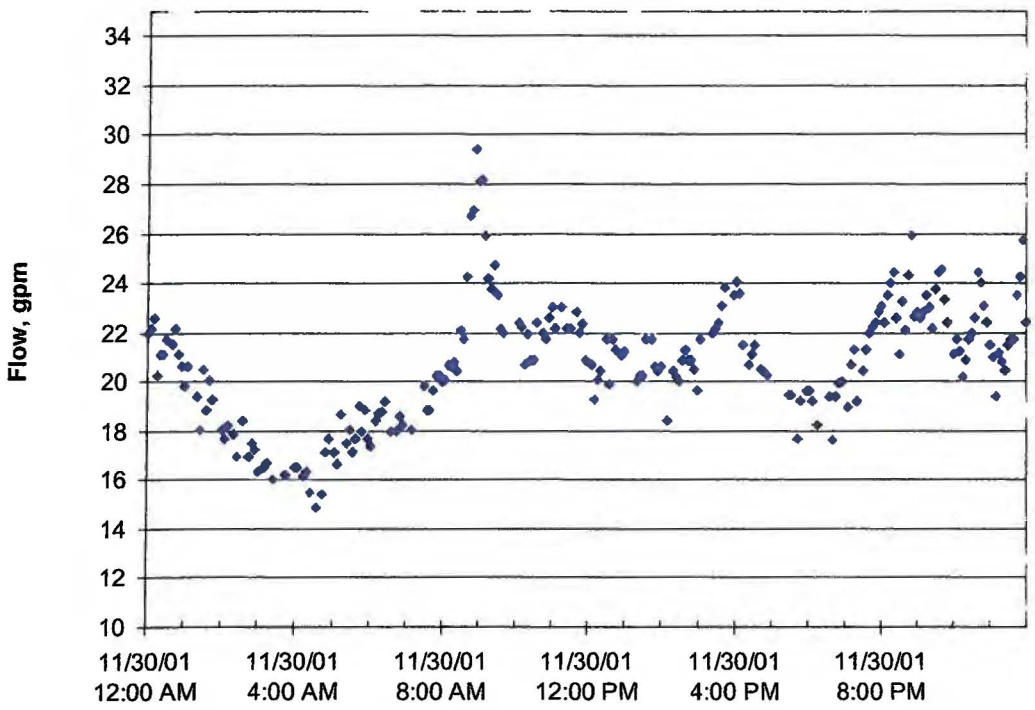

Figure 3-7 Sanitary Sewer Flow for November 30, 2001

To determine the cost effectiveness of removing the storm water inlets from the sanitary sewer system, an average daily wastewater flow rate due to surface water inflow must be estimated. Using precipitation data from 1997 to 2001, an average of 18 precipitation events occurred that produced at least 0.5 inches of rain. Using that same data, an average of approximately 28 inches of precipitation fell during these events. It was determined that the average event will produce 1.56 inches of precipitation, which is similar to the event that occurred on November 24, 2001.

The wastewater flows that were recorded from November 23rd through November 27th, 2001, total 589,850 gallons. It is assumed that the increases in wastewater flows are the result of the precipitation events during this period of time. Deducting for the domestic wastewater flow that would normally be expected (439 people at 60 gpcpd for 5 days or 131,7000 gallons) and the normal infiltration rates (24,480 gpd for 5 days or 122,400 gallons), the amount of water reaching the wastewater treatment plant that can be attributed to the inflow of surface water for this period is 335,750 gallons.

On the basis of the amount of precipitation received (1.56 inches), it is determined that an average of 215,220 gallons of surface water inflow can be expected for every inch of precipitation received. It can therefore be assumed that the City of Emery's wastewater system can expect to be subjected to a total of approximately 6,026,000 gallons of surface water inflow in an average year. This is equivalent to an average wastewater flow of approximately 16,500 gpd.

3.2.2 Wastewater Pond

Emery's bi-level wastewater pond is located roughly one half mile north of town. Refer to Figure 3-8 for a map showing the location. The facility is in relatively good condition, but requires minor maintenance every now and then, which is typical of a pond of this type. The pond has a water surface area of about 6.1 acres. The lower level has a depth of 5 feet and has a water surface area of 3.2 acres. The upper level has a depth of 3 feet and has a water surface area of 2.9 acres.

The facility is operating under Surface Water Discharge (SWD) Permit # 0021741. A full copy of Emery's discharge permit is contained in Appendix D. With the passage of the Clean Water Act of 1972 (P.L. 92-500) and subsequent amendments, the standards for wastewater treatment have changed. Most significantly, wastewater treatment facilities such as those utilized by the City of Emery must provide a minimum level of treatment that is defined by the quality of the discharge from the facility. All modifications that have been made to the treatment facility have been at the recommendation of regulatory agencies in order to keep the facility within the parameters of its discharge permit. However, the existing single-cell, bi-level wastewater treatment facility is no longer capable of consistently meeting the current treatment requirements. This facility plan will identify the underlying cause of the deficiencies and recommend corrective actions that will need to be taken to solve the identified problems. A copy of the SWD Compliance Inspection Report is in Appendix E.

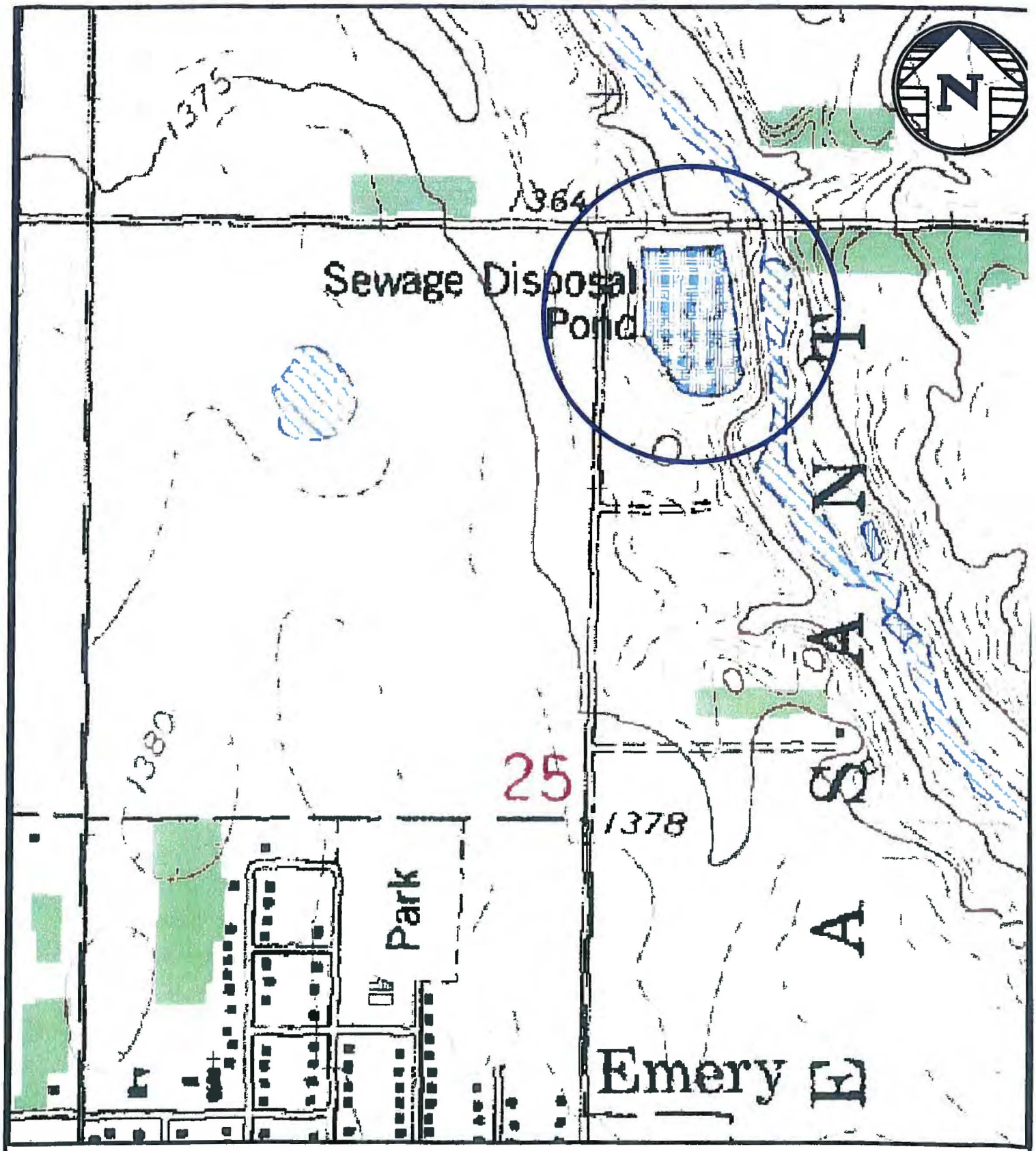

Figure 3–8 Existing Wastewater Treatment Facility

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MITCHELL SOUTH DAKOTA, zip 57301 – PHONE 605–996–7761 FAX 605–996–0015
SPN ASSOCIATES

An evaluation was performed on the wastewater system to determine compliance with current SD DENR Design Criteria. Table 3-6 contains the surface water discharge parameters of the SWD permit issued to the Emery pond. Table 3-6 also contains data from the Discharge Monitoring Report (DMR) of Emery's last discharge event, which took place April 30, 2001 to May 2, 2001. For the full DMR, see Appendix F.

The data in the 2001 DMR indicates that the parameters for BOD_5, TSS, and Ammonia Nitrogen have been violated. To evaluate the wastewater ponds further, SD DENR design criteria was reviewed and indicated that the wastewater system does not comply with the following major items:

1. ***Multiple cells designed for series operation shall be provided in order to meet effluent standards, achieve better nutrient reduction, and offer flexibility in case one or more cells must be taken out of service for any reason.***

   There is only one bi-level pond.

2. ***The 180-day storage of the entire facility shall be provided above the two (2) foot level.***

   Excluding the bottom two feet of depth, the pond will only store approximately 26 days of the average design flow, which is developed later in Section 3.4.1.

3. ***Provisions for flow measurement devices shall be provided at the inlet and outlet of controlled-discharge systems.***

   The outlet of the existing pond currently has a Palmer-Bowles flume, which was not installed properly. Therefore, the flow measurement of the effluent can only be measured using the pond depth indicators, which is not very accurate.

Table 3-6 NPDES permit requirements and DMR Data

Effluent Characteristic	Effluent Limit			DMR Data, Daily Maximum	
	30-Day Average	7-Day Average	Daily Maximum	April 30, 2001	May 1, 2001
BOD_5, mg/l	30	45	N/A	405	405
Total Suspended Solids, mg/L	30	45	N/A	160	60
Fecal Coliforms, no./100 ml May 1 Sept 30	1000	N/A	2000	720	1100
Ammonia-Nitrogen, mg/l (as N) December March April May – September October – November	 24.1 1.1 1.0 1.4	N/A	 42.4 2.0 1.4 2.5	10.6	9.25
Total Residual Chlorine, mg/l (Applicable only if effluent is chlorinated)	N/A	N/A	0.019	-	-
The pH of the discharge shall not be less than 6.0 nor greater than 9.0 in any sample.				-	8.1

Outside the west dike there appears to be a spring that produces slow surface water runoff. The water that collects in the area west of the pond is higher than the water surface elevation in the pond, which indicates the water is not coming from the pond. Water slowly runs toward the north, then flows into a ditch and disappears. Cattails and thick grass indicate this has been a problem for some time. Due to the constant presence of water, the dike seems fairly soft. Figures 3-9, 3-10, and 3-11 show the swampy area. The first figure is looking east at the west dike. The second figure is looking south along the west dike. The third figure is looking east down the ditch toward Wolf Creek, where the swampy area drains.

Figure 3-9 Swampy Area West of Pond

Figure 3-10 South Part of Swampy Area West of Pond

Figure 3-11 Swampy Area Drainage

3.3 Storm Sewer System

Approximately twelve storm water inlets along First and Second Avenue drain into a storm sewer system that empties into Plum Creek, about one mile west of Emery. Refer to Figure 3-12 for a general layout of the storm drainage system within the City of Emery. According to some residents, this system works reasonably well. However, during heavy runoff events, it is reported that the system drains too slowly causing localized flooding in some areas.

Another storm sewer system, located on Sixth Street, drains water into a pasture on the northeast part of town. This system currently does not work well because it drains very slowly. Some residents have reported that, due to construction in the area, the storm sewer line was broken and never fixed.

The City of Emery currently has a combined storm and sanitary sewer system in at least a portion of the community. There are six known street inlets connected to the sanitary sewer system. The combined system has, at times, resulted in excessive wastewater flows in the system. Because of this situation, some of the residents have reported trouble with their sewer lines backing up into their basements during periods of high runoff. This situation should be eliminated as it can result in dangerous health hazards to the residents and a financial liability to the city of Emery.

Low lying land in the park is susceptible to flooding during significant rainfall events. Because of this, the Town of Emery has requested that these areas be incorporated into the design of any new storm sewer system.

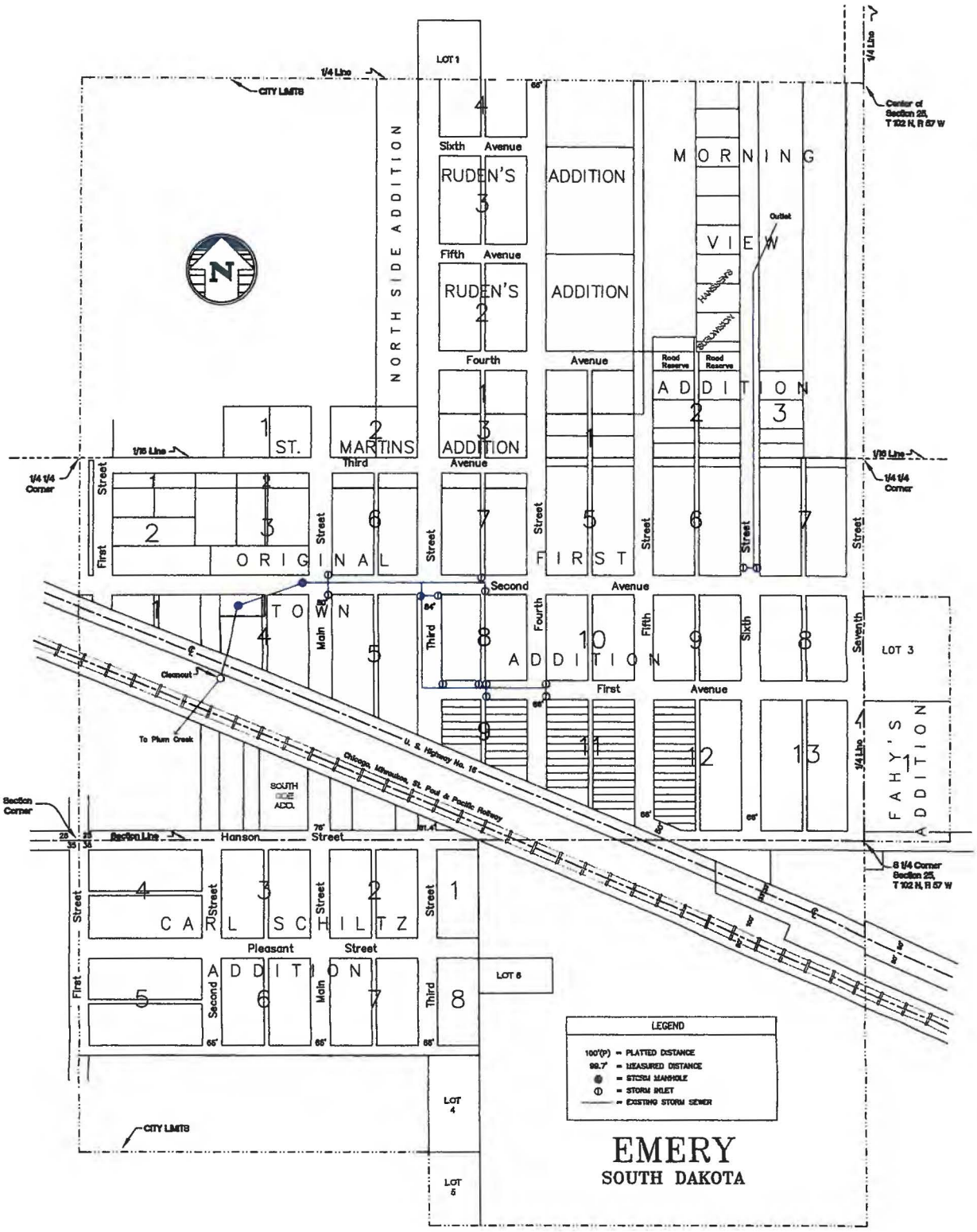

Figure 3-12
EXISTING STORM SEWER

3.4 Future Conditions

Information related to project need and planning area is found in Section 3 of this report. Specific information on population projections is found in Section 2.2. Land use is not expected to change significantly in the immediate vicinity of the City. There is some land available for future development and, based on the past growth of the community, it is viewed as sufficient to meet community needs. As there has been no real need to initiate water conservation measures, there has not been an investigation of water conservation measures. Due to the importance of conserving water, money, and energy, various means for reducing wastewater flows and water usage are recommended. First, by using faucet aerators, reduced flush toilets, and limited flow shower heads, wastewater flow and water use can be reduced. Second, sump pumps that empty into the sanitary sewer system should be modified to discharge outside the sanitary sewer system.

3.4.1 Projection of Wastewater Flow and Waste Load

Future flow projection is a matter of judgment rather than a determination of fact, particularly when projecting future growth patterns and population. Unforeseen policies, events, and technical changes can occur that affect the actual future population and wastewater flows. The best available information and engineering judgment are combined to define a set of design conditions.

It is not economically feasible to make frequent changes in the capacity of a wastewater treatment system. Therefore, a system is generally designed for the maximum flow that is expected during the selected design period. This design period is selected as a compromise between high costs to future users associated with frequent construction programs and high costs to present users associated with providing future growth capacity. It is customary to use at least 20 years as a design period when determining the capacity of a wastewater treatment system or water distribution system. The projected domestic wastewater flow for the design year 2030 as well as infiltration and surface water inflow that are not removed will be utilized to determine the design capacity of the wastewater treatment systems being reviewed.

An ISCO Model 4150 Flow Logger that recorded the flow entering the wastewater pond every five minutes was installed into a manhole near the wastewater pond. The data obtained from the flow meter was utilized to determine the range of wastewater flow that can be expected to enter the pond in the future.

Table 3-7 presents a summary of the daily totals of the wastewater flows that were measured by the flow meter. Usually a community of Emery's size produces approximately 75 gpcpd of wastewater flow (SD DENR, 1990). However, Table 3-6 indicates per capita flows ranging from 74 gpcpd to 323 gpcpd. The higher values are much higher because of the inflow that occurred due to precipitation, snowmelt, and infiltration.

Table 3-7 Recorded Daily Wastewater Flows

Date	Daily Flow (gal)	Per Capita Flow gpcpd
Wed 21 Nov 2001	64,279	145
Thu 22 Nov 2001	44,246	100
Fri 23 Nov 2001	143,308	323
Sat 24 Nov 2001	118,814	268
Sun 25 Nov 2001	126,009	284
Mon 26 Nov 2001	117,010	264
Tue 27 Nov 2001	84,707	191
Wed 28 Nov 2001	41,071	93
Thu 29 Nov 2001	47,856	108
Fri 30 Nov 2001	29,553	67
Sat 01 Dec 2001	31,431	71
Sun 02 Dec 2001	32,425	73
Mon 03 Dec 2001	32,077	72
Tue 04 Dec 2001	32,897	74
Wed 05 Dec 2001	36,668	83
Thu 06 Dec 2001	37,065	84
Fri 07 Dec 2001	37,446	85
Sat 08 Dec 2001	41,169	93
Sun 09 Dec 2001	43,427	98
Mon 10 Dec 2001	39,837	90
Average	59,065	133

Another method of estimating wastewater flow is to consider water use during the months of December, January, and February (SD DENR, 1990). During these months, it can be reasonably assumed that most, if not all, of the water that is used reaches the wastewater collection system as there is generally little or no outside use such as lawn watering, etc. Using the data in Table 3-1, the range of per capita water usage (or in this case, the estimated wastewater flow) for the period of available data is from 37 to 67 gpcpd. These appear to be much lower than the per capita flows shown in Table 3-6. However, it must be remembered that the data in Table 3-1 does not, however, include allowances for infiltration or surface water inflow. For purposes of facility sizing and design, a flow of 70 gpcpd will be used as Emery's per capita domestic wastewater flow rate. Using the design population of 500 people and the design domestic wastewater flow of 70 gpcpd, a total domestic wastewater flow of 35,000 gpd is projected for the year 2030.

As previously described in Section 3.2.1.1 of this report, the estimated infiltration in the City of Emery's sanitary sewer collection system is about 17 gpm, or 24,500 gpd (See Figure 3-6).

As previously described in Section 3.2.1.2 of this report, the estimated surface water inflow into in the City of Emery's sanitary sewer collection system is expected to average approximately 16,500 gpd.

Emery is not expected to have any new industries or commercial activities, which might increase the waste loading to the wastewater ponds or place additional flow requirements on the system. Therefore, using an expected average per capita organic waste loading of 0.20 lbs/capita/day for the town and the design population, the organic loading will be 100 pounds per day. The SD DENR organic loading requirements are: in a primary cell a maximum of 30 lbs of BOD_5 per acre per day can be received; in the total system a maximum of 20 lbs of BOD_5 per acre per day can be received.

A summary of the wastewater flows and organic loadings that will be used for the evaluation and the design of any of the wastewater treatment alternatives is presented in the following Table 3-8.

Table 3-8 Wastewater Facility Design Data

Population	
Design Population	500 People
Organic Loading	
Per Capita Organic Loading	0.20 lb BOD_5 per day
Total Organic Loading	100 lb BOD_5 per day
Hydraulic Loading	
Per Capita Hydraulic Loading	70 gpcpd
Total Domestic Hydraulic Loading	35,000 gpd
Average Daily Infiltration Loading	24,500 gpd
Average Daily Inflow Loading	16,500 gpd

4 DEVELOPMENT AND EVALUATION OF ALTERNATIVES

The alternatives developed for the City of Emery were developed and presented in the following sections to demonstrate some options available to fix the deficiencies that have been identified in the water and wastewater systems of the community.

There are no areas within the city limits that are not currently served by municipal sanitary sewer. Therefore, no restoration of septic systems is necessary.

All sewage collection is by conventional methods. The current collection system consists of gravity flow pipes that transport sewage to the stabilization pond. No alternative collection systems were considered in this report.

The City of Emery has no industrial or federal facilities. Therefore, treatment of the types of wastes commonly generated by these types of facilities is not required.

4.1 Cautionary Notes Concerning Cost Estimates

The opinions of probable cost as presented for the following alternatives reflect the anticipated costs for administration, engineering design, construction, contingencies, construction observation, and other costs normally related to the completion of a project. The costs as presented are based on an analysis and comparison of projects of similar size and scope. The actual project costs will vary on an individual project basis.

The engineer has no control over the contractors' bid costs. The actual bid cost will reflect the bidder's evaluation of construction problems, weather, soils and difficulty of work. Changes in materials, equipment and energy costs, as well as availability of other construction work at the time of the bid opening, could substantially influence actual project cost. Construction costs will also vary somewhat based on the quantity of items necessary to construct the project. The quantities and costs contained in this report are preliminary estimates based on our best judgment without field measurements.

Different funding sources have different requirements for some non-construction items. Therefore, actual costs of non-construction items should be considered tentative at this time and subject to later modifications and adjustments as current situations and funding sources dictate. Further, inasmuch as the period of construction cannot be accurately predicted, the costs as presented in this report have not been adjusted to reflect projected inflation factors. Therefore. it is important that the estimate of costs as presented be reviewed and updated periodically to reflect construction cost trends.

4.2 Water Distribution System

The following negative characteristics of Emery's water distribution system are summarized below:

- Some portions of the system experience low pressure under normal operating conditions;
- The hydrant flow test results indicated very low flows and pressures for fire suppression;
- Dead-end lines result in a degradation of water quality that can lead to potential health hazards;
- Dead end lines do not allow sufficient control of water flow in the system for flushing and routine operational procedures;
- Dead end lines do not allow sufficient flexibility during times a line must be shut off;
- Approximately 10 of the 15 mainline valves in the distribution system are currently inoperable;
- Approximately 108 of the 215 service line valves in the distribution system are currently inoperable;
- The distribution system is nearing the end of its useful life expectancy;
- Fire control standards indicate that the present water storage in Emery is deficient.

To evaluate the possible impacts of each of the alternatives presented in the following sections, water distribution models have been developed using up-to-date computerized software that has been designed to predict normal operating pressures and anticipated fire hydrant flows at or near the end of the design period. As discussed in Section 3.1.5.3 and Section 3.1.5.4 of this report, the computer program was calibrated using the results that were obtained from the hydrant flow and pressure test performed on November 1, 2001. The analyses that were completed for the following alternatives are based on the following assumptions:

- The water tower will be at or near the mid-level operating range resulting in a normal static pressure of 40 psi in the system.
- There will be approximately 245 connections to the water distribution system.
- The peak summer period water usage will be 3 gpm per connection. (This is based on the assumption that in addition to the normal water usage per connection, approximately 25% of the connections will be watering lawns at any given time at an average rate of 7 gpm.)
- Not more than one fire hydrant will be open at any given time.
- The minimum operating pressure will not fall below 20 psi at any given location within the distribution system.
- The water usage per connection will decrease to 1 gpm per connection during a fire fighting event.

4.2.1 Water System Alternative I: Do Nothing

The activities as described and considered in this Water System Alternative I include the replacement of the 10 mainline and 107 service line water valves that are currently inoperable. The "Do Nothing" alternative (Water System Alternative I) does not include the installation of water lines to complete the loops that would eliminate the existing dead end lines in the system or the replacement of any part of the piping in the water distribution system. The existing water distribution system is shown on Figure 4-1.

Figure 4-1 represents the results of the hydraulic modeling for anticipated normal operating pressures and fire hydrant flows in the distribution system as it is currently laid out. As shown on Figure 4-1, the normal operating pressures are expected to be below the minimum acceptable level of 20 psi in that area of Fourth Street north of Third Avenue. The normal operating pressures are expected to be below the minimum recommended level of 35 psi in all locations in the system. These pressures are deemed to be inadequate. Also as shown on Figure 4-1, the fire flows that are expected to be as low as 86 gpm at the north end of Fourth Street. The expected hydrant flows available to fight fires are deemed to be insufficient in business district and most of the residential areas.

Water System Alternative I will not address any of the problems identified in the distribution system that are associated with the dead end lines. However, it is recommended that action be taken to implement the replacement of the inoperable main line and service line valves in the system. The probable project cost for this replacement program is presented in Table 4-1.

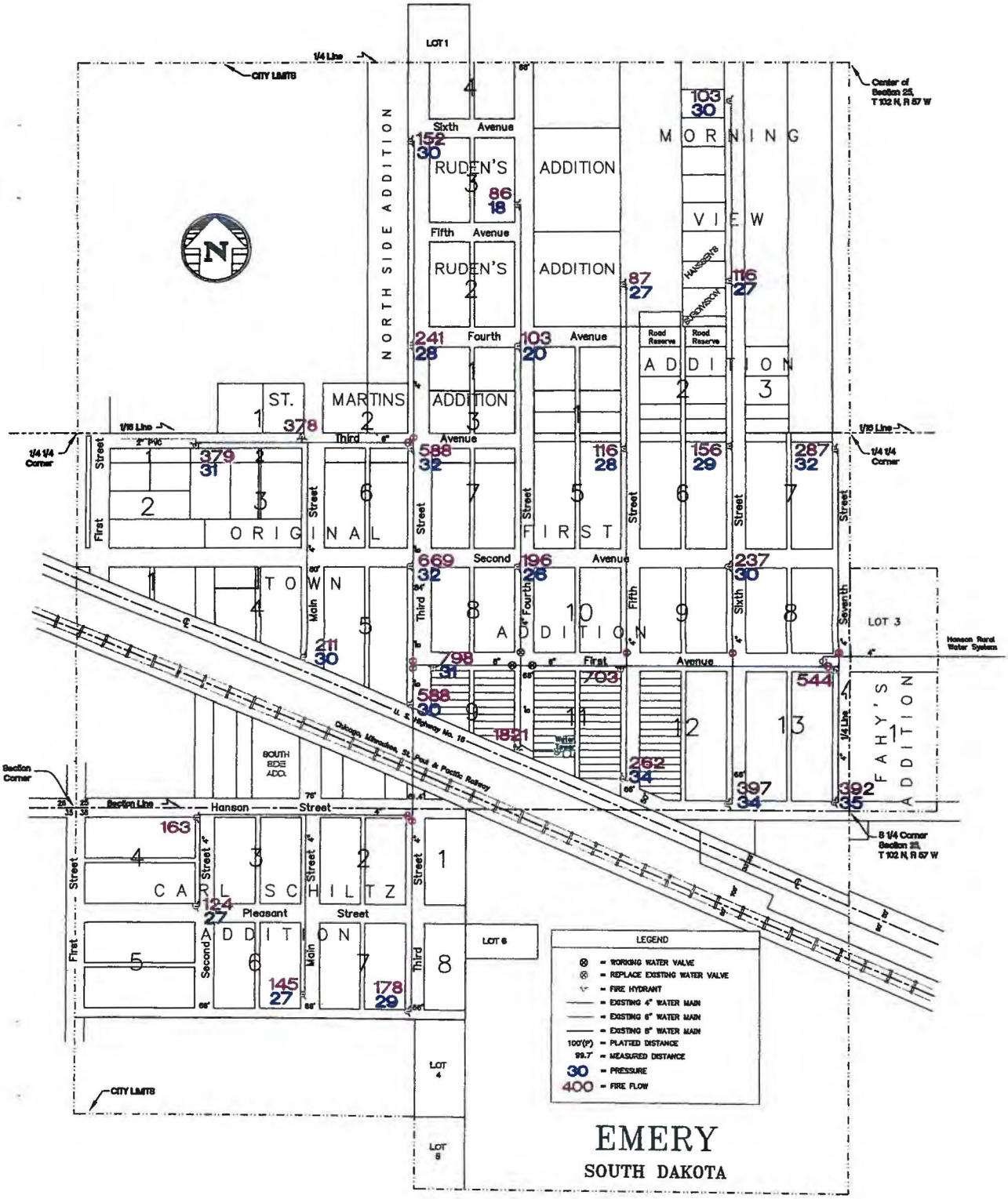

Figure 4-1
WATER SYSTEM ALTERNATIVE 1

Table 4-1 Projected Project Costs for Water System Alternative I

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Replace Existing Gate Valves	10	EA	$800.00	$8,000.00
2	Replace Existing Curb Stops	108	EA	$150.00	$16,200.00
3	Asphalt Street Repair	40	SY	$15.00	$600.00
4	Gravel Street Repair	400	SY	$2.50	$1,000.00
5	Lawn Area Repair	400	SY	$2.00	$800.00
				Subtotal of Construction Cost	$26,600.00
				Contingencies	$4,000.00
				Administration & Legal	$1,100.00
				Design Engineering	$6,000.00
				Construction Phase Engineering	$6,000.00
				Total Probable Project Cost	$43,700.00

4.2.2 Water System Alternative II: Add Piping to Loop Existing Network

The primary improvements being considered in this Water System Alternative II include the installation of new 6-inch diameter water lines to complete the loops in the distribution system, thus eliminating the dead end lines that now exist. The location of the new piping is shown in Figure 4-2. The additions as proposed will result in a looped system that will:

1) Improve the available flow for fire control;
2) Improve water pressures under normal operating conditions;
3) Improve water quality by eliminating the dead-ends;
4) Improve the control of water flow in the system during flushing and routine operational procedures; and
5) Allow for flexibility during maintenance and repair procedures.

The improvements to the system considered in Water System Alternative II also include the replacement of the 10 mainline and 108 service line valves that are currently inoperable. 14 new valves will be installed in various locations to improve the operation of the distribution system. The improvements as proposed would include the replacement of 13 existing hydrants that are located near the new proposed 6 inch diameter piping. The new hydrants would be connected to the new 6 inch diameter watermain and furnished with nozzles that would allow the connection of pumping equipment for fire fighting. However, Water System Alternative II will only include the replacement of existing hydrants near the new piping, and will not include the replacement of any of the existing distribution piping.

Whereas, the new piping that would be installed will be located in areas that do not currently contain watermain, it is not expected that any existing water service lines will be encountered. Therefore, the improvements being considered in this Water System Alternative II do not include the replacement of service lines from the new watermain to the curb stop valves.

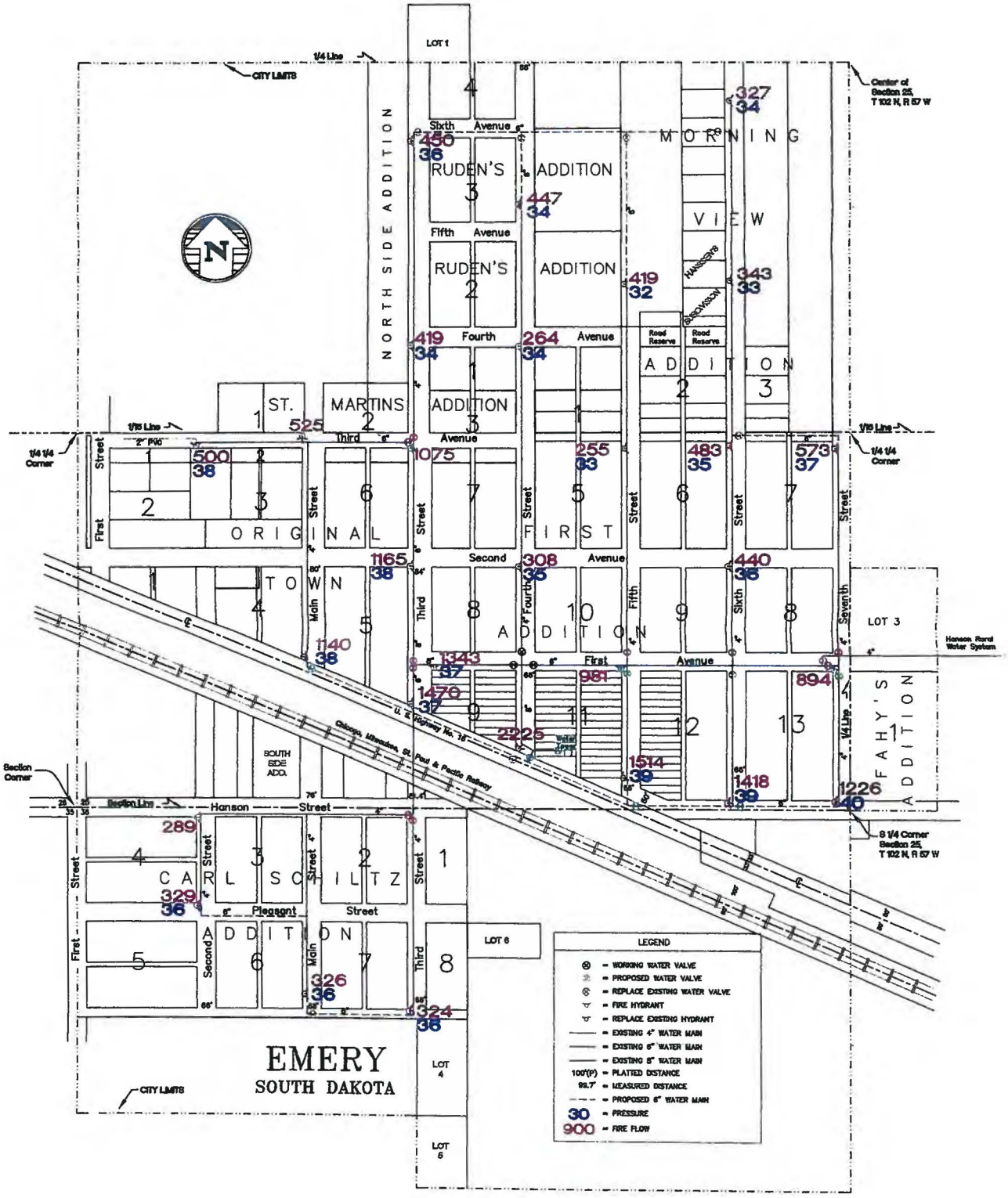

Figure 4-2
WATER SYSTEM ALTERNATIVE 2

The normal operating pressures shown on Figure 4-2 indicate that the improvements as proposed will result in significant improvements to the normal operating pressures in the system. At most locations, the anticipated water pressures exceed the desired minimum operating pressure of 35 psi.

It is also evident from the information shown on Figure 4-2 that the hydrant flows available for fire suppression are much improved over the existing conditions. However, most hydrant flows are still too low in much of the system to meet fire control standards as listed in Section 3.1.5.4 of this report.

Table 4-2 presents an estimate of the total costs that are anticipated for the completion of Water System Alternative II.

Table 4-2 Projected Project Costs for Water System Alternative II

Item	Description	Quantity	Units	Unit Price	Total Cost
1	New 6" PVC Watermain	5,200	LF	$10.00	$52,000.00
2	Remove & Replace Existing Hydrants	13	EA	$1,500.00	$19,500.00
3	6" PVC Hydrant Lead	260	LF	$10.00	$2,600.00
4	Replace Existing Gate Valves	10	EA	$800.00	$8,000.00
5	New Gate Valves	14	EA	$650.00	$9,100.00
6	Replace Existing Curb Stops	108	EA	$150.00	$16,200.00
7	Miscellaneous Fittings	1	LS	$9,000.00	$9,000.00
8	Connection to Existing 4" Piping	15	EA	$400.00	$6,000.00
9	Connection to Existing 6" Piping	2	EA	$450.00	$900.00
10	Connection to Existing 8" Piping	1	EA	$500.00	$500.00
11	Asphalt Street Repair	3,400	SY	$12.00	$40,800.00
12	Gravel Street Repair	900	SY	$2.50	$2,250.00
13	Lawn Area Repair	3,100	SY	$2.00	$6,200.00
				Subtotal of Construction Cost	$173,050.00
				Contingencies	$17,300.00
				Administration & Legal	$6,700.00
				Design Engineering	$19,500.00
				Construction Phase Engineering	$21,400.00
				Total Probable Project Cost	$237,950.00

4.2.3 Water System Alternative III: Replace Entire Water Distribution System

The primary improvements being considered in this Water System Alternative III include the replacement of all water distribution piping. The new watermain piping will have a minimum diameter of six inches. The existing 8 inch diameter cast iron piping will be replaced due to its age and type of material. This Water System Alternative III includes the installation of new water lines to complete the loops in the distribution system thus eliminating the dead end lines that now exist. The location of the new piping is shown in Figure 4-3. The additions as proposed would result in a totally looped system with a minimum pipe diameter of 6 inches that will:

1) Improve the available flow for fire control;
2) Improve water pressures under normal operating conditions;
3) Improve water quality by eliminating the dead-ends;
4) Improve the control of water flow in the system during flushing and routine operational procedures; and
5) Allow for flexibility during maintenance and repair procedures.

The improvements to the system considered in Water System Alternative III also include the replacement of the 10 mainline valves that currently inoperable and the installation of 14 additional new mainline valves in various locations to improve the operation of the distribution system.

The improvements as proposed in Water System Alternative III would include the replacement of 21 existing hydrants that are currently connected to the existing 4 inch watermain. The existing hydrants do not currently have pumper nozzles. The new hydrants would be connected to the new 6 inch diameter watermain and would be provided with pumper nozzles.

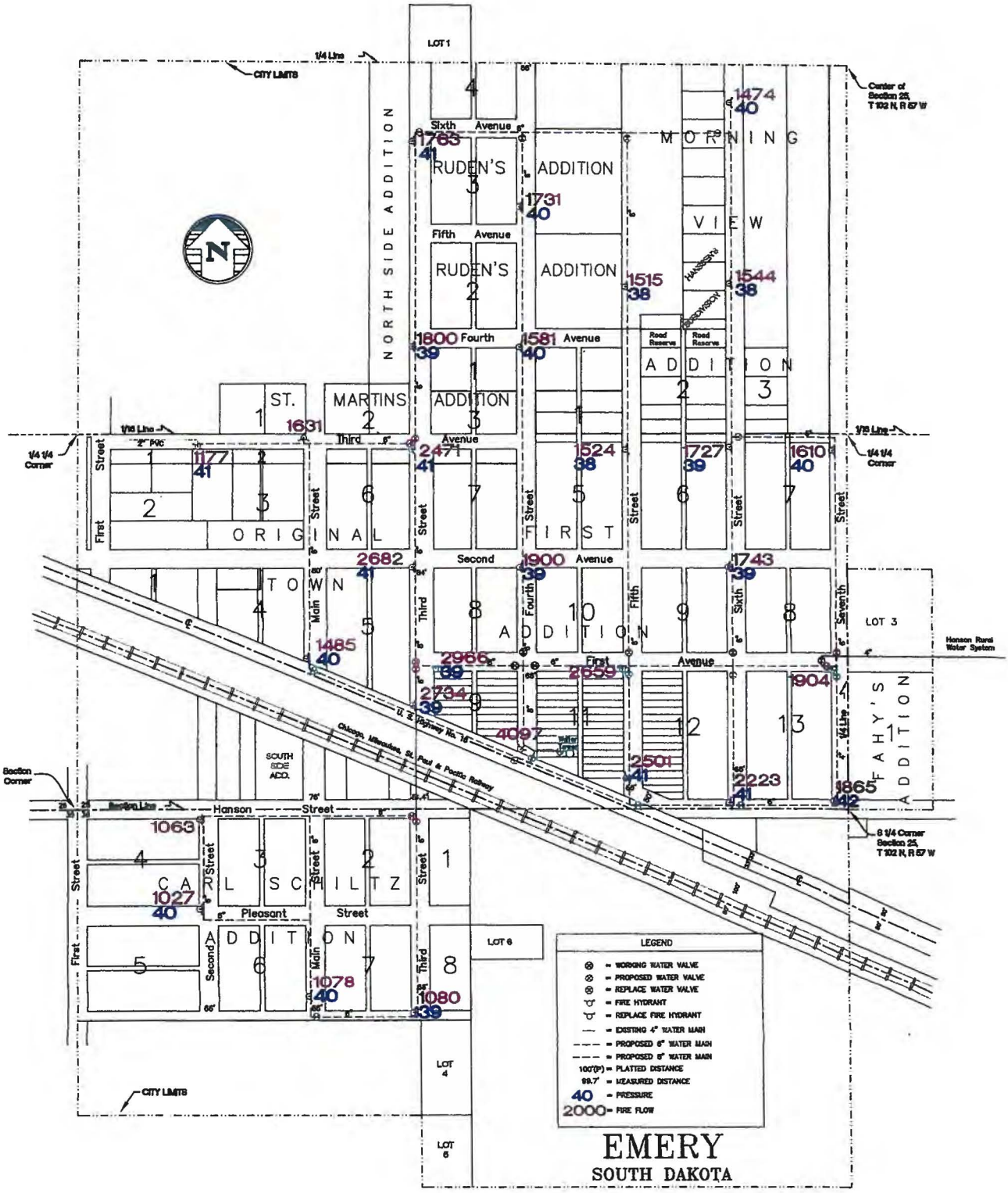

Figure 4-3
WATER SYSTEM ALTERNATIVE 3

Also included in the proposed improvements in Water System Alternative III is the replacement of all service lines from the main line to the curb stop valves. The replacement is deemed necessary, as there is no information available that would indicate the condition or type of material used for the existing service lines. Whereas many of the existing service line valves are currently inoperable, the proposed improvements considered in this Water System Alternative III includes the replacement of all 215 curb stop valves on the service lines.

The normal operating pressures shown on Figure 4-3 indicate that the improvements as proposed will result in significant improvements to the normal operating pressures in the system. At all locations, the anticipated water pressures exceed the desired minimum operating pressure of 35 psi.

It is evident from the information shown on Figure 4-3 that the hydrant flows available for fire suppression are expected in all locations to meet the fire control standards as listed in Section 3.1.5.4 of this report.

Water System Alternative III addresses all of the problems with the distribution system except storage. Table 4-3 shows the costs associated with the implementation of Water System Alternative III.

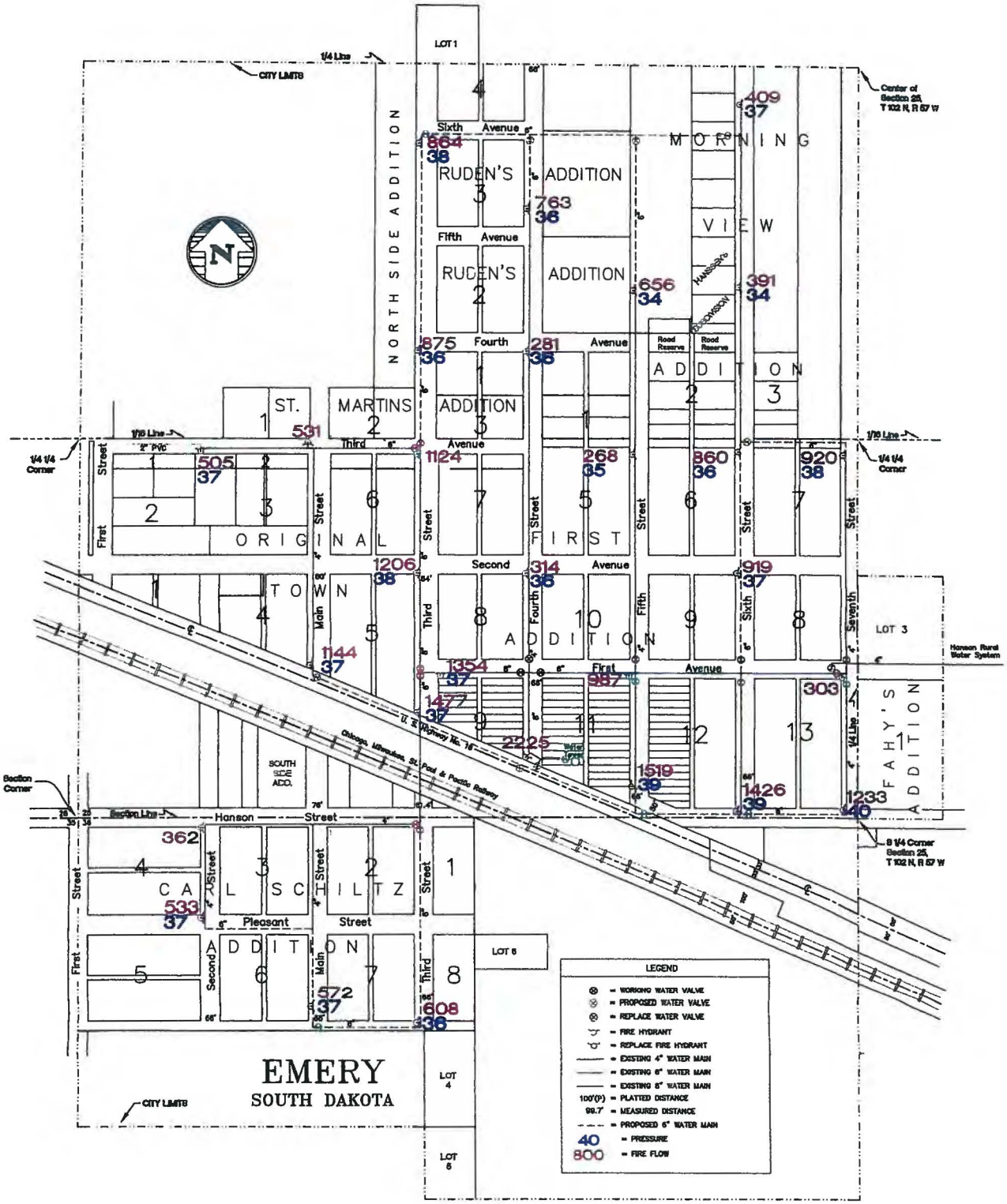

Figure 4-4
WATER SYSTEM ALTERNATIVE 4

Table 4-3 Projected Project Costs for Water System Alternative III

Item	Description	Quantity	Units	Unit Price	Total Cost
1	New 6" PVC Watermain	19,000	LF	$10.00	$190,000.00
2	New 8" PVC Watermain	1,640	LF	$12.00	$19,680.00
3	Remove & Replace Existing Hydrants	21	EA	$1,500.00	$31,500.00
4	6" PVC Hydrant Lead	420	LF	$10.00	$4,200.00
5	Replace Existing Gate Valves	10	EA	$800.00	$8,000.00
6	New Gate Valves	14	EA	$650.00	$9,100.00
7	Miscellaneous Fittings	1	LS	$16,500.00	$16,500.00
8	Replace Existing Curb Stops	215	EA	$150.00	$32,250.00
9	New Service Saddles with Corp Stops	215	EA	$100.00	$21,500.00
10	Replace Existing Service Lines	7,100	LF	$10.00	$71,000.00
11	Asphalt Street Repair	16,400	SY	$12.00	$196,800.00
12	Gravel Street Repair	2,000	SY	$2.50	$5,000.00
13	Lawn Area Repair	3,100	SY	$2.00	$6,200.00
				Subtotal of Construction Cost	$611,730.00
				Contingencies	$61,700.00
				Administration & Legal	$20,000.00
				Design Engineering	$54,400.00
				Construction Phase Engineering	$59,800.00
				Total Probable Project Cost	$807,630.00

4.2.4 Water System Alternative IV: Looping with Limited Replacement

The improvements considered in this Water System Alternative IV are a combination of the improvements considered in Water System Alternative II and Water System Alternative III. Water System Alternative IV includes the installation of new 6-inch diameter water lines to complete the loops in the distribution system thus eliminating the dead end lines that now exist. The improvements considered in this Water System Alternative IV include the replacement of those segments of the existing 4 inch watermain that would feed the new 6 inch diameter looping pipe. These segments would be replaced using 6 inch diameter piping. The location of the new piping is shown in Figure 4-4.

The additions as proposed will result in a totally looped system using a minimum pipe diameter of 6 inches that will:

1. Improve the available flow for fire control;
2. Improve water pressures under normal operating conditions;
3. Improve water quality by eliminating the dead-ends;
4. Improve the control of water flow in the system during flushing and routine operational procedures; and
5. Allow for flexibility during maintenance and repair procedures.

The improvements to the system considered in this alternative also include the replacement of the 10 mainline valves that currently inoperable. 14 additional new valves will be installed in various locations to improve the operation of the distribution system. The improvements as proposed would include the replacement of 15 hydrants that are currently connected to the existing 4 inch diameter piping that do not have pumper nozzles. The new hydrants would be connected to the new 6 inch diameter piping and will have pumper nozzles.

The normal operating pressures shown on Figure 4-4 indicate that the improvements as proposed will result in significant improvements to the normal operating pressures in the system. At all locations, the anticipated water pressures exceed the desired minimum operating pressure of 35 psi.

It is evident from the information shown on Figure 4-4 that the hydrant flows available for fire suppression are expected to be significantly improved over that now being experienced. However, the predicted hydrant flows will not meet the ISO recommended flow requirements as listed in Section 3.1.5.4 of this report in all locations of the system.

Table 4-4 shows the costs associated with Water System Alternative IV.

Table 4-4 Projected Project Costs for Water System Alternative IV

Item	Description	Quantity	Units	Unit Price	Total Cost
1	New 6" PVC Watermain	8,050	LF	$10.00	$80,500.00
2	Remove & Replace Existing Hydrants	15	EA	$1,500.00	$22,500.00
3	6" PVC Hydrant Lead	300	LF	$10.00	$3,000.00
4	Replace Existing Gate Valves	10	EA	$800.00	$8,000.00
5	New Gate Valves	14	EA	$650.00	$9,100.00
6	Replace Existing Curb Stops	125	EA	$150.00	$18,750.00
7	New Service Saddles with Corp Stops	34	EA	$100.00	$3,400.00
8	Replace Existing Service Lines	1,100	LF	$10.00	$11,000.00
9	Miscellaneous Mainline Fittings	1	LS	$9,100.00	$9,100.00
10	Connection to Existing 4" Piping	10	EA	$400.00	$4,000.00
11	Connection to Existing 6" Piping	3	EA	$450.00	$1,350.00
12	Connection to Existing 8" Piping	1	EA	$500.00	$500.00
13	Asphalt Street Repair	6,200	SY	$12.00	$74,400.00
14	Gravel Street Repair	1,200	SY	$2.50	$3,000.00
15	Lawn Area Repair	3,500	SY	$2.00	$7,000.00

Subtotal of Construction Cost	$255,600.00
Contingencies	$25,600.00
Administration & Legal	$9,800.00
Design Engineering	$27,000.00
Construction Phase Engineering	$29,800.00
Total Probable Project Cost	$347,800.00

4.3 Wastewater Collection System

The operating characteristics and deficiencies of the wastewater collection system are discussed in detail in Section 3.2.1 of this report. The following is a summary of the negative characteristics of Emery's wastewater collection system:

- Most of Emery's collection system was built in 1922.
- Storm sewer inlets connected to the sanitary sewer result in back up of sewage in the sanitary sewer system and potential health hazards to the residents of Emery.
- Storm sewer inlets connected to the sanitary sewer cause excessive hydraulic loading to the wastewater pond.
- The infiltration rate seems to be excessive.

The alternatives relating to the sanitary sewage collection system that were evaluated are described in the following sections.

4.3.1 Wastewater Collection System Alternative I: Do Nothing

The first Wastewater Collection System Alternative that was considered is the "do nothing" alternative. This alternative will not eliminate the hydraulic overloading of the collection system or wastewater treatment facility. Wastewater Collection System Alternative I will not eliminate the potential health hazards posed to the residents of Emery that may result from the back up of sewage into the basements of homes that are connected to the collection system. Because Wastewater Collection System Alternative I will not address any of the problems with the system, it is not considered as an acceptable alternative. Therefore, no further consideration is given to this Wastewater Collection System Alternative I.

4.3.2 Wastewater Collection System Alternative II: Replace Collection System

Figure 4-5 shows the layout and size of the current sanitary sewer collection system. The improvements as considered in this Wastewater Collection System Alternative II will not include any extensions of the existing sanitary sewer collection system.

As described in Section 3.2.1.1, the sanitary sewer system is subject to what appears to be unusually high rates of infiltration flow. The sources of these infiltration flows have not been identified during the course of this study. It is expected that because of the age of the system and the standards of construction at the time the system was built, the sources of the infiltration flows are fairly wide spread in the system. If this assumption is correct, the infiltration is entering the system through the cracks and joints in the sanitary sewer main piping and service line piping.

To determine the extent of degradation of the pipes and possibly isolate the sources of the infiltration flows, it is recommended that prior to the implementation of Wastewater Collection System Alternative II, the main line piping of the sanitary sewer system should be cleaned and inspected by means of a television camera. After the integrity of the sanitary sewer system is evaluated, the full extent of replacement of pipes can also be determined. Until the cleaning and television inspection and evaluation is complete, Wastewater Collection System Alternative II will consider the complete replacement of the sanitary sewer main line piping and the sanitary sewer service lines from the main to a point 5 feet from the foundation of the individual users. The cost analysis in Table 4-5 includes the cost of the cleaning, television inspection and evaluation, and the replacement of the entire sanitary sewer collection system.

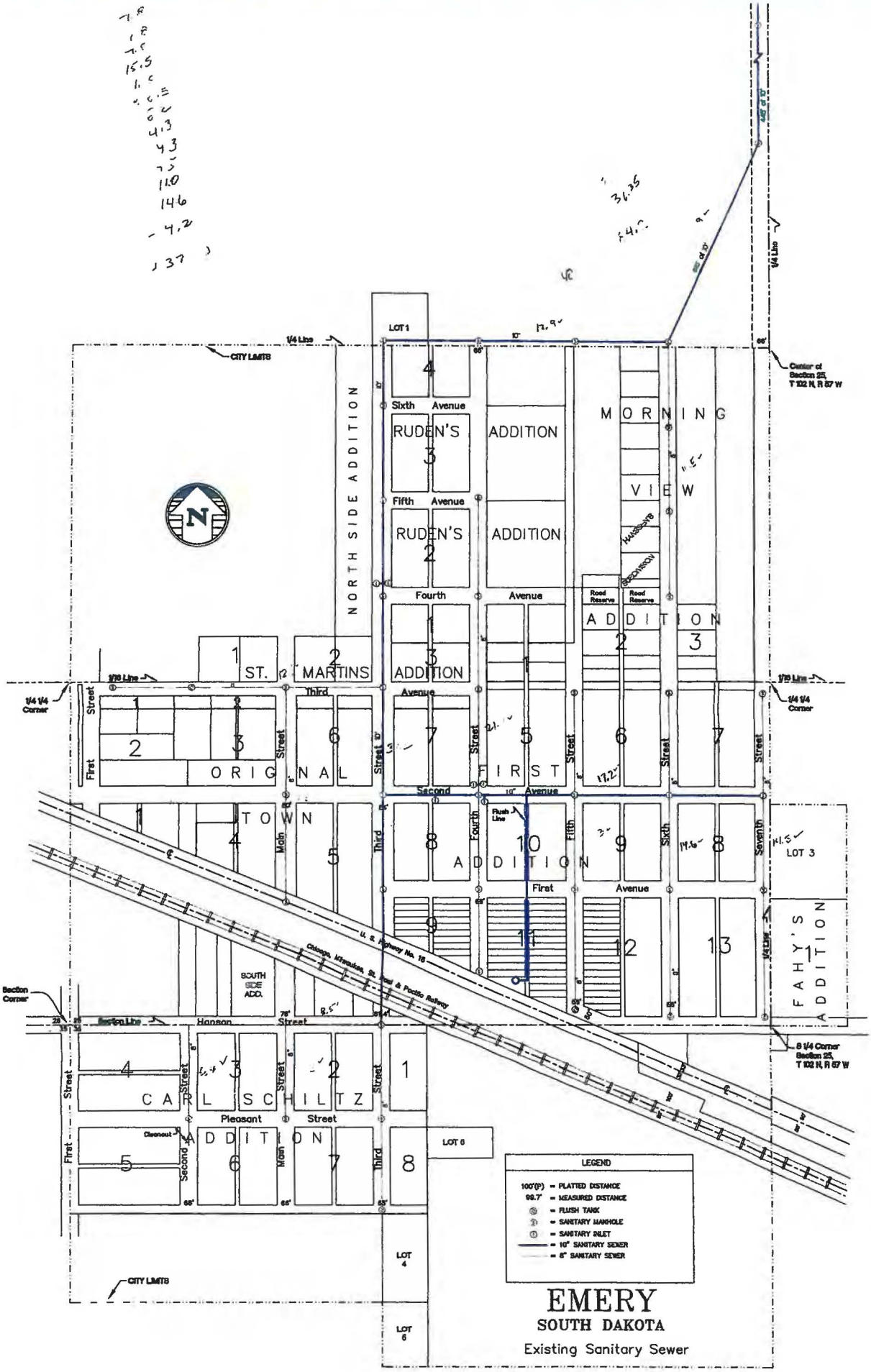

Figure 4-5
EXISTING SANITARY SEWER

Wastewater Collection System Alternative II will also include the disconnection of the storm water drainage inlets that are currently connected to the sanitary sewer system and the flush line from the well that are referred to in section 3.2.1.2. The storm sewer inlets and the flush line will be connected to a new storm sewer system to direct the storm water flow to a location that will not adversely impact the sanitary sewer collection system or wastewater treatment facility. The construction of the new storm sewer system will be discussed in more detail in Section 4-4. The costs of the new storm sewer system and the disconnection of the storm water inlets and well flush line will be presented in the cost analysis as presented in Section 4-4.

The replacement of the entire sanitary sewer collections system and all service lines to the homes and businesses would eliminate nearly all of the infiltration. The new system will be designed and constructed to the new SD DENR standards for infiltration.

Table 4-5 Projected Project Costs of Collection System Alternative II

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Clean Sewer System	17,900	LF	$0.50	$8,950.00
2	TV Inspect Sewer System	17,900	LF	$0.50	$8,950.00
3	Remove and Replace Manholes	43	EA	$2,500.00	$107,500.00
4	New 8" PVC Sewer	17900	LF	$15.00	$268,500.00
5	Service Wyes	215	EA	$80.00	$17,200.00
6	New PVC Sewer Service Piping	13600	LF	$8.00	$108,800.00
7	Reconnect Sewer Service	215	EA	$50.00	$10,750.00
8	Asphalt Street Repair	16,400	SY	$12.00	$196,800.00
9	Gravel Street Repair	1,100	SY	$2.50	$2,750.00
10	Lawn Area Repair	12,000	SY	$2.00	$24,000.00
				Subtotal of Construction Cost	$754,200.00
				Contingencies	$75,400.00
				Administration & Legal	$29,000.00
				Design Engineering	$64,100.00
				Construction Phase Engineering	$70,500.00
				Total Probable Project Cost	$993,200.00

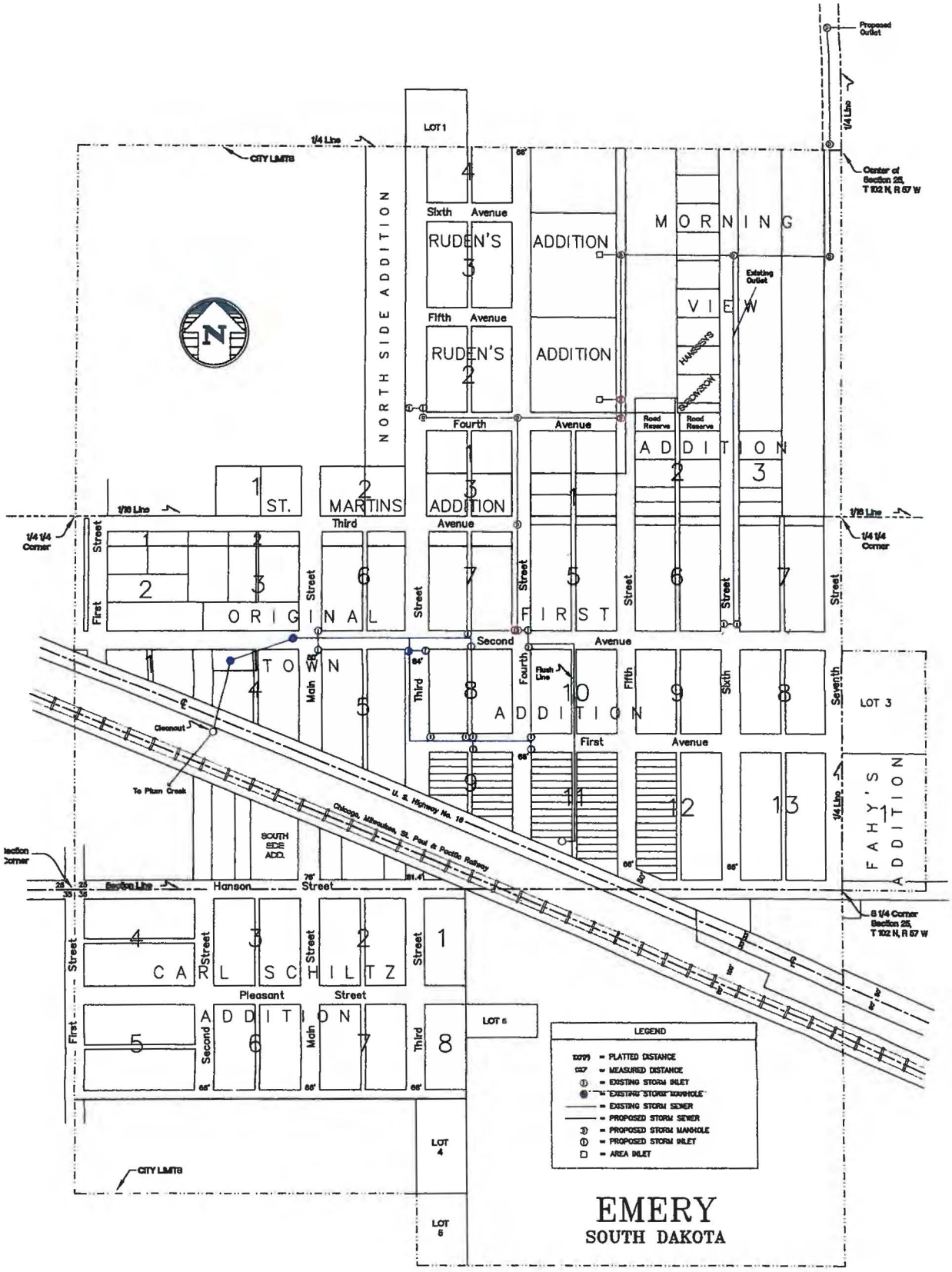

Figure 4-6
PROPOSED STORM SEWER

4.3.3 Wastewater Collection System Alternative III: Removal of Storm Water Inlets

Because the majority of the storm water that reaches the sanitary sewer collection system enters through the storm water inlets that are connected to the sanitary sewer, the storm water inlets should be disconnected from the sanitary sewer system. Disconnecting the storm water inlets will result in the elimination of the hydraulic overloading of the collection and treatment system. However, simply disconnecting the storm water inlets will result in flooding in those areas that are now drained by the inlets. Therefore, this Wastewater Collection System Alternative III cannot be considered without the construction of a new storm sewer system.

The costs of the new storm sewer system and the disconnection of the storm water inlets and well flush line will be presented in the cost analysis as presented in Section 4-4.

4.4 Storm Sewer System

The operating characteristics and deficiencies of the storm sewer system are discussed in detail in Section 3.3 of this report. The following is a summary of the following negative characteristics of Emery's storm sewer system:

- Storm sewer inlets connected to the sanitary sewer result in back up of sewage in the sanitary sewer system and potential health hazards to the residents of Emery.
- Storm sewer inlets connected to the sanitary sewer cause excessive hydraulic loading to the wastewater pond.
- The west storm sewer system drains too slowly.
- The northeast storm sewer system does not work.
- The City Park has areas of low-lying land that flood during significant runoff events.

Two alternatives relating to the storm sewer system were evaluated and are described in the following sections of this report.

4.4.1 Storm Drainage System Alternative I: Do Nothing

The first Storm Drainage System Alternative that was considered is the "do nothing" alternative. This alternative will not eliminate the hydraulic overloading of the collection system or wastewater treatment facility. Furthermore, Storm Drainage System Alternative I will not eliminate the potential health hazards posed to the residents of Emery that may result from the back up of sewage into the basements of homes that are connected to the collection system. Because Storm Drainage System Alternative I will not address any of the problems with the existing sanitary sewer collection or wastewater treatment system, it is not considered as an acceptable alternative. Therefore, no further consideration is given to Storm Drainage System Alternative I.

4.4.2 Storm Drainage System Alternative II: Improve Storm Sewer System

That part of the storm drainage system that drains the western portion of the community is reported to function poorly. A detailed evaluation of this portion of the storm drainage system was not completed as part of this study. Because the system is reported to drain slowly, it is recommended that this portion of the system should be cleaned and inspected by television if necessary to evaluate the capacity of the system. The cleaning will enable the system to drain flooded areas as quickly as possible. The evaluation will result in the location of manholes or other facilities that will enable future cleaning and maintenance efforts. The cost of the implementation of these recommendations will be included as part of Storm Drainage System Alternative II

That portion of the existing storm drainage system that drains portions of the eastern side of the community should also be cleaned and inspected by means of a television if necessary and possible. This will allow a determination of the extent of the damage to the pipe. The cleaning and repairs may facilitate more water movement through the system. Until the condition of this portion of the existing system can be evaluated, it must be assumed that the system cannot be repaired. Therefore, the cost analysis in this section of the report includes the cost of replacing the entire northeast portion of the storm drainage system and connecting it to the new storm sewer that is being considered in this Storm Drainage System Alternative II.

Because the majority of the storm water that reaches the sanitary sewer collection system enters through the storm water inlets that are connected to the sanitary sewer, it is recommended that the storm water inlets should be disconnected from the sanitary sewer system. To disconnect the storm water inlets will result in the elimination of the hydraulic overloading of the collection and treatment system. However, simply disconnecting the storm water inlets will result in flooding in those areas that are now drained by the inlets. Therefore, Storm Drainage System Alternative II considers the construction of a new storm sewer system.

Storm Drainage System Alternative II will include the disconnection of the flush line from the well that is referred to in section 3.2.1.2. This alternative will also include the removal of the sanitary inlet located between Third and Fourth Street on Second Avenue, which does not seem to work properly. The inlet is in close proximity to another working storm inlet. Therefore, the sanitary inlet should be removed and not be replaced, which leaves 5 sanitary inlets and 2 storm inlets to be replaced, along with the 2 new inlets in the park.

As described in Section 3.3 of this report, several areas of low-lying land in the park are susceptible to flooding during significant rainfall events. Because of this, the City of Emery has requested that these areas be incorporated into the design of any new storm sewer system. The storm drainage inlets and the flush line that will be disconnected from the sanitary sewer collection system will be connected to the new storm sewer system being considered in this Storm Drainage System Alternative II. The new storm drainage system is shown in Figure 4-6. The new storm drainage system will direct the storm water flow to a location northeast of the City of Emery near Wolf Creek that will not adversely impact the sanitary sewer collection system or wastewater treatment facility. This Storm Drainage System Alternative II is recommended because it focuses on the deficiencies of the storm sewer system.

The sizing of storm drainage systems are based on the amount of storm water that is to be carried away in a given period of time. The amount of water that is to be carried in a storm drainage system is generally determined by the amount of runoff that can occur from a storm event of an intensity that can be expected to occur once within a given time frame, based on statistics. Another way to size a storm drainage system is to base the sizing on the basis of the amount of water that can enter the drainage system through the inlets that are connected to the system. Generally, the maximum capacity of a typical storm water inlet with a dimension of 2 foot by 3 foot is 1 cubic feet per second (cfs) or less. For purposes of analysis of Storm Drainage System Alternative II, the preliminary sizing of the storm drainage system are based on inlet capacities of 1.0 cfs, 0.75 cfs and 0.50 cfs.

The probable project costs for the construction of a storm drainage system based on inlet capacities of 1.0 cfs are shown in Table 4-6. This option, Storm Drainage System Alternative II-a, is an acceptable option for the City of Emery and addresses the problems with storm sewer drainage.

Table 4-6 Projected Costs of Storm Sewer Alternative II-a

(based on inlet capacity of 1.00 cubic feet per second)

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Remove and Dispose Existing Inlet	8	EA	$250.00	$2,000.00
2	12" RCP Storm Drainage Piping	500	LF	$22.00	$11,000.00
3	15" RCP Storm Drainage Piping	1,500	LF	$25.00	$37,500.00
4	18" RCP Storm Drainage Piping	1200	EA	$27.00	$32,400.00
5	24" RCP Storm Drainage Piping	1100	LF	$38.00	$41,800.00
6	27" RCP Storm Drainage Piping	800	EA	$43.00	$34,400.00
7	30" RCP Storm Drainage Piping	850	LF	$50.00	$42,500.00
8	48" Diameter Manholes	4	EA	$1,200.00	$4,800.00
9	72" Diameter Manholes	3	EA	$1,800.00	$5,400.00
10	84" diameter Manholes	2	EA	$2,200.00	$4,400.00
11	Storm Water Inlets	9	EA	$800.00	$7,200.00
12	Clean N. Storm Drainage Piping	1,400	LF	$0.50	$700.00
13	Televise N. Storm Drainage Piping	1,400	LF	$0.50	$700.00
14	Clean W. Storm Drainage Piping	15,000	LF	$0.50	$7,500.00
15	Televise W. Storm Drainage Piping	15,000	LF	$0.50	$7,500.00
16	Asphalt Street Repair	3,200	SY	$12.00	$38,400.00
17	Gravel Street Repair	1,100	SY	$2.50	$2,750.00
18	Lawn Area Repair	800	SY	$2.00	$1,600.00
				Subtotal of Construction Cost	$282,550.00
				Contingencies	$28,300.00
				Administration & Legal	$1,000.00
				Design Engineering	$26,900.00
				Construction Phase Engineering	$28,300.00
				Total Probable Project Cost	$367,050.00

A second option that was evaluated for the disposal of storm water drainage was Storm Drainage System Alternative II-b. In this alternative, the sizing of the piping system is based on a storm water inlet capacity of 0.75 cfs each. The system that is considered in this Storm Drainage System Alternative II-b will result in a storm water drainage system that will drain slower than the system previously described in Storm Drainage System Alternative II-a. This will require that some of the storm water drainage be stored temporarily in low lying areas around the inlets such as at intersections, in the low areas of the City Park and under extremely heavy runoff events in the yards of some of the homes near the inlets. The probable project costs for the construction of a storm drainage system based on inlet capacities of 0.75 cfs are shown in Table 4-7. Storm Drainage System Alternative II-b is an acceptable option for the City of Emery and addresses the problems with storm sewer drainage.

Table 4-7 Projected Costs of Storm Sewer Alternative II-b

(based on inlet capacity of 0.75 cubic feet per second)

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Remove and Dispose Existing Inlet	8	EA	$250.00	$2,000.00
2	12" RCP Storm Drainage Piping	1,650	LF	$22.00	$36,300.00
3	15" RCP Storm Drainage Piping	1,200	LF	$25.00	$30,000.00
4	18" RCP Storm Drainage Piping	350	EA	$27.00	$9,450.00
5	21" RCP Storm Drainage Piping	1000	LF	$33.00	$33,000.00
6	24" RCP Storm Drainage Piping	1250	EA	$38.00	$47,500.00
7	48" Diameter Manholes	6	EA	$1,200.00	$7,200.00
8	72" Diameter Manholes	5	EA	$1,800.00	$9,000.00
9	84" diameter Manholes	3	EA	$2,200.00	$6,600.00
10	Storm Water Inlets	9	EA	$800.00	$7,200.00
11	Clean N. Storm Drainage Piping	1,400	LF	$0.50	$700.00
12	Televise N. Storm Drainage Piping	1,400	LF	$0.50	$700.00
13	Clean W. Storm Drainage Piping	15,000	LF	$0.50	$7,500.00
14	Televise W. Storm Drainage Piping	15,000	LF	$0.50	$7,500.00
15	Asphalt Street Repair	3,200	SY	$12.00	$38,400.00
16	Gravel Street Repair	1,100	SY	$2.50	$2,750.00
17	Lawn Area Repair	800	SY	$2.00	$1,600.00
				Subtotal of Construction Cost	$247,400.00
				Contingencies	$24,700.00
				Administration & Legal	$6,600.00
				Design Engineering	$27,200.00
				Construction Phase Engineering	$29,200.00
				Total Probable Project Cost	$335,100.00

A third option that was evaluated for the disposal of storm water drainage was Storm Drainage System Alternative II-c. In this alternative, the sizing of the piping system is based on a storm water inlet capacity of 0.50 cfs each. The system that is considered in this Storm Drainage System Alternative II-c will result in a storm water drainage system that will drain slower than either of those storm drainage system alternative systems previously described. Storm Drainage System Alternative II-c will require that more of the storm water drainage be stored temporarily in low lying areas around the inlets such as at intersections, in the low areas of the City Park and under extremely heavy runoff events in the yards of some of the homes near the inlets. The probable project costs for the construction of a storm drainage system based on inlet capacities of 0.50 cfs are shown in Table 4-8. Storm Drainage System Alternative II-c is an acceptable option for the City of Emery and addresses the problems with storm sewer drainage.

Table 4-8 Projected Costs of Storm Sewer Alternative II-c

(based on inlet capacity of 0.50 cubic feet per second)

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Remove and Dispose Existing Inlet	8	EA	$250.00	$2,000.00
2	12" RCP Storm Drainage Piping	2,800	LF	$22.00	$61,600.00
3	18" RCP Storm Drainage Piping	1300	EA	$27.00	$35,100.00
4	21" RCP Storm Drainage Piping	1300	LF	$33.00	$42,900.00
5	48" Diameter Manholes	9	EA	$1,200.00	$10,800.00
6	72" Diameter Manholes	3	EA	$1,800.00	$5,400.00
7	84" diameter Manholes	2	EA	$2,200.00	$4,400.00
8	Storm Water Inlets	9	EA	$800.00	$7,200.00
9	Clean N. Storm Drainage Piping	1,400	LF	$0.50	$700.00
10	Televise N. Storm Drainage Piping	1,400	LF	$0.50	$700.00
11	Clean W. Storm Drainage Piping	15,000	LF	$0.50	$7,500.00
12	Televise W. Storm Drainage Piping	15,000	LF	$0.50	$7,500.00
13	Asphalt Street Repair	3,200	SY	$12.00	$38,400.00
14	Gravel Street Repair	1,100	SY	$2.50	$2,750.00
15	Lawn Area Repair	800	SY	$2.00	$1,600.00
				Subtotal of Construction Cost	$228,550.00
				Contingencies	$27,800.00
				Administration & Legal	$8,800.00
				Design Engineering	$27,200.00
				Construction Phase Engineering	$29,300.00
				Total Probable Project Cost	$321,650.00

4.5 Wastewater Treatment Facility

The operating characteristics and deficiencies of the wastewater treatment facility are discussed in detail in Section 3.2.2 of this report. The following is a summary of the negative characteristics of Emery's wastewater pond:

- The wastewater treatment facility is a single-cell pond that does not meet the SD DENR criteria for discharging facilities.
- The wastewater treatment facility does not have adequate volume to meet the 180 day storage requirements of the SD DENR.
- The wastewater treatment facility is not capable of meeting the discharge requirements due to the single cell configuration and the inadequate storage capacity.
- The spring fed swampy area along the west dike of the treatment facility is endangering the structural integrity of the adjacent dike of the treatment facility.

The alternatives relating to the wastewater treatment facility that were evaluated are described in the following sections.

4.5.1 Wastewater Treatment Facility Alternative I: Do Nothing

The first Wastewater Treatment Facility Alternative that was considered is the "do nothing" alternative. This alternative will not result in the correction of any of the wastewater treatment facility deficiencies that have been identified. Because the Wastewater Treatment Facility Alternative I will merely continue the current operational processes that are resulting in violations of the NPDES permit, this alternative is not considered as an acceptable alternative. Therefore, no further consideration is given to this Wastewater Treatment Facility Alternative I.

4.5.2 Wastewater Treatment Facility Alternative II: 180-Day Retention

Theory and recent practice show that a stabilization pond treatment facility, when designed, constructed and maintained in conformance with the current standards and practices, will provide efficient and trouble free treatment of wastewater. Such ponds are normally designed for 180-day storage of wastewater flow or a maximum of 20 pounds of BOD_5 per acre per day of water surface. The larger of the sizing, based on these two requirements, is used for the pond design. Treated wastewater is generally discharged from a 180-day retention facility in the spring and in the fall of a year.

Since the sludge accumulation generally averages less than 1/8 inch per year, it is not normally necessary to consider continuous sludge removal and handling from this type of treatment facility. The actual amount of sludge accumulation is dependent upon the organic loading of the pond, the amount of sand and silt carried by surface inflow, etc.

Wastewater Treatment Facility Alternative II is sized assuming that the wastewater flows contributed by infiltration have not been removed. To do so would require the complete replacement of the sanitary sewer system as discussed in Section 4.3.2 of this report. The sizing of the Wastewater Treatment Facility Alternative II is based on the conclusions that the storm water inflow will be removed when the new storm sewer system is installed. This assumption is based on the potential health hazard resulting from the back up of sewage during heavy flow events. A summary of the preliminary sizing is as follows:

Organic Loading	
Total Organic Loading	100 lb BOD_5 per day
Hydraulic Loading	
Total Domestic Hydraulic Loading	35,000 gpd
Average Daily Infiltration Loading	24,500 gpd
Average Daily Inflow Loading	0 gpd

To eliminate the potential problems due to the spring that is present west of the pond, it is recommended that a tile drainpipe be installed along the toe of the west dike of the existing pond. This drainpipe will ensure proper drainage and route the ground water around the wastewater treatment plant into Wolf Creek, improving the condition of the west dike. The Palmer-Bowles flume will also be removed and replaced with an appropriate flow-measuring device.

The location of the existing wastewater treatment facility is shown in Figure 3-8. Unfortunately, due to the location of the existing pond, increasing its size to meet SD DENR requirements will be difficult. The existing pond is bounded on the west and north sides by roads and on the east side Wolf Creek. A steep slope and the town's former solid waste disposal site and current rubble site is located on the south side. The Federal Emergency Management Administration (FEMA) classifies the area immediately east of the existing wastewater treatment facility as a Zone A flood plain. Construction is generally not allowed in these zones. These physical conditions limit expansion of the existing wastewater treatment facility in this location.

4.5.2.1 Wastewater Treatment Facility Alternative II-a: Use Existing Cell as Primary and Add Cells

Wastewater Treatment Facility Alternative II-a considers the expansion of the wastewater treatment facility by the addition of two additional treatment/storage cells in a location south of the current rubble site. A new wastewater pumping facility will be required to transport the partially treated wastewater from the existing facility to the new second and third cells.

The wastewater flow would be discharged into the 6.08 acre existing cell as it is now for treatment and storage. The storage capacity of the existing pond is limited to the a depth of 1 foot in order to maintain the required minimum of 2 foot water cover over the highest level for odor control. The partially treated wastewater would be pumped to two new cells that could be constructed in a location south of the existing rubble site. Each of the two new cells would have a depth of 5 feet and a water surface of approximately 3.00 acres each. A general layout and proposed location is shown on Figure 4-7.

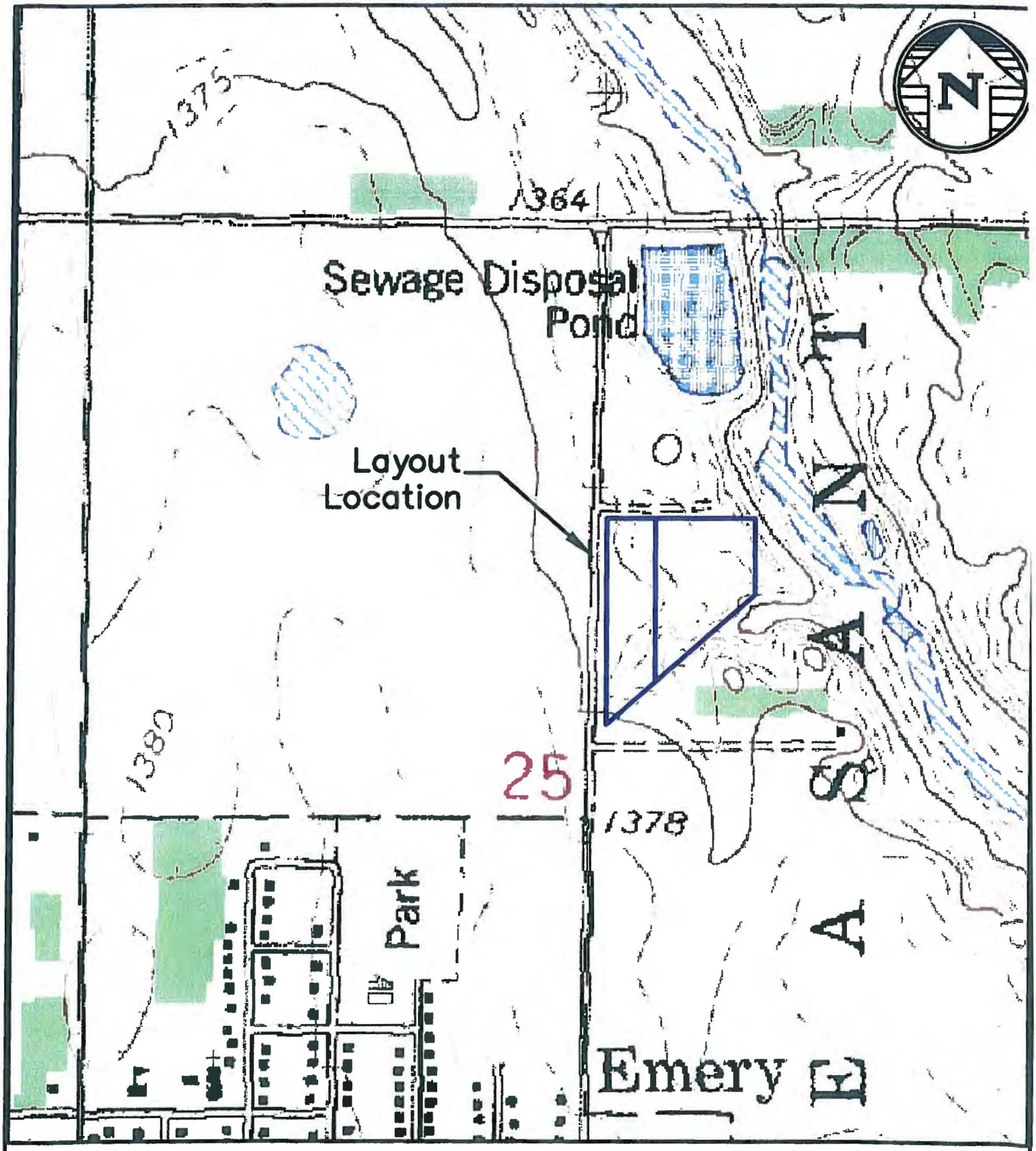

Figure 4–7 Proposed Wastewater Treatment
Alt. 2a

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The organic loading on the existing cell is expected to be 15.39 lb BOD_5 per acre per day. This is far below the SD DENR maximum allowable loading of 30 lb BOD_5 per acre per day. The organic loading on the combined water surface area of the entire facility is expected to be 7.76 lb BOD_5 per acre per day. This is below the SD DENR maximum allowable loading of 20 lb BOD_5 per acre per day. Whereas the water surface area required for the hydraulic sizing is greater than the waster surface area required for organic loading, the hydraulic sizing would govern.

The probable project costs for the construction of two new additional treatment/storage cells as described in this alternative is shown in Table 4-9. Along with the existing pond, the two additional ponds will enable Emery to meet the SD DENR criteria and operate their wastewater system in a manner such that the discharge from the wastewater system will meet the NPDES Permit conditions. The additional ponds will increase water surface area, which will decrease the organic loading per acre per day and will improve flexibility and effluent quality (SD DENR, 1990). Wastewater Treatment Facility Alternative II-a will provide for the correction of the deficiencies that have been identified in connection with the existing wastewater treatment facility.

Table 4-9 Projected Costs of Wastewater Treatment Alternative II-a

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Excavation and construction of new cells	25,000	CY	$1.80	$45,000.00
2	Wet Area Drain Tile	2,100	LF	$4.00	$8,400.00
3	Pond Structures	3	EA	$1,500.00	$4,500.00
4	Lift Station Intake Structure	1	LS	$8,000.00	$8,000.00
5	Wastewater Pumping Facilites	1	LS	$35,000.00	$35,000.00
6	Wastewater Transfer Piping	4,100	LF	$10.00	$41,000.00
7	Inter Pond Piping	120	LF	$40.00	$4,800.00
8	Outfall Piping	200	LF	$30.00	$6,000.00
9	Outfall Structure with Flow Measurement	1	EA	$5,000.00	$5,000.00
10	Seeding & Fertilizing	5	AC	$500.00	$2,500.00
11	Fencing	2,400	LF	$2.00	$4,800.00
				Subtotal of Construction Cost	$165,000.00
				Contingencies	$16,500.00
				Land Purchase	$8,000.00
				Administration & Legal	$6,400.00
				Design Engineering	$18,700.00
				Construction Phase Engineering	$20,500.00
				Total Probable Project Cost	$235,100.00

In addition to an opinion of cost for each alternative discussed in this section, a breakdown of the estimated equivalent uniform annual cost (EUAC) is also given. The EUAC not only takes the capital costs into account when evaluating the options but also looks at the salvage value of the components and the expected annual operation and maintenance costs. The result is a comparison of the alternatives on an overall basis throughout a design life of 20 years. As a result, the EUAC may show that the lowest capital cost alternative is not the lowest cost alternative. This situation would occur when options have a low capital cost but high operation and maintenance costs. The terms and values utilized in performing the EUAC are given in Table 4-11.

Table 4-10 Cost Effective Analysis of Wastewater Treatment Alternative II-a

a. Construction Costs

Item	Cost	SV	PW SV	NPW
Land Purchase	$8,000.00	$4,800.00	$1,766.40	$6,233.60
Excavation and construction of new cells	$45,000.00	$0.00	$0.00	$45,000.00
Wet Area Drain Tile	$8,400.00	$5,040.00	$1,854.72	$6,545.28
Pond Structures	$4,500.00	$0.00	$0.00	$4,500.00
Lift Station Intake Structure	$8,000.00	$0.00	$0.00	$8,000.00
Wastewater Pumping Facilites	$35,000.00	$0.00	$0.00	$35,000.00
Wastewater Transfer Piping	$41,000.00	$24,600.00	$9,052.80	$31,947.20
Inter Pond Piping	$4,800.00	$2,880.00	$1,059.84	$3,740.16
Outfall Piping	$6,000.00	$3,600.00	$1,324.80	$4,675.20
Outfall Structure with Flow Measurement	$5,000.00	$0.00	$0.00	$5,000.00
Seeding & Fertilizing	$2,500.00	$0.00	$0.00	$2,500.00
Fencing	$4,800.00	$0.00	$0.00	$4,800.00
Capital Costs	$62,100.00	$0.00	$0.00	$62,100.00
Total Construction Cost	$235,100.00	$40,920.00	$15,058.56	$220,041.44

b. Operation and Maintenance Costs

Item	Annual Cost	NRW
Labor	$4,000.00	$49,324.80
Utilities	$3,000.00	$36,993.60
Materials	$1,000.00	$12,331.20
Miscellaneous	$2,500.00	$30,828.00
Equipment Replacement	$2,000.00	$24,662.40
Subtotal	$12,500.00	$154,140.00

c. Equivalent Uniform Annual Cost

NPW of Construction Cost	$220,041.44
NPW of O & M Costs	$154,140.00
Total Net Present Worth	$374,181.44
Equivalent Uniform Annual Cost	$30,346.11

Table 4-11: Equivalent Uniform Annual Cost Terminology and Values Used

Term	Definition	Value Used
Interest = I	Annual interest rate	5 1/8 %
Salvage Value = SV	Value of component at end of 20-year design life	Variable
Present Worth = PW	Present worth (equal to opinion of cost for that item)	Variable
Net Present Worth of Salvage Value =PW SV	Present worth of the salvage value	0.36836
Net Present Worth of Capital Costs = NPW	Present worth less the present worth of the salvage value	Variable
Net Present Worth of Annual Costs	Present worth of annual costs over the 20-year design life	12.334
Equivalent Uniform Annual Cost = EUAC	Annual cost of total present worth of capital and annual costs	0.0811
Design Life	Length of time facilities are projected to operate and/or meet design parameters	20 years

4.5.2.2 Wastewater Treatment Facility Alternative II-b: New Primary Cell and Divide Existing Cells

Wastewater Treatment Facility Alternative II-b is sized on the same basis as Wastewater Treatment Facility Alternative II-a. Wastewater Treatment Facility Alternative II-b considers the construction of a new primary treatment and storage cell in a location south of the existing rubble site. The partially treated wastewater from the new primary cell would be transferred to the existing cell by means of gravity piping. The existing facility would be modified by the addition of a dike to divide the existing facility into 2 cells and to increase the depth of the cells. A general layout and proposed location is shown on Figure 4-8.

The wastewater flow would be discharged into a new 3.40 acre primary cell for treatment and storage. A dike would be constructed in the existing cell to divide it into 2 cells with surface areas of approximately 2.50 acres each. Because the storage capacity of the existing pond is limited, the new dike and the existing dikes would be raised to provide additional depth within the cells to increase the storage capacity. The operating level in the modified existing cells would be increased to the SD DENR allowable maximum depth of 6 feet. The modified existing cells would have surface areas of 2.68 and 2.24 acres.

The organic loading on the new primary cell is expected to be 30 lb BOD_5 per acre per day. This is based on the SD DENR maximum allowable loading of 30 lb BOD_5 per acre per day. The organic loading on the combined water surface area of the entire facility is expected to be 11.9 lb BOD_5 per acre per day. This is below the SD DENR maximum allowable loading of 20 lb BOD_5 per acre per day. Whereas the total water surface area required for the hydraulic sizing is greater than the total water surface area required for organic loading, the hydraulic sizing would govern.

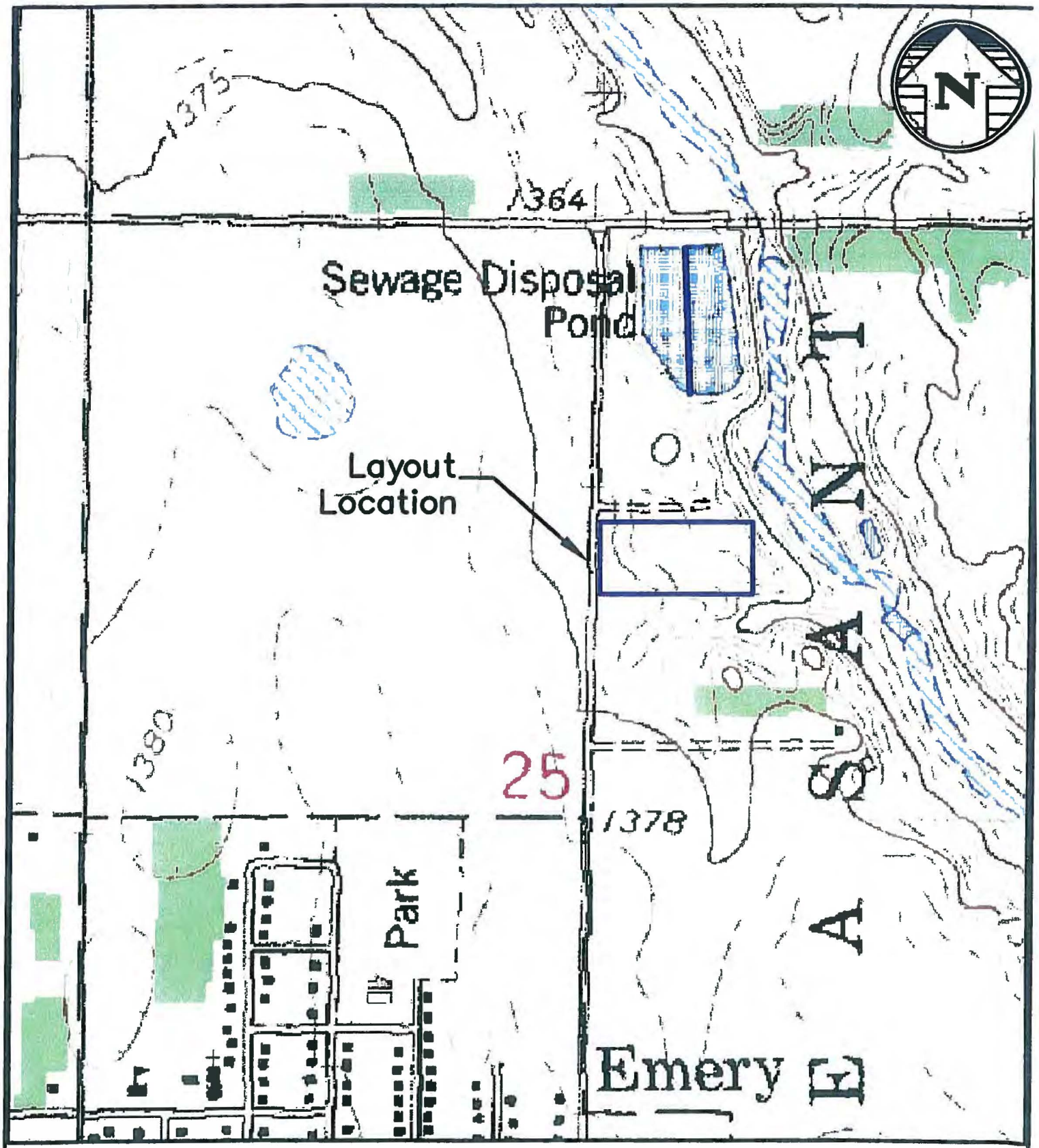

Figure 4–8 Proposed Wastewater Treatment
Alt. 2b

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The probable project costs for the construction of the new primary cell and the modifications to the existing cell as described in this alternative is shown in Table 4-12. The new primary pond and the modified existing pond will enable Emery to meet the SD DENR criteria and operate their wastewater system in a manner such that the discharge from the wastewater system will meet the NPDES Permit conditions. The additional pond will increase water surface area, which will decrease the organic loading per acre per day and will improve flexibility and effluent quality (SD DENR, 1990). Wastewater Treatment Facility Alternative II-b will provide for the correction of the deficiencies that have been identified in connection with the existing wastewater treatment facility.

Table 4-12 Projected Costs of Wastewater Treatment Alternative II-b

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Excavation and construction of new cells	16,000	CY	$1.80	$28,800.00
2	Wet Area Drain Tile	2,100	LF	$4.00	$8,400.00
3	Modify Dikes of Existing Cell	45,000	CY	$3.00	$135,000.00
4	Pond Structures	3	EA	$1,500.00	$4,500.00
5	Wastewater Transfer Piping	1,200	LF	$12.00	$14,400.00
6	Inter Pond Piping	120	LF	$40.00	$4,800.00
7	Outfall Piping	200	LF	$30.00	$6,000.00
8	Outfall Structure with Flow Measurement	1	EA	$5,000.00	$5,000.00
9	Seeding & Fertilizing	5	AC	$500.00	$2,500.00
10	Fencing	2,400	LF	$2.00	$4,800.00
				Subtotal of Construction Cost	$214,200.00
				Contingencies	$21,400.00
				Land Purchase	$5,000.00
				Administration & Legal	$8,200.00
				Design Engineering	$23,400.00
				Construction Phase Engineering	$25,800.00
				Total Probable Project Cost	$298,000.00

Table 4-13 Cost Effective Analysis of Wastewater Treatment Alternative II-b

a. Construction Costs

Item	Cost	SV	PW SV	NPW
Land Purchase	$5,000.00	$3,000.00	$1,104.00	$3,896.00
Excavation and construction of new cells	$28,800.00	$0.00	$0.00	$28,800.00
Modify Existing Dikes	$135,000.00	$0.00	$0.00	$135,000.00
Wet Area Drain Tile	$8,400.00	$5,040.00	$1,854.72	$6,545.28
Pond Structures	$4,500.00	$0.00	$0.00	$4,500.00
Wastewater Transfer Piping	$14,400.00	$8,640.00	$3,179.52	$11,220.48
Inter Pond Piping	$4,800.00	$2,880.00	$1,059.84	$3,740.16
Outfall Piping	$6,000.00	$3,600.00	$1,324.80	$4,675.20
Outfall Structure with Flow Measurement	$5,000.00	$0.00	$0.00	$5,000.00
Seeding & Fertilizing	$2,500.00	$0.00	$0.00	$2,500.00
Fencing	$4,800.00	$0.00	$0.00	$4,800.00
Capital Costs	$78,800.00	$0.00	$0.00	$78,800.00
Total Construction Cost	$298,000.00	$23,160.00	$8,522.88	$289,477.12

b. Operation and Maintenance Costs

Item	Annual Cost	NRW
Labor	$4,000.00	$49,324.80
Utilities	$0.00	$0.00
Materials	$1,000.00	$12,331.20
Miscellaneous	$2,500.00	$30,828.00
Equipment Replacement	$500.00	$6,165.60
Subtotal	$8,000.00	$98,649.60

c. Equivalent Uniform Annual Cost

NPW of Construction Cost	$289,477.12
NPW of O & M Costs	$98,649.60
Total Net Present Worth	$388,126.72
Equivalent Uniform Annual Cost	$31,477.08

4.5.3 Wastewater Treatment Facility Alternative III: Artificial Wetland

Artificial wetlands are a relatively new technology for treatment of municipal waste that has been used successfully in South Dakota. A pre-treatment system consisting of not less than two cells is recommended. The pre-treatment cells must have a total storage volume equal to not less than 150 days of the design wastewater flows.

The partially treated wastewater is discharged to the wetland treatment portion of the facility through a discharge header that is designed to distribute the flow evenly across the width of the wetland area. Optimum water depth in the wetland area is recommended to be nine inches. The hydraulic flow through the wetland area is controlled to provide a minimum of 14 days of detention in the wetland area. Since no discharge is recommended during the winter period, the wetland is generally designed to be capable of supplementing the storage capacity provided in the two primary treatment cells.

Wastewater Treatment Facility Alternative III is sized assuming that the wastewater flows contributed by infiltration have not been removed. To do so would require the complete replacement of the sanitary sewer system as discussed in Section 4.3.2 of this report. The sizing of the Wastewater Treatment Facility Alternative III is based on the conclusions that the storm water inflow will be removed when the new storm sewer system is installed. This assumption is based on the potential health hazard resulting from the back up of sewage during heavy flow events. A summary of the preliminary sizing is as follows:

Organic Loading	
Total Organic Loading	100 lb BOD_5 per day
Hydraulic Loading	
Total Domestic Hydraulic Loading	35,000 gpd
Average Daily Infiltration Loading	24,500 gpd
Average Daily Inflow Loading	0 gpd

To eliminate the potential problems due to the spring that is present west of the pond, it is recommended that a tile drainpipe be installed along the toe of the west dike of the existing pond. This drainpipe will ensure proper drainage and route the ground water around the wastewater treatment plant into Wolf Creek, improving the condition of the west dike. The Palmer-Bowles flume will also be removed and replaced with an appropriate flow-measuring device.

The location of the existing wastewater treatment facility is shown in Figure 3-8. Unfortunately, due to the location of the existing pond, increasing its size to meet SD DENR requirements will be difficult. The existing pond is bounded on the west and north sides by roads and on the east side Wolf Creek. A steep slope and the town's former solid waste disposal site and current rubble site is located on the south side. The Federal Emergency Management Administration (FEMA) classifies the area immediately east of the existing wastewater treatment facility as a Zone A flood plain. Construction is generally not allowed in these zones. These physical conditions limit expansion of the existing wastewater treatment facility in this location.

Along with the existing pond, an additional pond and an artificial wetland will enable Emery to properly operate their wastewater system. The wastewater from the community will enter the existing 6.08 acre treatment cell for treatment and storage as it now does. The organic loading on the existing cell will be approximately 16.5 lb of BOD_5 per acre per day. A total of approximately 9.17 acres of water surface area are needed for two stabilization ponds. The organic loading on the storage cells within the treatment facility will be approximately 10.9 lb of BOD_5 per acre per day.

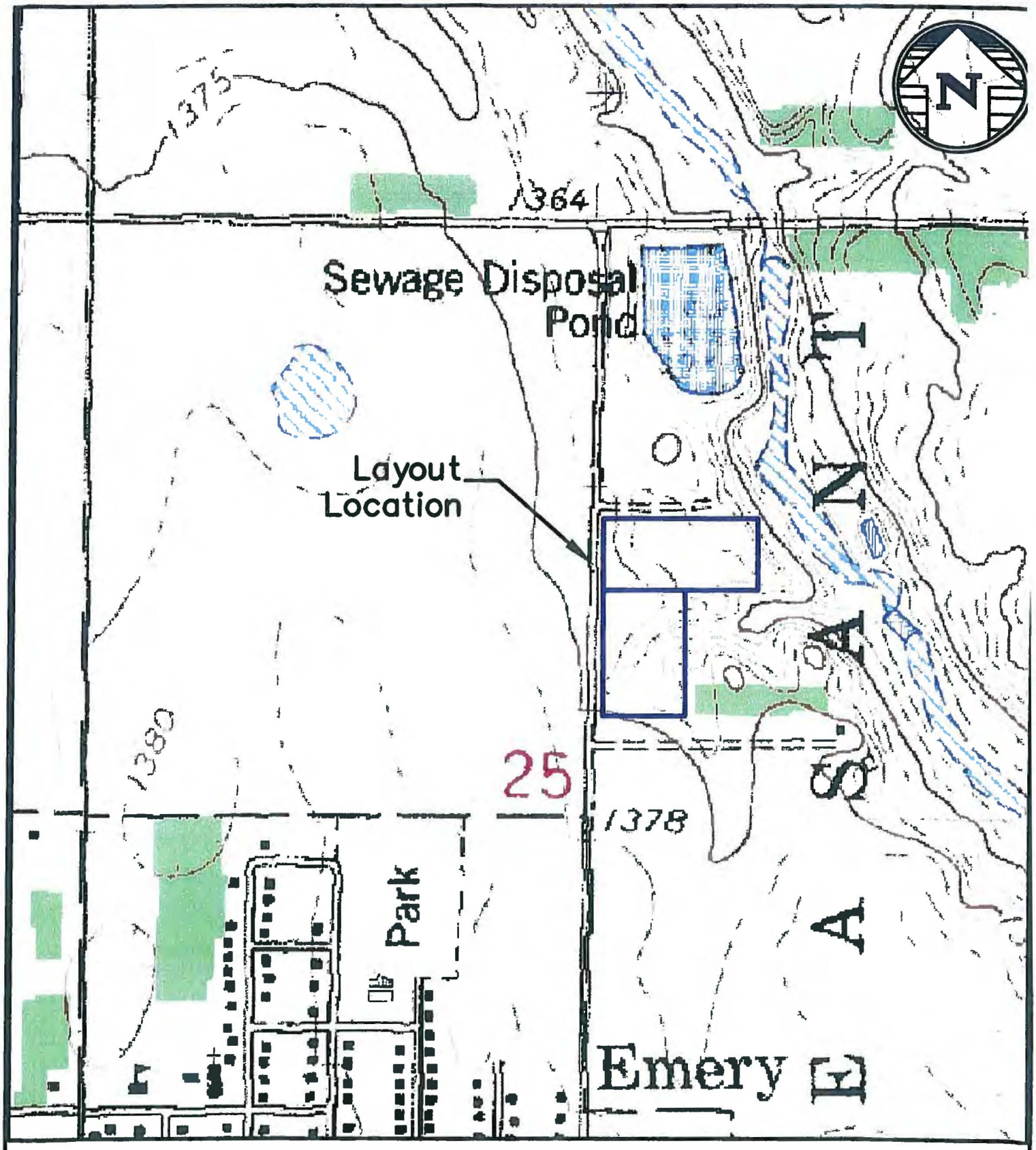

Figure 4–9 Proposed Wastewater Treatment Alt. 3

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Because of the site limitations, it is not possible to expand the storage system at the existing site. Therefore, it will be necessary to construct a pumping facility to transfer the partially treated water from the existing cell to the new storage cell. It is anticipated that the new storage cell will be constructed in a location south of the existing rubble site. The water surface area for the additional cell will be approximately 3.10 acres. The area needed in the artificial wetland to meet SD DENR requirements is approximately 3.37 acres. The general layout and proposed location of the wetland treatment facility as presented in this Wastewater Treatment Facility Alternative III is shown on Figure 4-9. This option is practical for the Town of Emery and focus on the problems with the wastewater pond.

The probable project costs for the construction of the new primary cell and the modifications to the existing cell as described in this alternative is shown in Table 4-14.

Table 4-14 Projected Costs of Wastewater Treatment Alternative III

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Excavation and Construction of New Cell	10,000	CY	$1.80	$18,000.00
2	Wet Area Drain Tile	2,100	LF	$4.00	$8,400.00
3	Pond Structures	1	EA	$1,500.00	$1,500.00
4	Lift Station Intake Structure	1	LS	$8,000.00	$8,000.00
5	Wastewater Pumping Facilites	1	LS	$35,000.00	$35,000.00
6	Wastewater Transfer Piping	4,100	LF	$10.00	$41,000.00
7	Inter Pond Piping	70	LF	$40.00	$2,800.00
8	Wetland Diffusion System	1	EA	$15,000.00	$15,000.00
9	Outfall Piping	200	LF	$30.00	$6,000.00
10	Outfall Structure with Flow Measurement	1	EA	$5,000.00	$5,000.00
11	Wetland Seeding & Fertilizing	3	AC	$1,500.00	$5,100.00
12	Seeding & Fertilizing	2	AC	$500.00	$1,000.00
13	Fencing	1,900	LF	$2.00	$3,800.00
				Subtotal of Construction Cost	$150,600.00
				Contingencies	$15,100.00
				Land Purchase	$5,000.00
				Administration & Legal	$5,800.00
				Design Engineering	$17,300.00
				Construction Phase Engineering	$19,000.00
				Total Probable Project Cost	$212,800.00

Table 4-15 Cost Effective Analysis of Wastewater Treatment Alternative III

a. Construction Costs

Item	Cost	SV	PW SV	NPW
Land Purchase	$5,000.00	$3,000.00	$1,104.00	$3,896.00
Excavation and construction of new cells	$18,000.00	$0.00	$0.00	$18,000.00
Wet Area Drain Tile	$8,400.00	$5,040.00	$1,854.72	$6,545.28
Pond Structures	$1,500.00	$0.00	$0.00	$1,500.00
Lift Station Intake Structure	$8,000.00	$0.00	$0.00	$8,000.00
Wastewater Pumping Facilites	$35,000.00	$0.00	$0.00	$35,000.00
Wastewater Transfer Piping	$41,000.00	$24,600.00	$9,052.80	$31,947.20
Inter Pond Piping	$2,800.00	$1,680.00	$618.24	$2,181.76
Wetland Diffusion System	$15,000.00	$0.00	$0.00	$15,000.00
Outfall Piping	$6,000.00	$3,600.00	$1,324.80	$4,675.20
Outfall Structure with Flow Measurement	$5,000.00	$0.00	$0.00	$5,000.00
Wetland Seeding & Fertilizing	$5,000.00	$0.00	$0.00	$5,000.00
Seeding & Fertilizing	$1,000.00	$0.00	$0.00	$1,000.00
Fencing	$3,800.00	$0.00	$0.00	$3,800.00
Capital Costs	$57,200.00	$0.00	$0.00	$57,200.00
Total Construction Cost	$212,700.00	$37,920.00	$13,954.56	$198,745.44

b. Operation and Maintenance Costs

Item	Annual Cost	NRW
Labor	$6,000.00	$73,987.20
Utilities	$3,000.00	$36,993.60
Materials	$1,000.00	$12,331.20
Miscellaneous	$4,000.00	$49,324.80
Equipment Replacement	$2,000.00	$24,662.40
Subtotal	$16,000.00	$197,299.20

c. Equivalent Uniform Annual Cost

NPW of Construction Cost	$198,745.44
NPW of O & M Costs	$197,299.20
Total Net Present Worth	$396,044.64
Equivalent Uniform Annual Cost	$32,119.22

4.5.4 Wastewater Treatment Facility Alternative IV: Total Retention

The concept of a total retention of wastewater as a means of treatment and disposal presently complies, in the strictest sense of the word, with the goals as set by Public law 92-500 and all amendments thereto which call for the ultimate goal of "zero discharge of pollutants. A treatment facility of this nature relies generally on the natural elements of solar energy and wind to evaporate or dispose of the wastewater. The facility also relies on the seepage of the wastewater in the ground at a controlled rate.

The location of the existing wastewater treatment facility is shown in Figure 3-8. Unfortunately, due to the location of the existing pond and limitations of available area adjacent to the existing pond, increasing its size to meet SD DENR requirements will be impossible. The existing pond is bounded on the west and north sides by roads and on the east side Wolf Creek. A steep slope and the town's former solid waste disposal site and current rubble site is located on the south side. The Federal Emergency Management Administration (FEMA) classifies the area immediately east of the existing wastewater treatment facility as a Zone A flood plain. Construction is generally not allowed in these zones. These physical conditions limit expansion of the existing wastewater treatment facility in this location.

Wastewater Treatment Facility Alternative IV as presented in this section of the report will require a total of 23.5 acres of surface area for the total retention of the wastewater from the City of Emery. Because the area adjacent to the existing facility is limited, it is recommended that the majority of the treatment facility being considered in this alternative be constructed in a new location. For purposes of this report, the location is shown in Figure 4-10 as being immediately west of the existing facility. The new facilities in the area west of the existing facility would provide a total of 17.04 acres of water surface. A new wastewater pumping facility would be needed to deliver the wastewater from the City to this new location. The existing wastewater treatment facilities would provide the additional 6.08 acres of water surface needed for total retention of the wastewater from the City of Emery.

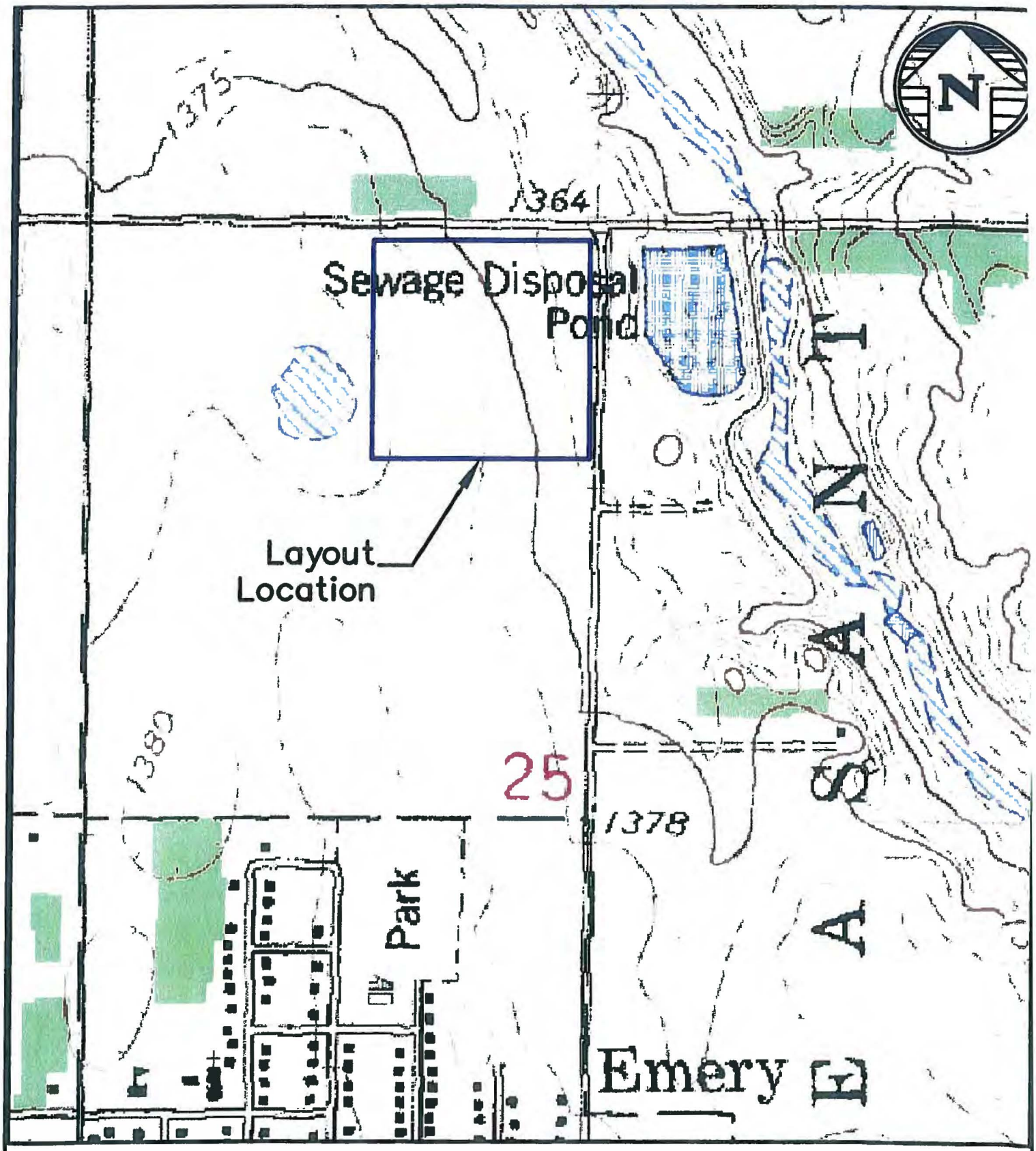

Figure 4–10 Proposed Wastewater Treatment Layout
Alt. 4

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SPN ASSOCIATES

To eliminate the potential problems due to the spring that is present west of the pond, it is recommended that a tile drainpipe be installed along the toe of the west dike of the existing pond. This drainpipe will ensure proper drainage and route the ground water around the wastewater treatment plant into Wolf Creek, improving the condition of the west dike. Although not required due to the "No Discharge" design of the facility, Wastewater Treatment Facility Alternative IV includes the removal and replacement of the Palmer-Bowles flume with an appropriate flow-measuring device in the event unanticipated weather conditions at some point in the future would result in a discharge from the facility.

Along with the existing pond, the additional ponds that would be constructed will enable Emery to operate their wastewater system in such a manner that there is no discharge from the treatment facility. Multiple ponds are recommended to provide an added degree of flexibility in case of emergencies (SD DENR, 1990). This option will provide for the correction of the deficiencies that have been identified in connection with the existing wastewater treatment facility. The probable project costs for the construction of the new primary cell and the modifications to the existing cell as described in this alternative is shown in Table 4-16.

Table 4-16 Projected Costs of Wastewater Treatment Alternative IV

Item	Description	Quantity	Units	Unit Price	Total Cost
1	Excavation and construction of new cell	35,000	CY	$1.80	$63,000.00
2	Wet Area Drain Tile	2,100	LF	$4.00	$8,400.00
3	Pond Structures	4	EA	$1,500.00	$6,000.00
4	Wastewater Pumping Facilites	1	LS	$35,000.00	$35,000.00
5	Raw Wastewater Forcemain	1500	LF	$12.00	$18,000.00
6	Wastewater Transfer Piping	1,000	LF	$10.00	$10,000.00
7	Road Crossing	1	EA	$4,000.00	$4,000.00
8	Inter Pond Piping	1,100	LF	$40.00	$44,000.00
9	Outfall Piping	200	LF	$30.00	$6,000.00
10	Outfall Structure with Flow Measurement	1	EA	$5,000.00	$5,000.00
11	Seeding & Fertilizing	13	AC	$500.00	$6,500.00
12	Fencing	4,600	LF	$2.00	$9,200.00
				Subtotal of Construction Cost	$215,100.00
				Contingencies	$21,500.00
				Land Purchase	$30,000.00
				Administration & Legal	$8,300.00
				Design Engineering	$24,000.00
				Construction Phase Engineering	$26,000.00
				Total Probable Project Cost	$324,900.00

Table 4-17 Cost Effective Analysis of Wastewater Treatment Alternative IV

a. Construction Costs

Item	Cost	SV	PW SV	NPW
Land Purchase	$30,000.00	$18,000.00	$6,624.00	$23,376.00
Excavation and construction of new cells	$63,000.00	$0.00	$0.00	$63,000.00
Wet Area Drain Tile	$8,400.00	$5,040.00	$1,854.72	$6,545.28
Pond Structures	$6,000.00	$0.00	$0.00	$6,000.00
Wastewater Pumping Facilites	$35,000.00	$0.00	$0.00	$35,000.00
Raw Wastewater Forcemain	$18,000.00	$10,800.00	$3,974.40	$14,025.60
Wastewater Transfer Piping	$10,000.00	$6,000.00	$2,208.00	$7,792.00
Road Crossing	$4,000.00	$0.00	$0.00	$4,000.00
Inter Pond Piping	$44,000.00	$26,400.00	$9,715.20	$34,284.80
Outfall Piping	$6,000.00	$3,600.00	$1,324.80	$4,675.20
Outfall Structure with Flow Measurement	$5,000.00	$0.00	$0.00	$5,000.00
Seeding & Fertilizing	$6,500.00	$0.00	$0.00	$6,500.00
Fencing	$9,200.00	$0.00	$0.00	$9,200.00
Capital Costs	$57,200.00	$0.00	$0.00	$57,200.00
Total Construction Cost	$302,300.00	$69,840.00	$25,701.12	$276,598.88

b. Operation and Maintenance Costs

Item	Annual Cost	NRW
Labor	$6,000.00	$73,987.20
Utilities	$3,000.00	$36,993.60
Materials	$1,000.00	$12,331.20
Miscellaneous	$3,000.00	$36,993.60
Equipment Replacement	$2,000.00	$24,662.40
Subtotal	$15,000.00	$184,968.00

c. Equivalent Uniform Annual Cost

NPW of Construction Cost	$276,598.88
NPW of O & M Costs	$184,968.00
Total Net Present Worth	$461,566.88
Equivalent Uniform Annual Cost	$37,433.07

4.6 Optimum Operation of Existing Facilities

The existing facilities are being operated in the most efficient manner that can be accomplished, considering the deficiencies and problems that will be addressed in the proposed improvements.

4.7 Regionalization

4.7.1 Water System

The City of Emery currently obtains its water from the Hanson Rural Water System which is a regional water system.

4.7.2 Wastewater Treatment System

There are no other communities within a reasonable distance to make consideration of regional wastewater solutions feasible.

4.7.1 Storm Drainage System

Since the issue of storm drainage is a localized issue, the regionalization of storm drainage is not a feasible consideration.

5 SELECTION OF ALTERNATIVES

5.1 Water Distribution System

The Water System Improvement Alternative I (Do Nothing) is not recommended, because it would not address any of the identified deficiencies associated with the water system. Due to the seriousness of some of the problems, such as very low fire flow and pressures, the deficiencies must be dealt with.

The Water System Improvement Alternative II (Add Looping Network) is also not recommended because it does not fully address the identified deficiencies related with the existing water distribution system.

Water System Improvement Alternative III (Replace Entire Water Distribution System) is not recommended due to the excessive cost of the alternative versus the limited benefits that would be realized.

Water System Improvement Alternative IV is recommended because it addresses all of the deficiencies that have been identified and discussed in this report regarding the water distribution system.

The deficiency in the water storage capacity has not been addressed as this is outside the scope of this study.

5.2 Wastewater Collection System

The Wastewater Collection System Improvement Alternative I (Do Nothing) is not recommended because it would not address any of the identified deficiencies or potential health hazards associated with the existing wastewater collection system.

Wastewater Collection System Improvement Alternative II (Replace Collection System), although it would address the issue of high infiltration rates, is not recommended due to the excessive cost of the alternative versus the limited benefits that would be realized.

Wastewater Collection System Improvement Alternative III (Removal of the Storm Water Inlets from the Collection System) is recommended. This alternative will eliminate the potential health hazards associated with the back up of sewage in homes as result of the excessive flows caused by the inflow of surface water during storm events.

5.3 Storm Drainage System

Storm Drainage System Alternative II-b (storm sewer system based on inlet capacity of 0.75 cfs) is not recommended. Although this alternative would address the issue the potential health hazards associated with the back up of sewage in homes as result of the excessive flows caused by the inflow of surface water during storm events, some short term storage of storm water would be necessary in low areas near the storm water inlets.

Storm Drainage System Alternative II-c (storm sewer system based on inlet capacity of 0.50 cfs) is not recommended. Although this alternative would address the issue the potential health hazards associated with the back up of sewage in homes as result of the excessive flows caused by the inflow of surface water during storm events, more short term storage of storm water would be necessary in low areas near the storm water inlets than in the other alternatives considered.

Storm Drainage System Alternative II-a (storm sewer system based on inlet capacity of 1.00 cfs) is recommended. This alternative would address the issue of the potential health hazards associated with the back up of sewage in homes as result of the excessive flows caused by the inflow of surface water during storm events

5.4 Wastewater Treatment

Wastewater Treatment Improvement Alternative I (Do Nothing) is not recommended, as it does not address the deficiencies identified with the existing wastewater treatment facility.

Wastewater Treatment Improvement Alternative IV (Total Retention) is not recommended due to the requirement for greater water surface area and thus, more land and greater construction cost.

Although Wastewater Treatment Improvement Alternative III (Artificial Wetland) has a low initial cost, it is not recommended because it has a higher Equivalent Uniform Annual Cost than either Wastewater Treatment Improvement Alternative II- or Wastewater Treatment Improvement Alternative II-b. The cost analysis for each alternative is in Tables 4-10, 4-13, 4-15, and 4-17.

Either of the Wastewater Treatment Improvement Alternatives II-a or II-b (180-Day Retention) are recommended. Although not necessarily the lowest initial cost, these two alternatives are the most cost effective of all the alternatives considered and are the simplest and most efficient approach to solving the deficiencies that have been identified and discussed in this report regarding the wastewater treatment facilities.

5.5 Demonstration of Financial Capability

The city has the capability of generating sufficient funds to repay a loan to complete the project in the current construction season, as its water utility has been generating sufficient revenue to complete $20,000 to $22,500 in improvements for the past several years.

5.6 Capital Financing Plan

The city will make application to state and federal resources for loan and grant assistance to complete the project during the upcoming construction season.

5.7 Environmental Evaluation

The city has requested comments from concerned federal agencies. The correspondence related to these inquiries is found in Appendix A of this preliminary report supplement.

5.8 Views of the Public and Concerned Interest Groups

The city is planning to conduct a public hearing on the proposed project. Information related to the hearing will be submitted after it is conducted.

6 SELECTED PLAN, DESCRIPTION AND IMPLEMENTATION ARRANGEMENTS

6.1 Justification and Description of Selected Plan

The alternative chosen for the water distribution system will improve all of the deficiencies in the system other than the lack of storage. This alternative will provide Emery with pressures and flows that are much more appealing than the current system.

The alternative chosen for the rehabilitation of the wastewater collection system was chosen because it will remedy all of the problems with the system. The cleaning and TV inspection of the existing sewer system will give a good indication of its condition to allow for proper design of the replacement plan.

The alternative chosen for the storm sewer system will address all of the drainage problems included in this report. The new storm sewer will greatly improve the flooding in several areas within the town and will also remove heavy hydraulic loads from the sanitary sewer. The cleaning and TV inspection of the existing storm sewer systems will improve the capacity of the sewer and will give a good indication of its condition.

The alternative chosen for the wastewater treatment facility improvements will achieve the desired treatment of the sewage and will provide an effluent that will not impact waters of the state. The alternative chosen is the most cost effective alternative considered.

6.2 Design of Selected Plan

6.2.1 Water Distribution System

The design of the distribution system will provide enhanced flexibility in operation and will be designed in accordance with the SD DENR design criteria and the accepted principles and standards for the design of water distribution systems.

6.2.2 Wastewater Collection System

Whereas the existing wastewater collection system will not be replaced, a design of the collection system will not be required. In the event extensions of the sanitary sewer system are installed, system will be designed in accordance with the SD DENR design criteria and the accepted principles and standards for the design of wastewater collection systems.

6.2.3 Storm Sewer System

The design of the storm sewer system will eliminate the potential health hazards associated with excessive flows in the sanitary sewer collection system. The new storm sewer and the rehabilitation of the existing storm sewer systems will reduce the flooding in the selected areas of the City of Emery. The storm sewer will be designed in accordance with the SD DENR design criteria and the accepted principles and standards for the design of storm drainage systems.

6.2.4 Wastewater Treatment Facility

The design of the wastewater facility will be in accordance with the SD DENR and other accepted principles and standards for the design of stabilization ponds.

The ponds constructed will be lined with a clay liner from a source not yet chosen. Geotechnical testing will be performed on possible borrow sites to determine the physical characteristics of the liner material prior to design. The thickness of the liner will be designed based on permeability of the soils and allowable percolation.

The maximum water depth of the secondary cells will be six feet in accordance with SD DENR design criteria. Control structures will be designed to ensure the elevation in the three cells remains at the design level. These elevations will be adjusted during the filling of the new cells to guarantee the minimum water elevation of two feet is maintained. Prefilling of the new cells will be required as part of the contract to test the liner and to make sure the liner does not dry and crack.

Riprap on the interior slopes of the cells is not included in the project cost projections as the water surface area of the cells comprising the facility are below the SD DENR standards where erosion protection is required.

6.3 Cost Estimates for Selected Plan

A summary of the costs associated with all of the alternatives that were chosen is given in Table 6-1.

Table 6-1 Summary of Costs

WATER DISTRIBUTION SYSTEM	
Alternative IV - Looping with Limited Replacement	$347,800.00
STORM DRAINAGE IMPROVEMENTS	
Alternative II-a - Storm Drainage System Sized for 1.0 cfs	$367,050.00
WASTEWATER TREATMENT FACILITIES	
Alternative II-a - Use Existing Cell with New Secondary Cells	$235,100.00
TOTAL PROJECT COST	$949,950.00

6.4 Environmental Impacts of Selected Plan

Environmental information gathered thus far does not indicate that any of the state or federal agencies will have environmental concerns related to the project or its proposed construction activities.

6.5 Arrangements for Implementation

This report provides information to describe the proposed project and to support the council's decision to proceed with it as quickly as possible. Final design will be completed by the City's consultant and approved by the Department of Environment and Natural Resources, as it is definitely a "work of sanitary significance." Cost estimates have been prepared and are referenced elsewhere in this document.

The project will be bid in accordance with state statutes that govern municipal corporations and will be constructed by the lowest responsible bidder.

6.6 Land Acquisition

No land acquisition will be required for the water distribution system improvements or the storm drainage improvements as all work will be completed in existing street right-of-way or in easements that have already been or will be obtained.

The acquisition of land will be required for the wastewater treatment facility improvements. These activities have not been initiated at the time of completion of this report.

6.7 Interagency Agreements

No operating agreements with other agencies are needed, as the City of Emery owns, operates and maintains its municipal water system. It has a valid water right for its wells. Loan documents will have to be executed with the appropriate lender, but, as Emery is a municipal corporation, it has the legal authority to enter into such agreements. The city attorney will advise the council on any legal matters related to this issue.

7 REFERENCES

South Dakota Department of Environment and Natural Resources, (May 1990), *Recommended Design Criteria Manual, Wastewater Collection and Treatment Facilities*, Pierre, SD: Division of Environmental Regulation.

Mays, Larry W., (1976), Water Distribution Systems Handbook, (New York, NY: McGraw Hill), pp.

National Climatic Data Center, (n. d.). Record of Climatological Observations for Bridgewater, SD. Retrieved January 02, 2002, from http://lwf.ncdc.noaa.gov.

Committee of the Great Lakes – Upper Missouri River Board of State Public Health and Environmental Managers. (1997). Recommended Standards For Water Works. Albany, NY: Health Education Services.

Salvato, Joseph A., (1982). *Environmental Engineering And Sanitation* (New York, NY: John Wiley & Sons), pp.

Appendix A

Comment Letters

Comments will be solicited after final selection of alternatives by owner.

Appendix B

Water Usage Data

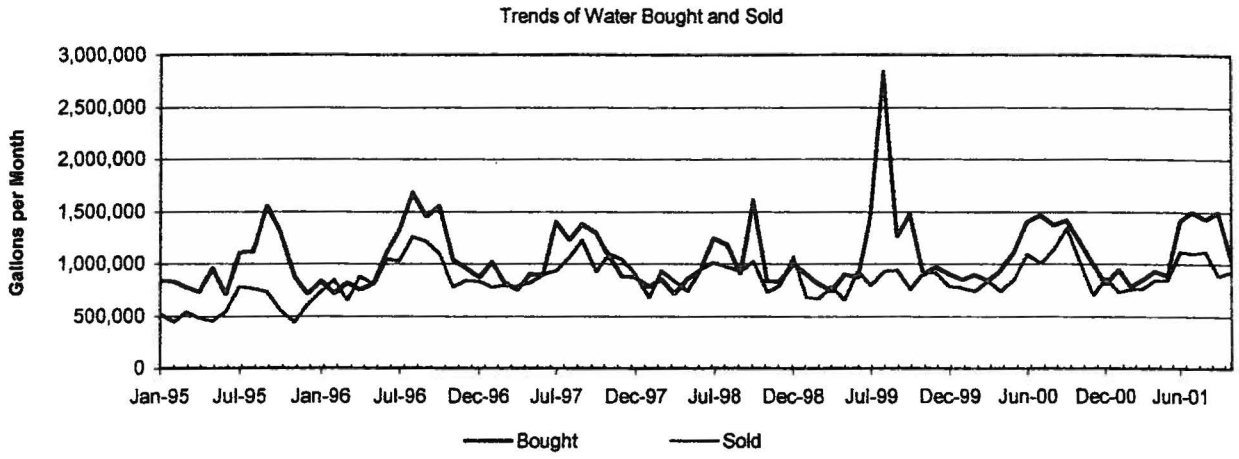
Emery Water Use

Avg winter usage = 58.8 gpcpd

flushing swimming pool watering... = 400000 standard deviation = 10.7

Date	days/mo	Interp. Pop	Gal Sold by HRW	Gal Received by Residents	Yr Bought	Yr Acct	%loss	%loss Yr avg	GPCPD
Jan-95	31	427	838,000	523,700			38		40
Feb-95	28	428	830,000	439,240			47		37
Mar-95	31	428	774,000	538,660			30		41
Apr-95	30	428	727,000	478,000			34		37
May-95	31	428	955,000	448,120			53		34
Jun-95	30	428	707,000	548,200			22		43
Jul-95	31	429	1,102,000	778,800			29		59
Aug-95	31	429	1,119,000	761,800			32		57
Sep-95	30	429	1,553,000	728,300			53		57
Oct-95	31	429	1,302,000	556,900			57		42
Nov-95	30	429	875,000	433,000			51		34
Dec-95	31	429	710,000	606,300	11,492,000	7,241,020	15	37	46
Jan-96	31	430	832,000	733,800			12		55
Feb-96	29	430	710,000	844,900			-19		68
Mar-96	31	430	816,000	648,200			21		49
Apr-96	30	430	746,000	878,200			-18		68
May-96	31	430	810,000	798,000			1		60
Jun-96	30	431	1,107,000	1,040,600			6		81
Jul-96	31	431	1,315,000	1,022,800			22		77
Aug-96	31	431	1,680,000	1,258,200			25		94
Sep-96	30	431	1,445,000	1,208,200			16		93
Oct-96	31	431	1,554,000	1,100,300			29		82
Nov-96	30	431	1,036,000	775,600			25		60
Dec-96	31	432	955,000	843,000	13,006,000	11,551,800	12	11	63
Jan-97	31	432	872,000	826,000			5		62
Feb-97	28	432	1,018,000	775,800			24		64
Mar-97	31	432	822,000	794,000			3		59
Apr-97	30	432	751,000	782,600			-4		60
May-97	31	433	904,000	815,400			10		61
Jun-97	30	433	897,000	898,400			0		69
Jul-97	31	433	1,397,000	935,000			33		70
Aug-97	31	433	1,226,000	1,062,900			13		79
Sep-97	30	433	1,378,000	1,224,500			11		94
Oct-97	31	434	1,296,000	922,600			29		69
Nov-97	30	434	1,071,000	1,089,000			-2		84
Dec-97	31	434	883,000	1,046,000	12,515,000	11,572,200	-18	8	78
Jan-98	31	434	874,000	904,900			-4		67
Feb-98	28	434	781,000	673,000			14		55
Mar-98	31	434	850,000	933,800			-10		69
Apr-98	30	435	710,000	835,200			-18		64
May-98	31	435	861,000	733,400			15		54
Jun-98	30	435	939,000	944,400			-1		72
Jul-98	31	435	1,248,000	1,010,700			19		75
Aug-98	31	435	1,183,000	971,600			18		72
Sep-98	30	436	911,000	923,600			-1		71
Oct-98	31	436	1,606,000	1,023,700			36		76
Nov-98	30	436	829,000	723,400			13		55

Dec-98	31	436	835,000	789,400	11,627,000	10,867,100	5	7	58
Jan-99	31	436	997,000	1,066,800			-7		79
Feb-99	28	436	902,000	680,800			25		56
Mar-99	31	437	810,000	663,200			18		49
Apr-99	30	437	735,000	786,000			-7		60
May-99	31	437	904,000	648,200			28		48
Jun-99	30	437	866,000	932,600			-8		71
Jul-99	31	437	1,445,000	791,000			45		58
Aug-99	31	438	2,839,000	928,000			67		68
Sep-99	30	438	1,261,000	940,400			25		72
Oct-99	31	438	1,481,000	757,200			49		56
Nov-99	30	438	894,000	914,800			-2		70
Dec-99	31	438	972,000	913,400	14,106,000	10,422,400	6	26	67
Jan-00	31	438	901,000	786,200			13		58
Feb-00	29	439	845,000	765,200			9		60
Mar-00	31	439	898,000	737,000			18		54
Apr-00	30	439	842,000	833,400			1		63
May-00	31	439	938,000	737,000			21		54
Jun-00	30	439	1,120,000	860,000			23		65
Jul-00	31	440	1,400,000	1,089,600			22		80
Aug-00	31	440	1,467,000	1,003,600			32		74
Sep-00	30	440	1,370,000	1,139,600			17		86
Oct-00	31	440	1,417,000	1,343,000			5		98
Nov-00	30	440	1,215,000	1,025,000			16		78
Dec-00	31	440	997,000	699,800	13,410,000	11,419,400	30	15	51
Jan-01	31	441	807,000	856,800			-6		63
Feb-01	28	441	946,000	728,000			23		59
Mar-01	31	441	778,000	753,800			3		55
Apr-01	30	441	851,000	765,900			10		58
May-01	31	441	931,000	844,400			9		62
Jun-01	30	442	884,000	841,400			5		64
Jul-01	31	442	1,408,000	1,117,000			21		82
Aug-01	31	442	1,499,000	1,096,000			27		80
Sep-01	30	442	1,423,000	1,117,200			21		84
Oct-01	31	442	1,496,000	881,000			41		64
Nov-01	30	442	1,038,000	927,800			11		70
Dec-01	31	443	919,000	683,000	12,980,000	11,012,300	26	15	50
								19	98
									48
									66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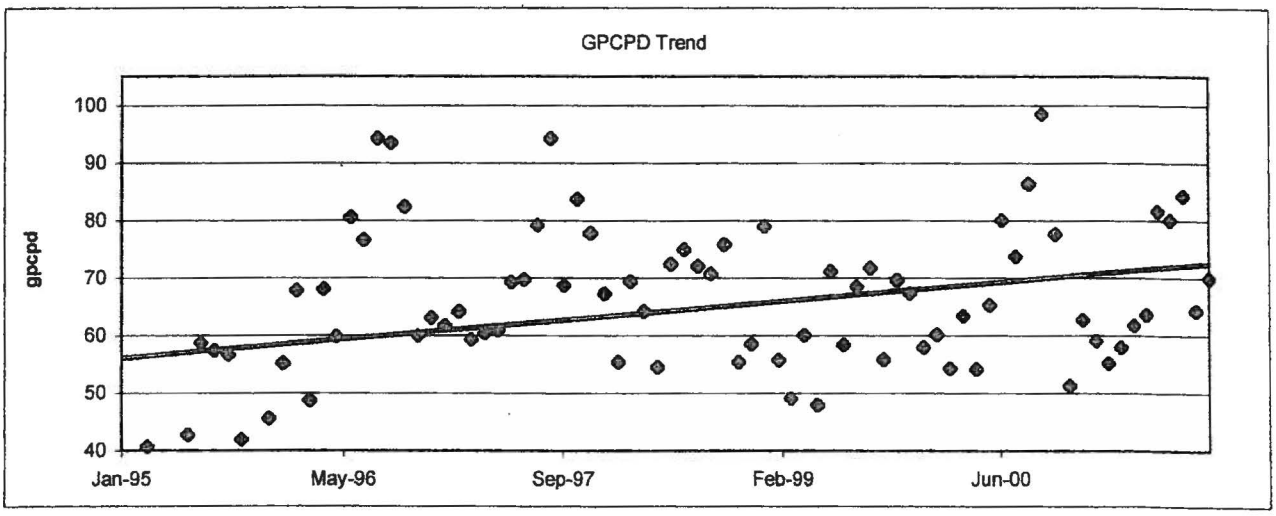
2,000,000
1,500,000
1,000,000
500,000
0
Jan-95
Jul-95
Jan-96
Jul-96
Dec-96
Jul-97
Dec-97
Jul-98
Dec-98
Jul-99
Dec-99
Jun-00
Dec-00
Jun-01
Bought
Sold


GPCPD Trend
gpcpd
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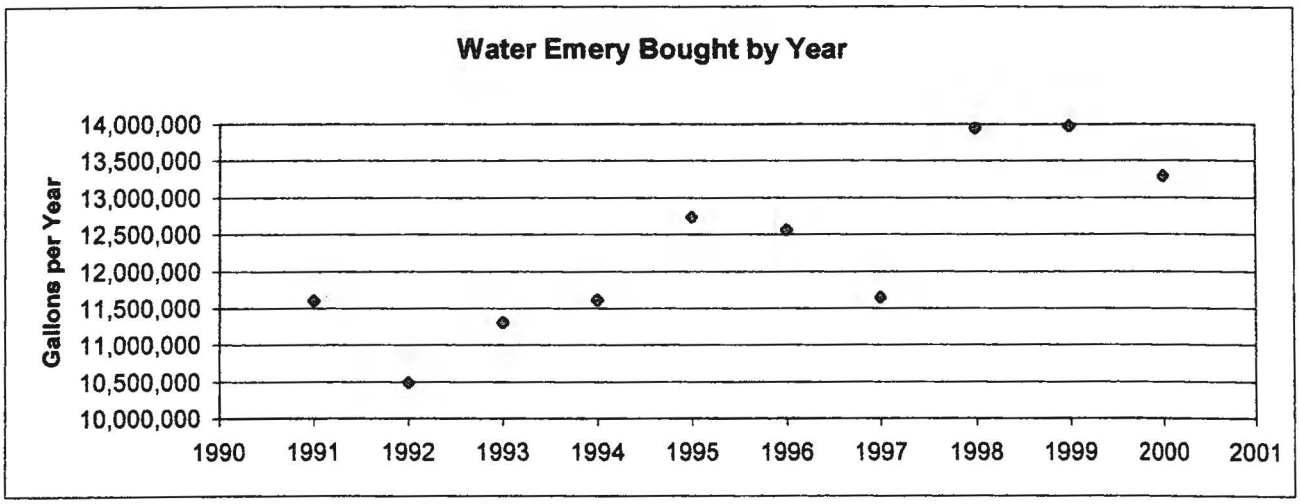
90
80
70
60
50
40
Jan-95
May-96
Sep-97
Feb-99
Jun-00


Water Emery Bought by Year
Gallons per Year
14,000,000
13,500,000
13,000,000
12,500,000
12,000,000
11,500,000
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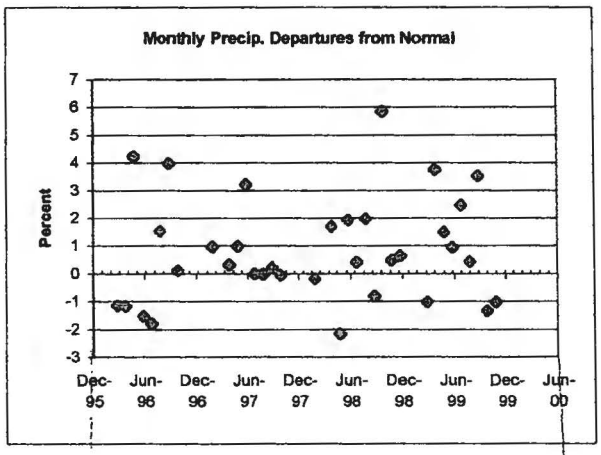
1996
1997
1998
1999
2000
2001


Monthly Precip. Departures from Normal
Percent
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6
5
4
3
2
1
0
-1
-2
-3
Dec-95
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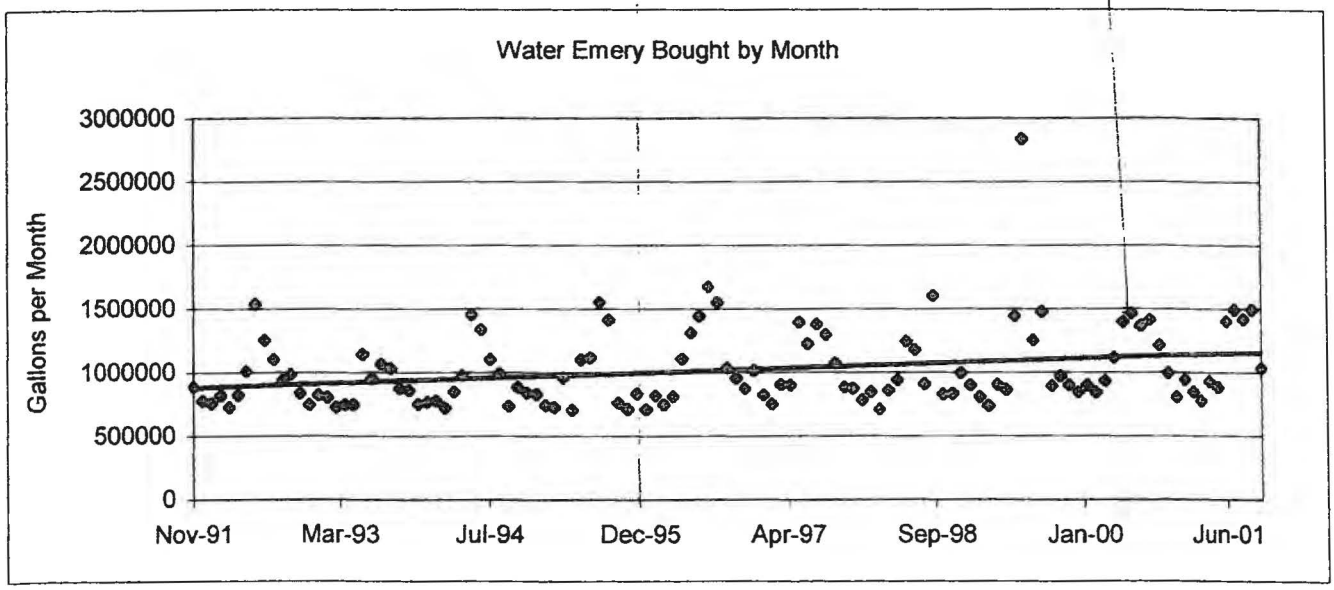
Dec-98
Jun-99
Dec-99
Jun-00


Water Emery Bought by Month
Gallons per Month
3000000
2500000
2000000
1500000
1000000
500000
0
Nov-91
Mar-93
Jul-94
Dec-95
Apr-97
Sep-98
Jan-00
Jun-01

Appendix C

Surface Water Discharge Permit

Permit No.: SD-0021741

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL AVENUE
PIERRE, SOUTH DAKOTA 57501-3181

AUTHORIZATION TO DISCHARGE UNDER THE

SURFACE WATER DISCHARGE SYSTEM

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), Chapters 74:52:01 through 74:52:11,

the **City of Emery**

is authorized to discharge from the wastewater treatment facility located ½ mile northeast of the city in the northwest ¼ of the northeast ¼ of Section 25, Township 102 North, Range 57 West, (Longitude 97° 36′ 53.5″, Latitude 43° 36′ 50.1″ - Navigational Quality GPS), in Hanson County, South Dakota.

to **Wolf Creek**

in accordance with discharge point(s), effluent limits, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit.

This permit shall become effective **April 1, 2000**.

This permit and the authorization to discharge shall expire at midnight, **March 31, 2005**.

Signed this 23nd day of March, 2000.

Nettie H. Myers

Authorized Permitting Official

Nettie H. Myers
Secretary
Department of Environment and Natural Resources

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I. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

A. Definitions.

1. The "30-day (and monthly) average," other than for fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.

2. The "7-day (and weekly) average" is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limits. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.

3. "Daily Maximum" ("Daily Max.") is the maximum value allowable in any single sample or instantaneous measurement.

4. "Composite samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

   a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;

   b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;

   c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,

   d. Continuous collection of sample, with sample collection rate proportional to flow rate.

5. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

6. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.

7. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

A. Definitions (Continued)

8. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

9. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

10. "Secretary" means the Secretary of the South Dakota Department of Environment and Natural Resources, or authorized representative.

11. "SDDENR" means the South Dakota Department of Environment and Natural Resources.

12. "Sewage Sludge" is any solid, semi-solid or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes but is not limited to solids removed during primary, secondary or advanced wastewater treatment, scum, septage, portable toilet pumpings, and sewage sludge products. Sewage sludge does not include grit, screenings, or ash generated during the incineration of sewage sludge.

B. Description of Discharge Points

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a SWD permit is a violation of the South Dakota Water Pollution Control Act and could subject the person{s} responsible for such discharge to penalties under Section 34A-2-75 of the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from the first learning of an unauthorized discharge could subject such person to criminal penalties as provided under the South Dakota Water Pollution Control Act.

Outfall Serial Number	Description of Discharge Point
001	**Any discharge from the outfall line at the WWTF to Wolf Creek (Longitude 97° 36′ 50.1″, Latitude 43° 36′ 51.8″ - Navigational Quality GPS)**

C. Specific Limits and Self-Monitoring Requirements

1. Effluent Limits

No discharge shall occur until permission for discharge is granted by the South Dakota Department of Environment and Natural Resources.

Effective immediately and lasting through the life of this permit, the quality of effluent discharged by the facility shall, as a minimum, meet the limits as set forth below:

Effluent Characteristic	Effluent Limit		
	30-Day Average [1]	7-Day Average [1]	Daily Maximum [1]
BOD_5, mg/L	30	45	N/A
Total Suspended Solids, mg/L [2]	30	45	N/A
Fecal Coliforms, no./100 mL [3] (May 1 - September 30)	1000	N/A	2000
Ammonia-Nitrogen, mg/L (as N)			
December - March	24.1	N/A	42.4
April	1.1		2.0
May - September	1.0		1.4
October - November	1.4		2.5
Total Residual Chlorine, mg/L (Applicable only if effluent is chlorinated)	N/A	N/A	0.019
The pH of the discharge shall not be less than 6.0 nor greater than 9.0 in any sample.			

[1] See Definitions, Part I.A.

[2] If analytical results for BOD5 show compliance with the permit limits, the permittee may request the permit issuing authority to change the TSS permit limit to 90 mg/L (30-day average) and 135 mg/L (7-day average). The permit issuing authority may approve the change without additional public notice.

[3] Fecal Coliform organisms from May 1 to September 30 may not exceed a concentration of 1000 per 100 milliliters as a geometric mean based on a minimum of 5 samples obtained during separate 24-hour periods for any 30-day period, and they may not exceed this value in more than 20 percent of the samples examined in this 30-day period. They may not exceed 2000 per 100 milliliters in any one sample from May 1 to September 30.

C. Specific Limits and Self-Monitoring Requirements

2. Self-Monitoring Requirements

a. Applicable when the permittee is requesting permission to discharge.

Prior to the start of any discharge from the lagoon system, the permittee shall collect a grab sample from each lagoon cell from which it is desired to discharge and have the sample analyzed for the following constituents:

BOD_5, mg/L
Total Suspended Solids, mg/L
pH, s.u.
Fecal Coliforms, no./100 mL
Ammonia-Nitrogen, mg/L
Water Temperature, °C

The results of the analyses, along with a request to discharge, shall be submitted to the Secretary. The request to discharge shall explain why a discharge is needed, when the discharge would start, the expected duration of the discharge, and the approximate volume of water to be discharged. The estimated flow condition of the receiving water shall also be reported (i.e., dry, low, normal, high). No discharge shall occur until permission has been granted by the Secretary.

b. Applicable when a discharge is occurring.

During periods of discharge, the permittee shall, as a minimum, monitor the discharge for the constituents listed below at the frequencies and with the types of samples indicated. The sample and measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

Continued on next page.

C. Specific Limits and Self-Monitoring Requirements

2. Self-Monitoring Requirements - Outfall 001

As a minimum, upon the effective date of this permit, the following parameters shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

Effluent Characteristic	Frequency	Reporting Values [1]	Sample Type [1]
Rate of Discharge, MGD	At least 3 per discharge[2]	daily maximum; 30-day average; [3]	Instantaneous
pH, standard units	At least 3 per discharge[2, 6]	daily minimum; daily maximum	Instantaneous [4]
BOD_5, mg/L	At least 3 per discharge[2]	7-day average; 30-day average	Grab
Total Suspended Solids, mg/L	At least 3 per discharge[2]	7-day average; 30-day average	Grab
Fecal Coliform, no./100 mL	At least 3 per discharge[2, 5]	daily maximum; 30-day geometric mean	Grab
Ammonia-Nitrogen, mg/L (as N)	At least 3 per discharge[2]	daily maximum; 30-day average[6]	Grab
Total Residual Chlorine, mg/L (Required only if the effluent is chlorinated)	At least 3 per discharge[2]	daily maximum[6]	Grab

[1] See definitions, Part I.A.

[2] At the initiation of any discharge, three samples shall be taken the first week and one sample each week for the following three weeks. Samples shall be taken once per month thereafter, until the discharge is discontinued. If a discharge is less than one week in duration, a sample shall be taken at the beginning, middle, and end of the discharge. If a discharge becomes intermittent, due to losses from evaporation and percolation, the discharge shall be sampled once per week during any week that flow is noted.

[3] In addition to reporting the daily maximum and 30-day average flow rates, the total flow (million gallons) during the reporting period shall be reported. The date and time of the start and termination of each discharge shall also be reported.

[4] pH is to be taken within 15 minutes of sample collection with a pH meter. The pH meter must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment.

[5] For fecal coliforms, if a minimum of 5 samples are collected in a 30-day period, all of the samples collected are to be used in determining the geometric mean. Samples are to be collected at the same time BOD_5, TSS, etc. Additional samples are to be collected during any other separate 24-hour periods. If less than five samples are taken during any 30 day period, the maximum limit still applies. ***This sampling protocol for fecal coliforms only applies if the discharge occurs between May 1 and September 30.***

[6] EPA considers the analytical detection limit for ammonia to be 0.01 mg/L and for total residual chlorine to be 0.05 mg/L. If the effluent value is less than the analytical detection limit, "0" shall be used for reporting and averaging purposes.

Effluent Characteristic	Frequency	Reporting Values	Sample Type
Water Temperature, °C	At least 3 per discharge[2]	daily maximum; 30-day average	Instantaneous [7]

[7] The water temperature of the effluent shall be taken as a field measurement. Measurement shall be made with a mercury-filled, or dial type thermometer, or a thermistor. Readings shall be reported to the nearest whole degree Celsius.

C. Specific Limits and Self-Monitoring Requirements

3. Inspection Requirements: The permittee shall inspect its wastewater treatment facility on at least a **monthly** basis. **Weekly** inspections are required during a discharge. The inspection shall be conducted to determine if a discharge is occurring, has occurred since the previous inspection, and/or if a discharge is likely to occur before the next inspection. In addition, the inspection shall be performed to determine if proper operation and maintenance procedures are being undertaken at the wastewater treatment facility. The permittee shall maintain a notebook recording information obtained during the inspection. At a minimum, the notebook shall include the following:

1. Date and time of the inspection;
2. Name of the inspector(s);
3. The facility's discharge status;
4. The measured amount of pond freeboard at the outlet works;
5. Identification of operational problems and/or maintenance problems;
6. Recommendations, as appropriate, to remedy identified problems;
7. A brief description of any actions taken with regard to problems identified; and
8. Other information, as appropriate.

The permittee shall maintain the notebook in accordance with proper record-keeping procedures and shall make the notebook available for inspection, upon request, by the Secretary or the U.S. Environmental Protection Agency.

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.

B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under ARSD 74:52:03:06, a.b.r. 40 CFR, Part 136, unless other test procedures have been specified in this permit.

C. Penalties for Tampering. Any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a Class 1 misdemeanor. In addition to a jail sentence authorized by SDCL 22-6-2, a Class 1 misdemeanor imposed by SDCL, Chapter 34A-2, is subject to a criminal fine not to exceed ten thousand dollars per day of violation. The violator is also subject to a civil penalty not to exceed ten thousand dollars per day of violation, for damages to the environment of this state.

D. Reporting of Monitoring Results. Effluent monitoring results obtained during the previous three (3) months shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the Signatory Requirements (see Part IV), and submitted to the Secretary at the following address:

original to: South Dakota Department of
Environment and Natural Resources
Surface Water Quality Program
Joe Foss Building
523 East Capitol Avenue
Pierre, South Dakota 57501-3181

E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under ARSD 74:52:03:06, a.b.r. 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated.

G. Records Contents. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The initials or name(s) of the individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The time analyses was initiated;

5. The initials or name(s) of individual(s) who performed the analyses;

6. References and written procedures, when available, for the analytical techniques or methods used; and,

7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Secretary at any time. Data collected on site, copies of Discharge Monitoring Reports, a copy of this SWD permit and copies of any Unauthroized Release of Wastewater forms must be maintained on site during the duration of activity at the permitted location.

I. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall report any noncompliance which may endanger health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the State of South Dakota at (605) 773-3231 and the EPA, Region VIII, Emergency Response Branch at (303) 293-1788.

2. The following occurrences of noncompliance shall be reported by telephone to the Secretary at (605) 773-3351 by the first workday (8:00 a.m. - 4:30 p.m. Central Time) following the day the permittee became aware of the circumstances:

   a. Any unanticipated bypass which exceeds any effluent limit in the permit (See Part III.G., Bypass of Treatment Facilities.);

   b. Any upset which exceeds any effluent limit in the permit (See Part III.H., Upset Conditions.); or,

   c. Violation of a maximum daily discharge limit for any of the pollutants listed in the permit to be reported within 24 hours.

I. Twenty-four Hour Notice of Noncompliance Reporting. (Continued)

3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:

   a. A description of the noncompliance and its cause;

   b. The period of noncompliance, including exact dates and times;

   c. The estimated time noncompliance is expected to continue if it has not been corrected; and,

   d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

4. The Secretary may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Surface Water Quality Program, South Dakota Department of Environment and Natural Resources, Pierre, (605) 773-3351.

5. Reports shall be submitted to the addresses in Part II.D., Reporting of Monitoring Results.

J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D. are submitted. The reports shall contain the information listed in Part II.I.3.

K. Inspection and Entry. The permittee shall allow the Secretary or EPA, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the director advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.

B. Penalties for Violations of Permit Conditions. Any person who violates a permit condition shall, upon conviction, be punished by a Class 1 misdemeanor. In addition to a jail sentence authorized by SDCL 22-6-2, a Class 1 misdemeanor imposed by SDCL, Chapter 34A-2, is subject to a criminal fine not to exceed ten thousand dollars per day of violation. The violator is also subject to a civil penalty not to exceed ten thousand dollars per day of violation, for damages to the environment of this state. Except as provided in permit conditions on Part III.G., Bypass of Treatment Facilities and Part III.H., Upset Conditions, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.

F. Removed Substances. Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. These materials may be landfilled at a municipal solid waste landfill. Sludge/digestor supernatant and filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the state.

G. Bypass of Treatment Facilities:

1. Bypass not exceeding limits. The permittee may allow any bypass to occur which does not cause effluent limits to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. and 3. of this section.

2. Notice:

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 60 days before the date of the bypass.

b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I., Twenty-four Hour Notice of Noncompliance Reporting.

G. Bypass of Treatment Facilities: (Continued)

3. Prohibition of bypass.

a. Bypass is prohibited and the Secretary may take enforcement action against a permittee for a bypass, unless:

(1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,

(3) The permittee submitted notices as required under paragraph 2. of this section.

b. The Secretary may approve an anticipated bypass, after considering its adverse effects, if the Secretary determines that it will meet the three conditions listed above in paragraph 3.a. of this section.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limits if the requirements of paragraph 2. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limits).

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the cause(s) of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required under Part II.I., Twenty-four Hour Notice of Noncompliance Reporting; and,

d. The permittee complied with any remedial measures required under Part III.D., Duty to Mitigate.

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Industrial Wastes

1. Each significant industrial user must be identified as to qualitative and quantitative characteristics of the discharge as well as production data. A significant industrial user is defined as an industrial user discharging to a publicly owned treatment works (POTW) that satisfies any of the following: (1) has a process wastewater flow of 25,000 gallons or more per average work day; (2) has a flow greater than five percent of the flow carried by the municipal system receiving the waste; (3) has in its waste a toxic pollutant in toxic amounts as defined under Section 307(a) of the Federal Clean Water Act of 1977, as amended, or is otherwise standard developed under Section 307(b) of the Federal Clean Water Act; or, (4) is found by the permit issuing authority to have a significant impact on the treatment works or the quality of effluent from the POTW.

2. The permittee must notify the permitting authority of any new introductions by new or existing significant industrial users or any substantial change in pollutants from any significant industrial user. Such notice must contain the information described in paragraph 1. above and be forwarded no later than sixty (60) days following the introduction or change.

3. Pretreatment Standards [ARSD 74:52:11:01, a.b.r. 40 CFR 403.5] developed pursuant to Section 307 of the Federal Clean Water Act require that under no circumstances shall the permittee allow the introduction of the following pollutants to the waste treatment system from any source of nondomestic discharge:

   (a) Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including but not limited to, wastestreams with a closed cup flashpoint of less than sixty (60) degrees Centigrade (140 degrees Fahrenheit) using the test methods specified in ARSD 74:28:22:01, a.b.r. 40 CFR 261.21;

   (b) Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the works are specifically designed to accommodate such discharges;

   (c) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW, or other interference with the operation of the POTW;

   (d) Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW;

   (e) Heat in amounts which will inhibit biological activity in the POTW resulting in interference but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds forty (40) degrees Centigrade (104 degrees Fahrenheit);

   (f) Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

   (g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems;

   (h) Any trucked or hauled pollutants, except at discharge points designated by the POTW;

   (i) Any pollutant which causes pass through or interference; and,

   (j) In addition to the general limits expressed above, more specific pretreatment limits have been promulgated for specific industrial categories under Section 307 of the Act (see ARSD, Chapter 74:52:10, a.b.r. 40 CFR Subchapter N, Parts 405 through 471, for specific information).

I. Industrial Wastes (Continued)

4. The permittee shall provide adequate notice to the Secretary of the South Dakota Department of Environment and Natural Resources of:

   (a) Any new introduction of pollutants into the treatment works from an indirect discharger (i.e., industrial user) which would be subject to Sections 301 or 306 of the Federal Clean Water Act if it were directly discharging those pollutants;

   (b) Any substantial change in the volume or character of pollutants being introduced into the treatment works by an industrial user introducing pollutants into the treatment works at the time of application of the SWD permit; and,

   (c) For the purposes of this section, adequate notice shall include information on:

      (1) The quality and quantity of effluent to be introduced into such treatment works; and,

      (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from such publicly owned treatment works.

5. At such time as a specific pretreatment limit becomes applicable to an industrial user of the permittee, the permit issuing authority may, as appropriate, do the following:

   (a) Amend the permittee's SWD discharge permit to specify the additional pollutant(s) and corresponding effluent limit(s) consistent with the applicable national pretreatment limit;

   (b) Require the permittee to specify, by ordinance, permit, or similar means, the type of pollutant(s) and the maximum amount which may be discharged to the permittee's facility for treatment. Such requirement shall be imposed in a manner consistent with the POTW program development requirements of the General Pretreatment Regulations at [ARSD 74:52:11:01, a.b.r. 40 CFR 403]; and/or,

   (c) Require the permittee to monitor its discharge for any pollutant which may likely be discharged from the permittee's facility, should the industrial user fail to properly pretreat its waste.

6. The permit issuing authority retains, at all times, the right to take legal action against the industrial user and/or the treatment works, in those cases where a SWD permit violation has occurred because of the failure of an industrial user to discharge at an acceptable level.

IV. GENERAL REQUIREMENTS

A. Planned Changes. The permittee shall give notice to the Secretary as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants which are not subject to effluent limits in the permit. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source (see ARSD, Chapter 74:52:01:01(30)).

B. Anticipated Noncompliance. The permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information. The permittee shall furnish to the Secretary, within a reasonable time, any information which the Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by this permit.

F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Secretary, it shall promptly submit such facts or information.

G. Signatory Requirements. All applications, reports or information submitted to the Secretary shall be signed and certified.

1. All permit applications shall be signed by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Secretary shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the Secretary; and,

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under paragraph IV.G.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph IV.G.2. must be submitted to the Secretary prior to or together with any reports, information, or applications to be signed by an authorized representative.

G. Signatory Requirements. (Continued)

4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. Penalties for Falsification of Reports. Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a Class 1 misdemeanor. In addition to a jail sentence authorized by SDCL 22-6-2, a Class 1 misdemeanor imposed by SDCL, Chapter 34A-2, is subject to a criminal fine not to exceed ten thousand dollars per day of violation. The violator is also subject to a civil penalty not to exceed ten thousand dollars per day of violation, for damages to the environment of this state, or both.

I. Availability of Reports. Except for data determined to be confidential under ARSD 74:52:02:17, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of SDDENR and EPA. Permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Federal Clean Water Act.

K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Secretary at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,

3. The Secretary does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2. above.

N. Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limits (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:

1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. Total Maximum Daily Load: Additional controls in the permit are necessary to implement a total maximum daily load approved by the Secretary and/or EPA.

3. Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limits than contained in this permit.

4. Sludge: To include sludge conditions required when EPA delegates the 503 sludge program to the state.

O. Toxicity Limit-Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include whole effluent toxicity limits if whole effluent toxicity is detected in the discharge.

Appendix D

SWD Compliance Inspection Report

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

GREAT FACES. GREAT PLACES.

September 8, 1999

~~Eric M.~~ ~~Lonnie~~
~~Eric T.~~ ~~Norma~~
~~Stacy~~ ~~Paula~~
~~Kelli~~ ~~Jesse~~
Mike P

The Honorable Harley W. Fluth
City of Emery
PO Box 303
Emery, SD 57332

Dear Mayor Fluth:

The South Dakota Department of Environment and Natural Resources conducted a SWD Compliance Inspection at the city's wastewater treatment facility on August 12, 1999. I appreciate Mr. Kayser's time and cooperation in supplying the requested information.

Attached is a copy of the inspection report and inspection summary. Please pay special attention to the Inspection Summary table and implement the required corrective actions as soon as possible. All corrective actions taken shall be reviewed during the next inspection at your facility.

Within 30 days of receipt of this report, please provide the SDDENR with a summary of the corrective actions taken at the address listed in the letterhead.

Thank you for your continued efforts to protect the environment and natural resources of South Dakota. If you have any questions concerning the attached report, please contact me at (605) 773-3351.

Sincerely,

Norma C. Job

Norma C. Job
Natural Resources Engineer
Surface Water Quality Program

Enclosure

Cc: Darin Kayser, city of Emery
Randy Hilding, DENR, Vermillion

INSPECTION SUMMARY

Facility: City of Emery

SWD Permit: SD-0021741

Inspection Date: August 12, 1999

COMMENTS	CORRECTIVE ACTIONS
September 1997 Discharge Monitoring Report (DMR) does not include the discharge data.	Correct the September 1997 DMR to include all the discharge data.
December 1998 DMR contained an error in the reported minimum pH.	Correct the December 1998 DMR to include the correct pH reading.
Discharge flow rate should be calculated using the pond depth indicators until the Palmer-Bowles flume is properly installed.	Determine what needs to be done to correct the installation of the Palmer-Bowles flume.
pH is required to be analyzed within 15 minutes.	Obtain or have access to a pH meter capable of a two-point calibration.
Initials of person performing sampling not recorded.	Record sampler's initials next to sample information.

SWD COMPLIANCE INSPECTION CHECKLIST

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

SWD PERMIT #: SD-0021741 FACILITY: Emery Wastewater Treatment Facility

INSPECTION DATE: 8/12/99 ENTRANCE TIME: 9:55 AM EXIT TIME: 11:45 AM

CONTACT PERSON: Darin Kayser TELEPHONE #: 605 449-4455

I. PERMIT VERIFICATION

Yes☒ No☐ N/A☐ 1. A current copy of the permit is on site.

Yes☐ No☒ N/A☐ 2. Name, mailing address, contact, and phone number are correct in the database. If not, indicate correct information on the Compliance Inspection Report form. ***Phone # is 449-4203***

Yes☐ No☒ N/A☐ 3. Facility is as described in permit. If no, what is different?

Control discharge structure was installed in 1997.

Yes☐ No☐ N/A☒ 4. State has been notified of any new, different, or increased loading to the WWTP.

Yes☒ No☐ N/A☐ 5. Number and location of discharge points are as described in the permit.

Yes☒ No☐ N/A☐ 6. Name of receiving water(s) is/are correct.

Comments:

II. RECORDKEEPING AND REPORTING EVALUATION

Record Keeping Information

1. The following necessary information is current, complete, and reasonably available:

Yes☒ No☐ N/A☐ a. Inspection notebooks (for ponds, lift stations, etc.)
Yes☒ No☐ N/A☐ b. Lab results
Yes☒ No☐ N/A☐ c. pH testing
Yes☒ No☐ N/A☐ d. DMRs
Yes☐ No☐ N/A☒ e Unauthorized Discharge forms (for no-discharge facilities only)
Yes☐ No☐ N/A☒ f. Other_____
Yes☐ No☐ N/A☒ g. Other_____

Yes☒ No☐ N/A☐ 2. Information is maintained for the required 3-year period.

3. The following sampling and analysis requirements are met:

Yes☒ No☐ N/A☐ a. Dates, times, locations of sampling are recorded.
Yes☐ No☒ N/A☐ b. Initials of person performing sampling are recorded.
Yes☐ No☒ N/A☐ c. The facility has a pH meter capable of at least 2-point calibration.
Yes☐ No☐ N/A☒ d. pH meter is calibrated properly before use.
Yes☐ No☐ N/A☒ e. Dates, times, and initials of person performing analyses are recorded.

Laboratory Information:

Parameters tested	**All required parameters**
Name	**State Health Lab**
Address	**Pierre**
Contact	
Phone	

Comments:

DMR Information

Use the attached DMR Calculations Form to help answer 1-5.

Yes☒ No☐ N/A☐ 1. Monitoring for required parameters is performed at least as frequently as required by permit.

Yes☐ No☐ N/A☒ 2. The geometric mean is calculated and recorded for fecal/total coliform data.

Yes☒ No☐ N/A☐ 3. Weekly and monthly averaging is calculated properly and reported on the DMR.

Yes☐ No☒ N/A☐ 4. The maximum and minimum values of all data points are reported properly. ***The minimum pH on the December 1998 DMR was reported to be 18.7 and should be 8.72.***

Yes☒ No☐ N/A☐ 5. The number of exceedances column (No. Ex.) is completed properly.

Comments:
Requested the operator to correct the September 1997 DMR if there is data available. Also, requested the pH reading for the December 1998 DMR be corrected.

III. FACILITY SITE REVIEW

Yes☐ No☐ N/A☒ 1. Emergency procedures are established (in the event of a major storm event, a chemical release into the sewer system, a sewer main break, etc.) ***No industries and little I/I problems.***

Yes☐ No☒ N/A☐ 2. Facility can be by-passed (internal, collection system, total). Describe bypass procedures:

_____

_____

Yes☐ No☒ N/A☐ 3. Facility has experienced sanitary sewer overflows (internal, collection system, total). Describe, including dates:

_____

_____

Yes☐ No☐ N/A☒ 4. Regulatory agency was notified of any bypassing or unauthorized releases (treated and/or untreated).
Bypass Dates:_____

Yes☐ No☐ N/A☒ 5. Plant has general safety structures such as warning signs, rails around or covers over tanks, pits, or wells, etc.

Yes☐ No☐ N/A☒ 6. Ventilation is adequate in confined spaces (dry wells, manholes, etc.)

Yes☒ No☐ N/A☐ 7. The facility is properly operated and maintained.

Comments:

IV. FLOW MEASUREMENT

Type of effluent flow measurement device:

☒ Pond Depth Indicator ☒ Flume; type ***Palmer-Bowles***
☐ Weir ☐ Other: _____

Yes☒ No☐ N/A☐ 1. Flow measured at each outfall. Number of outfalls: 1

Yes☒ No☐ N/A☐ 2. Facility personnel calculate flows properly.

Yes☒ No☐ N/A☐ 3. Flow measurement equipment adequate to handle expected ranges of flow rate.

Comments: ***8" discharge pipe discharges into a 12" Palmer-Bowles flume. The flume was installed without a measurement stick to calculate the flow. It appears the flow measurement device was not installed properly since flow throughout the flume is turbulent. Pond depth indicators can be used.***

VI. COMPLIANCE SCHEDULE STATUS REVIEW

Yes☒ No☐ N/A☐ 1. Is the facility subject to a compliance schedule either in its permit or in ar enforcement action? If yes, note date and type of enforcement action:

2. List milestones that remain in the schedule:

Yes☐ No☒ N/A☐ 3. Facility has missed milestone dates, but will still meet the final compliance date.

Comments: ***The city was required to install a controlled discharge structure in 1995. This structure was installed in September 1997.***

VII. PERMITTEE SAMPLING EVALUATION

Yes☒ No☐ N/A☐ 1. Samples are taken at sampling location specified by permit.

Yes☐ No☒ N/A☐ 2. Permittee is using method of sample collection required by permit.
Required method: ***Grab***
If not, explain:
pH is sent to the State Health Lab.

Yes☒ No☐ N/A☐ 3. Sample collection procedures adequate and include:

Yes☐ No☐ N/A☒ a. Sample refrigeration during compositing.

Yes☒ No☐ N/A☐ b. Proper preservation techniques.

Yes☒ No☐ N/A☐ c. Containers in conformance with 40 CFR 136.3.
Specify any problems:

Comments: ***The permittee shall have access to a pH meter that is capable of a two-point calibration.***

DMR Calculations Form

Month of *December 1998*

Week 1							
Date	BOD (mg/L)	TSS (mg/L)	pH	Flow (MGD)	Temp (°C)	Ammonia (mg/L)	Fecal (#/100 ml)
12/1/98	*21*	*48*	*8.72*			*0.76*	*7500*
12/2/98	*15*	*32*	*8.87*			*0.58*	*1600*
12/3/98	*20*	*26*	*9.07*			*0.45*	*460*
Week Total	*56*	*106*	----------	----------		*1.79*	*N/A*
÷ # of Samples	*3*	*3*	----------	----------		*3*	*3*
=7-Day Avg.	*18.67*	*35.3*	----------	----------		*0.60*	*N/A*

Week 2							
Date	BOD (mg/L)	TSS (mg/L)	pH	Flow (MGD)	Temp (°C)	Ammonia (mg/L)	Fecal (#/100 ml)
Week Total			----------	----------			
÷ # of Samples			----------	----------			
=7-Day Avg.			----------	----------			

Week 3							
Date	BOD (mg/L)	TSS (mg/L)	pH	Flow (MGD)	Temp (°C)	Ammonia (mg/L)	Fecal (#/100 ml)
Week Total			----------	----------			
÷ # of Samples			----------	----------			
=7-Day Avg.			----------	----------			

Week 4 (if applicable)							
Date	BOD (mg/L)	TSS (mg/L)	pH	Flow (MGD)	Temp (°C)	Ammonia (mg/L)	Fecal (#/100 ml)
Week Total			----------	----------			
÷ # of Samples			----------	----------			
=7-Day Avg.			----------	----------			

Monthly Summary							
Date	BOD (mg/L)	TSS (mg/L)	pH	Flow (MGD)	Temp (°C)	Ammonia (mg/L)	Fecal (#/100 ml)
Daily Max.	----------	----------	*9.07*			*0.76*	*N/A*
Daily Min.	----------	----------	*8.72*			----------	----------
Max. 7-day Avg.	*18.67*	*35.3*	----------			*0.60*	----------
Month Total	*56*	*106*	----------	----------		*1.79*	----------
÷ # of Samples	*3*	*3*	----------	----------		*3*	----------
=30-Day Avg.	*18.67*	*35.3*	----------	----------		*0.60*	----------

Surface Water Discharge Compliance Inspection Report

Section A: National Data System Coding

Transaction Code	Permit No.	mm/dd/yy	Insp. Type	Inspector	Fac. Type
N *5*	*SD-0021741*	*08/12/99*	*~~P~~ C*	*S*	*1*

Remarks:

Inspection Work Days	Facility Evaluation Rating	BI	QA	Reserved	Reserved
	3	*N*	*N*		

Section B: Facility Data

Name and Location of Facility (*For Industrial Users include POTW name and SWD permit number*)	Entry Time:	Permit Effective Date
Emery Wastewater Treatment Facility ½ mile northeast of the city.	9:55 am	February 1, 1995
Name of On-Site Representative(s)/ Title/ Phone and Fax Number Darin Kayser, Operator, 449-4455	**Exit Time:**	**Permit Expiration Date**
Name and Address of Responsible Official/Title/Phone and Fax Number Harley W. Fluth, Mayor - (605)449-4201 PO Box 303 Emery, SD 57332-0303 Contacted? No	11:45 am	December 31, 1999
	Other Facility Data	

Section C: Areas Evaluated During Inspection
(S=Satisfactory, M=Marginal, U=Unsatisfactory, N=Not Evaluated)

S	Permit	S	Flow Measurement	S	O & M	N	CSO/SSO
M	Records/Reports	M	Self-Monitoring	N	Sludge Disposal	N	PP
S	Facility Site Review	NA	Compliance Schedule	N	Pretreatment	N	Multimedia
N	Effluent/Receiving Waters	N	Laboratory	N	Storm Water		Other

Section D: Summary of Findings/Comments (*Attach additional sheets if necessary*)

Recommendations:

1. Have access or obtain pH meter capable of a two-point calibration.
2. Correct and resubmit September 1997 and December 1998 DMRs.

Name of Inspector(s)	Signature	Affiliation / Phone	Date
Norma C. Job	Norma C. Job	*SDDENR / (605) 773-3351*	9/7/99

Name of Reviewer	Signature	Affiliation / Phone	Date
Kelli D. Buscher, P.E.	Kelli Buscher	*SDDENR / (605) 773-3351*	9/7/99

INSTRUCTIONS FOR SURFACE WATER DISCHARGE COMPLIANCE INSPECTION REPORT

SECTION A: NATIONAL DATA SYSTEM CODING

Transaction Code: Use N, C or D for New, Change or Delete. All inspections will be New (N) unless there is an error in the data entered.

Permit No.: SWD Permit Number.

Inspection Date: Use month/day/year format.

Inspection Type: Uses the following codes to describe the type of inspection:

A-Performance Audit
B-Biomonitoring
C-Compliance Evaluation
D-Diagnostic
E-Corps of Engrs Inspection
F-Pretreatment Follow-up
G-Pretreatment Audit
I-Industrial User (IU)
L-Enforcement Case Support
M-Multimedia
P-Pretreatment Compliance Inspection
R-Reconnaissance Inspection
S-Compliance Sampling
U-IU Inspection with Pretreatment Audit
X-Toxics Inspection
Z-Sludge
2 IU Sampling Inspection
3 IU Non-Sampling Insp
4 IU Toxics Inspection
5 IU Sampling Insp w/Prt
6 IU Non-Samp Insp w/Prt
7 IU Toxics w/Prt

Inspector Code: Use following codes to describe the lead agency:

C-Contractor or Other (specify)
E-Corps of Engineers
J-Joint EPA/State - EPA Lead
N-NEIC Inspectors
R-EPA Regional inspector
S-State Inspector
T-Joint State/EPA - State Lead

Facility Type: Use following codes to describe the facility:

1-Municipal - Publicly Owned Treatment Works (POTW) with SIC code 4952.
2-Industrial - Other than municipal, agricultural and Federal facilities.
3-Agricultural - Facilities with SIC 0111 to 0971.
4-Federal - Facilities identified as Federal by the EPA Regional Office.

Remarks: Columns for remarks at discretion of the Inspector.

Inspection Work Days: Estimate the total work effort (to the nearest 0.1 work day), up to 99.9 days, that were used to complete the inspection and submit a QA reviewed report of findings. This estimate includes the accumulative effort of all participating inspectors; any effort for laboratory analyses, testing, and remote sensing; and the billed payroll time for travel and pre and post inspection preparation. This estimate does not require detailed documentation.

Facility Evaluation Rating: Evaluate the quality of the facility self monitoring program using scale of 1 to 5, with a 5 being a very reliable program, a 3 being satisfactory and a 1 being a very unreliable program.

Biomonitoring Information: Enter D for static testing; F for flow through testing; or N for no biomonitoring.

Quality Assurance Data Inspection: Enter Q if inspection was a follow-up on QA sample results. Enter N otherwise.

SECTION B: FACILITY DATA

This section is self-explanatory, except for ÿOther Facility Dataÿ, which may include new information not in the permit or PCS (e.g., new outfalls, names of receiving waters, new ownership, and other updates to the record).

SECTION C: AREAS EVALUATED DURING INSPECTION

Indicate findings (S, M, U or N) in the appropriate line. Use section D and additional sheets as need to explain findings in a brief narrative when appropriate. The heading marked ÿMultimediaÿ may indicate medias such as CAA, RCRA, and TSCA. The heading marked "Other" may be used to note any additional concerns, such as SPCC, BMPs, and concerns that are not covered elsewhere.

SECTION D: SUMMARY OF FINDINGS/COMMENTS

Briefly summarize the inspection findings along with referencing any attachments such as checklists from NPDES inspection manuals, pretreatment guidance documents and monitoring results.

Appendix E

Wastewater Flow Data

MONTHLY SUMMARY Site #3687705640 Emery Pond MH

Wed 21 Nov 2001 19:00 - Fri 30 Nov 2001 19:00

Part C Flow

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Flow Rate (gpm)	Total Flow (gal)
Wed 21 Nov 2001	0.00 @ 19:05	124.28 @ 19:35	44.44	64010
Thu 22 Nov 2001	22.35 @ 01:35	59.66 @ 18:50	30.50	43923
Fri 23 Nov 2001	26.62 @ 08:55	164.21 @ 21:20	98.95	142513
Sat 24 Nov 2001	21.83 @ 07:50	141.76 @ 19:10	82.79	119229
Sun 25 Nov 2001	27.70 @ 08:00	227.26 @ 20:00	87.43	125918
Mon 26 Nov 2001	30.74 @ 06:20	118.19 @ 10:20	81.56	117460
Tue 27 Nov 2001	34.05 @ 02:30	118.26 @ 09:05	58.96	84913
Wed 28 Nov 2001	2.05 @ 10:50	105.94 @ 09:10	38.84	55931
Thu 29 Nov 2001	14.86 @ 04:35	30.48 @ 20:50	20.95	30175
Fri 30 Nov 2001	14.70 @ 07:30	31.27 @ 11:20	21.80	31396
Monthly results	0.00 @ 19:05 Wed 21 Nov	227.26 @ 20:00 Sun 25 Nov	56.62	815468

MONTHLY SUMMARY Site #3687705640 Emery Pond MH

Sat 01 Dec 2001 19:00 - Mon 31 Dec 2001 19:00

Part C Flow

Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Flow Rate (gpm)	Total Flow (gal)
Sat 01 Dec 2001	14.51 @ 05:55	30.22 @ 10:40	22.10	31828
Sun 02 Dec 2001	16.21 @ 07:10	31.53 @ 09:50	22.73	32737
Mon 03 Dec 2001	17.02 @ 06:35	31.54 @ 09:30	22.23	32022
Tue 04 Dec 2001	18.83 @ 05:10	35.10 @ 09:05	24.63	35477
Wed 05 Dec 2001	18.06 @ 06:00	36.11 @ 20:20	25.35	36512
Thu 06 Dec 2001	19.45 @ 04:15	37.74 @ 08:55	26.71	38464
Fri 07 Dec 2001	18.36 @ 07:35	43.47 @ 10:05	28.15	40549
Sat 08 Dec 2001	20.05 @ 05:15	46.38 @ 14:20	29.55	42557
Sun 09 Dec 2001	21.06 @ 06:30	41.57 @ 09:35	28.35	40830
Mon 10 Dec 2001	21.76 @ 04:05	40.64 @ 09:20	29.20	42050
Tue 11 Dec 2001	19.56 @ 05:50	38.50 @ 10:50	26.77	38558
Wed 12 Dec 2001	19.05 @ 06:30	41.59 @ 10:30	27.51	39616
Thu 13 Dec 2001	20.84 @ 06:45	41.59 @ 08:55	28.14	40525
Fri 14 Dec 2001	18.79 @ 06:20	42.84 @ 11:30	27.94	40239
Sat 15 Dec 2001	20.39 @ 07:40	43.05 @ 11:10	27.10	39025
Sun 16 Dec 2001	22.56 @ 04:35	46.80 @ 09:10	31.77	45748
Mon 17 Dec 2001	25.64 @ 05:40	45.73 @ 08:55	33.98	48943
Tue 18 Dec 2001	33.26 @ 19:50	65.38 @ 09:10	43.46	62585
Wed 19 Dec 2001	44.40 @ 19:20	70.09 @ 09:10	56.48	81344
Thu 20 Dec 2001	52.46 @ 20:05	79.29 @ 09:30	61.74	88918
Fri 21 Dec 2001	53.88 @ 04:10	103.56 @ 11:00	72.38	104236
Sat 22 Dec 2001	55.05 @ 06:35	90.19 @ 14:05	73.15	105351
Sun 23 Dec 2001	47.50 @ 06:25	109.26 @ 18:15	75.14	108210
Mon 24 Dec 2001	50.04 @ 07:15	110.41 @ 13:25	79.45	114431
Tue 25 Dec 2001	47.40 @ 02:35	104.15 @ 14:00	71.03	102294
Wed 26 Dec 2001	35.77 @ 04:15	115.68 @ 10:45	65.57	94441
Thu 27 Dec 2001	36.44 @ 04:25	105.90 @ 20:55	62.46	89951
Fri 28 Dec 2001	34.18 @ 06:20	98.29 @ 11:45	55.11	79372
Sat 29 Dec 2001	31.12 @ 05:55	86.76 @ 11:20	55.44	79850
Sun 30 Dec 2001	37.82 @ 06:35	68.35 @ 10:10	53.05	76402
Mon 31 Dec 2001	24.14 @ 03:55	80.22 @ 20:25	47.44	68321
Monthly results	14.51 @ 05:55 Sun 02 Dec	115.68 @ 10:45 Thu 27 Dec	43.04	1921387

MONTHLY SUMMARY Site #3687705640 Emery Pond MH

Tue 01 Jan 2002 19:00 - Tue 08 Jan 2002 12:30

Part C Flow

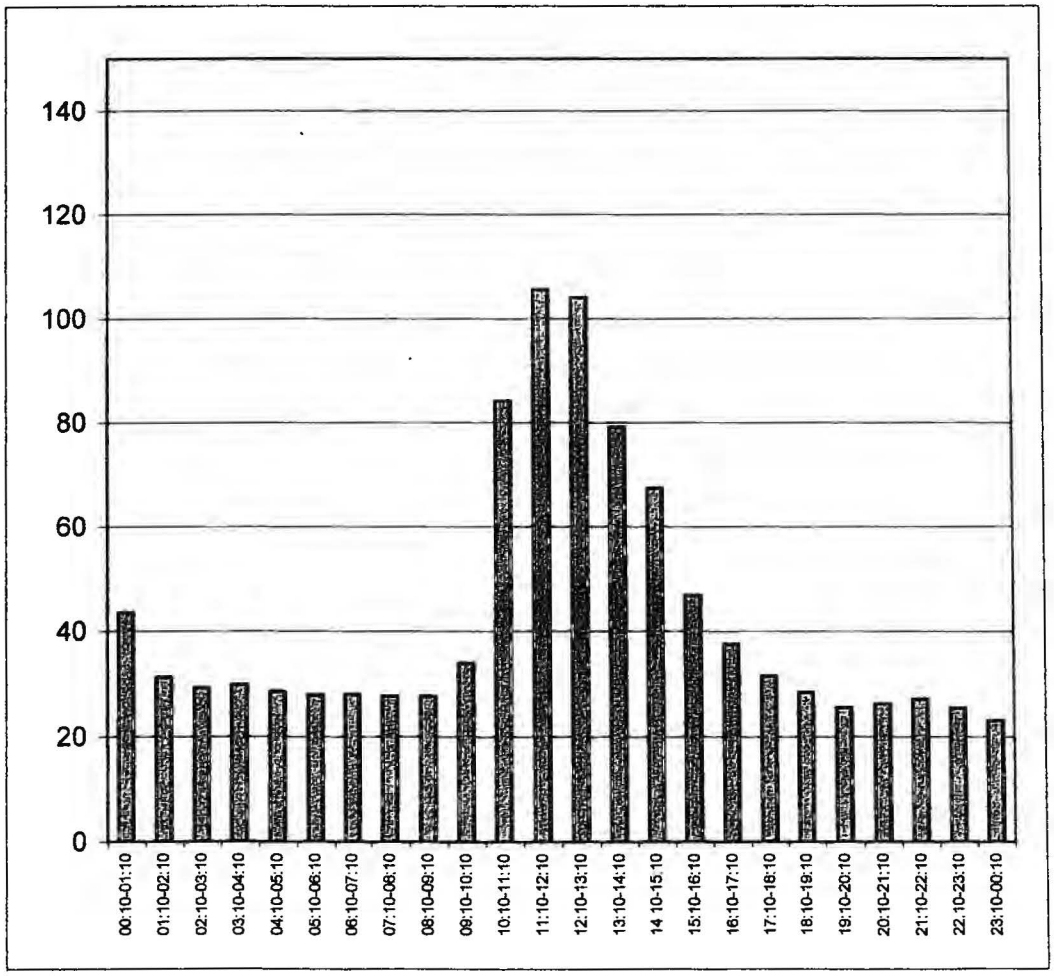
Date	Minimum Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Flow Rate (gpm)	Total Flow (gal)
Tue 01 Jan 2002	22.12 @ 04:10	77.31 @ 22:15	48.59	69979
Wed 02 Jan 2002	30.56 @ 05:20	71.25 @ 09:10	53.46	76997
Thu 03 Jan 2002	21.48 @ 06:20	78.53 @ 20:10	49.37	71108
Fri 04 Jan 2002	24.09 @ 03:40	72.98 @ 11:15	52.92	76213
Sat 05 Jan 2002	21.60 @ 07:20	69.35 @ 19:50	48.85	70351
Sun 06 Jan 2002	22.19 @ 04:45	73.07 @ 13:25	49.99	72001
Mon 07 Jan 2002	19.67 @ 05:55	65.24 @ 19:05	44.54	46777
Monthly results	19.67 @ 05:55 Tue 08 Jan	78.53 @ 20:10 Thu 03 Jan	49.88	483427

DAILY SUMMAF Site #3 687705 640 Emery P on MH W Thu 22 Nov 2001

Total Flow:	64279 gal	
Average Flow:	44.63 gpm	
Minimum Flow:	2.89 gpm @	19:20
Maximum Flow:	124.28 gpm @	19:35

Hourly Average Flow

00:10-01:10	43.47 gpm	12:10-13:10	104.1 gpm
01:10-02:10	31.19 gpm	13:10-14:10	79.0 gpm
02:10-03:10	29.19 gpm	14:10-15:10	67.24 gpm
03:10-04:10	29.84 gpm	15:10-16:10	46.78 gpm
04:10-05:10	28.47 gpm	16:10-17:10	37.48 gpm
05:10-06:10	27.85 gpm	17:10-18:10	31.42 gpm
06:10-07:10	28.01 gpm	18:10-19:10	28.33 gpm
07:10-08:10	27.67 gpm	19:10-20:10	25.5 gpm
08:10-09:10	27.55 gpm	20:10-21:10	26.1 gpm
09:10-10:10	33.88 gpm	21:10-22:10	27.08 gpm
10:10-11:10	84.06 gpm	22:10-23:10	25.41 gpm
11:10-12:10	105.46 gpm	23:10-00:10	23.0 gpm

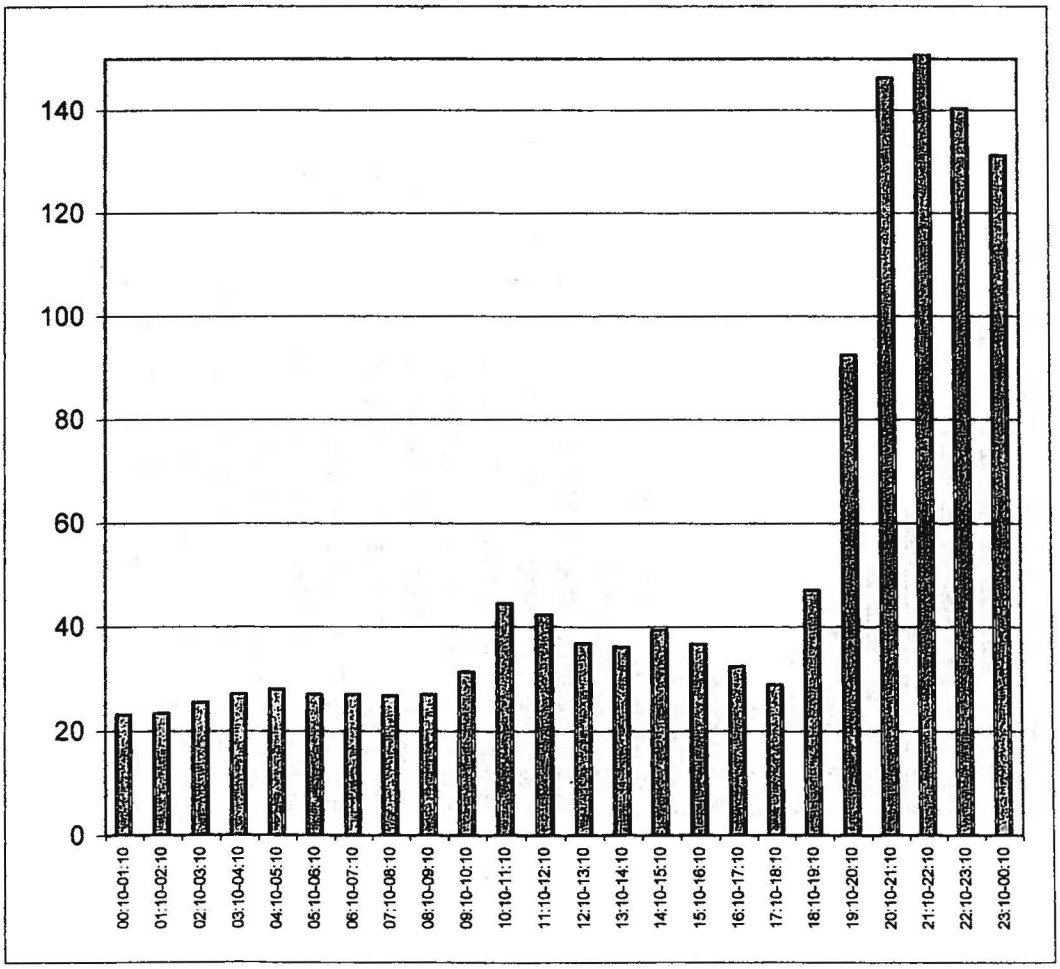


☐ DAILY SUI Site # 368770 5640 Emery Po d MH Fri 23 Nov 2001

Total Flow:	44246 gal	
Average Flow:	30.72 gpm	
Minimum Flow:	22.35 gpm @	1:35
Maximum Flow:	59.66 gpm @	18:50

Hourly Average Flow

00:10-01:10	23.13 gpm	12:10-13:10	:	36.84 gpm
01:10-02:10	23.42 gpm	13:10-14:10	:	36.13 gpm
02:10-03:10	25.54 gpm	14:10-15:10	:	39.42 gpm
03:10-04:10	27.07 gpm	15:10-16:10	:	36.74 gpm
04:10-05:10	27.97 gpm	16:10-17:10	:	32.37 gpm
05:10-06:10	26.99 gpm	17:10-18:10	:	28.89 gpm
06:10-07:10	26.94 gpm	18:10-19:10	:	47.02 gpm
07:10-08:10	26.76 gpm	19:10-20:10		92.37 gpm
08:10-09:10	27.00 gpm	20:10-21:10		146.32 gpm
09:10-10:10	31.32 gpm	21:10-22:10		154.88 gpm
10:10-11:10	44.41 gpm	22:10-23:10		140.35 gpm
11:10-12:10	42.23 gpm	23:10-00:10		131.10 gpm

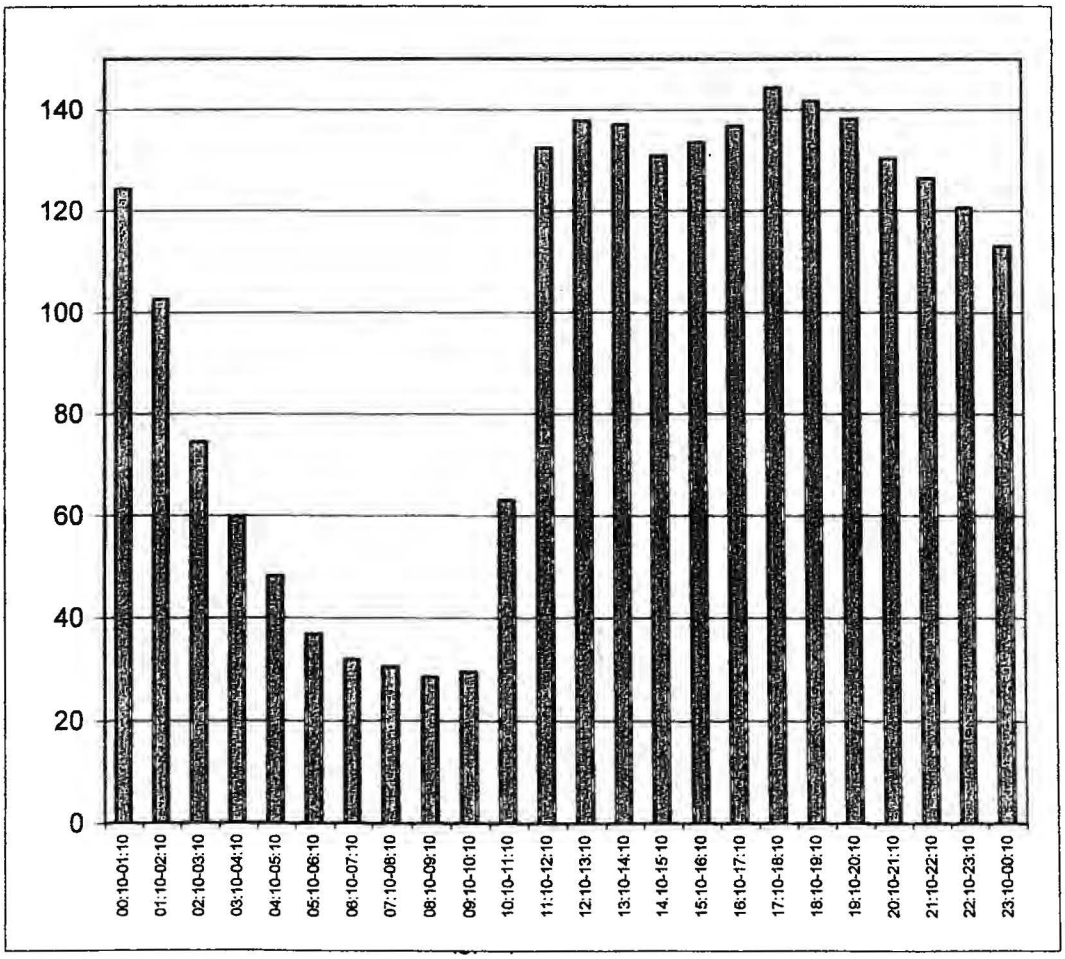


□ DAILY SUI Site # 368770 5640 Emery Po d MH Sat 24 Nov 2001

Total Flow:	143308 gal	
Average Flow:	99.51 gpm	
Minimum Flow:	26.62 gpm @	8:55
Maximum Flow:	164.21 gpm @	21:20

Hourly Average Flow

00:10-01:10	124.33 gpm	12:10-13:10	:	137.72 gpm
01:10-02:10	102.44 gpm	13:10-14:10	:	137.01 gpm
02:10-03:10	74.45 gpm	14:10-15:10	:	130.82 gpm
03:10-04:10	59.81 gpm	15:10-16:10	:	133.50 gpm
04:10-05:10	48.09 gpm	16:10-17:10	:	136.76 gpm
05:10-06:10	36.74 gpm	17:10-18:10	:	144.26 gpm
06:10-07:10	31.80 gpm	18:10-19:10	:	141.63 gpm
07:10-08:10	30.48 gpm	19:10-20:10	:	138.14 gpm
08:10-09:10	28.44 gpm	20:10-21:10	:	130.29 gpm
09:10-10:10	29.42 gpm	21:10-22:10	:	126.42 gpm
10:10-11:10	62.95 gpm	22:10-23:10	:	120.60 gpm
11:10-12:10	132.46 gpm	23:10-00:10	:	112.98 gpm

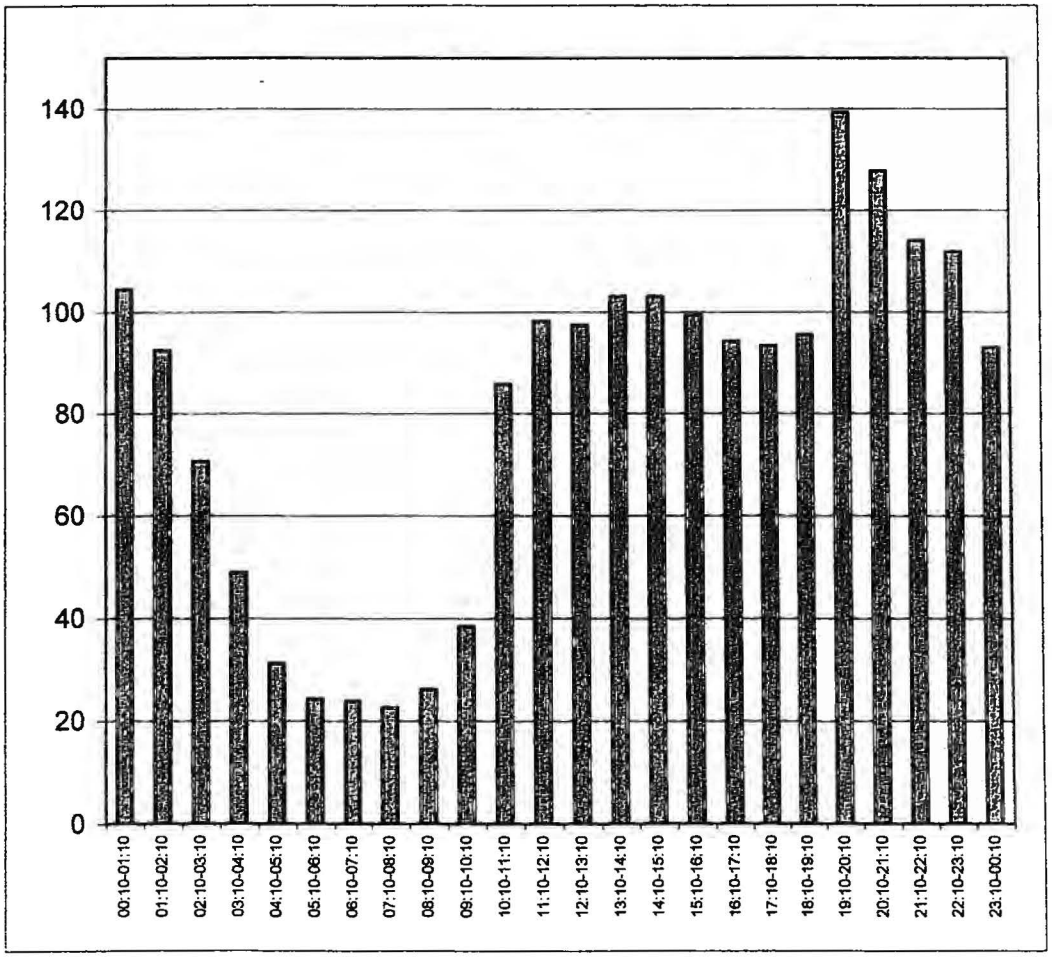


□ DAILY SUI Site # 368770 5640 Emery Po d MH Sun 25 Nov 2001

Total Flow:	118814 gal		
Average Flow:	82.5 gpm		
Minimum Flow:	21.83 gpm @		7:50
Maximum Flow:	141.76 gpm @		19:45

Hourly Average Flow

00:10-01:10	104.4 gpm	12:10-13:10	:	97.30 gpm
01:10-02:10	92.38 gpm	13:10-14:10	:	102.95 gpm
02:10-03:10	70.60 gpm	14:10-15:10	:	102.94 gpm
03:10-04:10	48.73 gpm	15:10-16:10	:	99.36 gpm
04:10-05:10	31.14 gpm	16:10-17:10	:	94.17 gpm
05:10-06:10	24.22 gpm	17:10-18:10	:	93.28 gpm
06:10-07:10	23.86 gpm	18:10-19:10	:	95.37 gpm
07:10-08:10	22.61 gpm	19:10-20:10		139.32 gpm
08:10-09:10	26.11 gpm	20:10-21:10		127.70 gpm
09:10-10:10	38.31 gpm	21:10-22:10		113.91 gpm
10:10-11:10	85.69 gpm	22:10-23:10		111.84 gpm
11:10-12:10	98.09 gpm	23:10-00:10		92.84 gpm

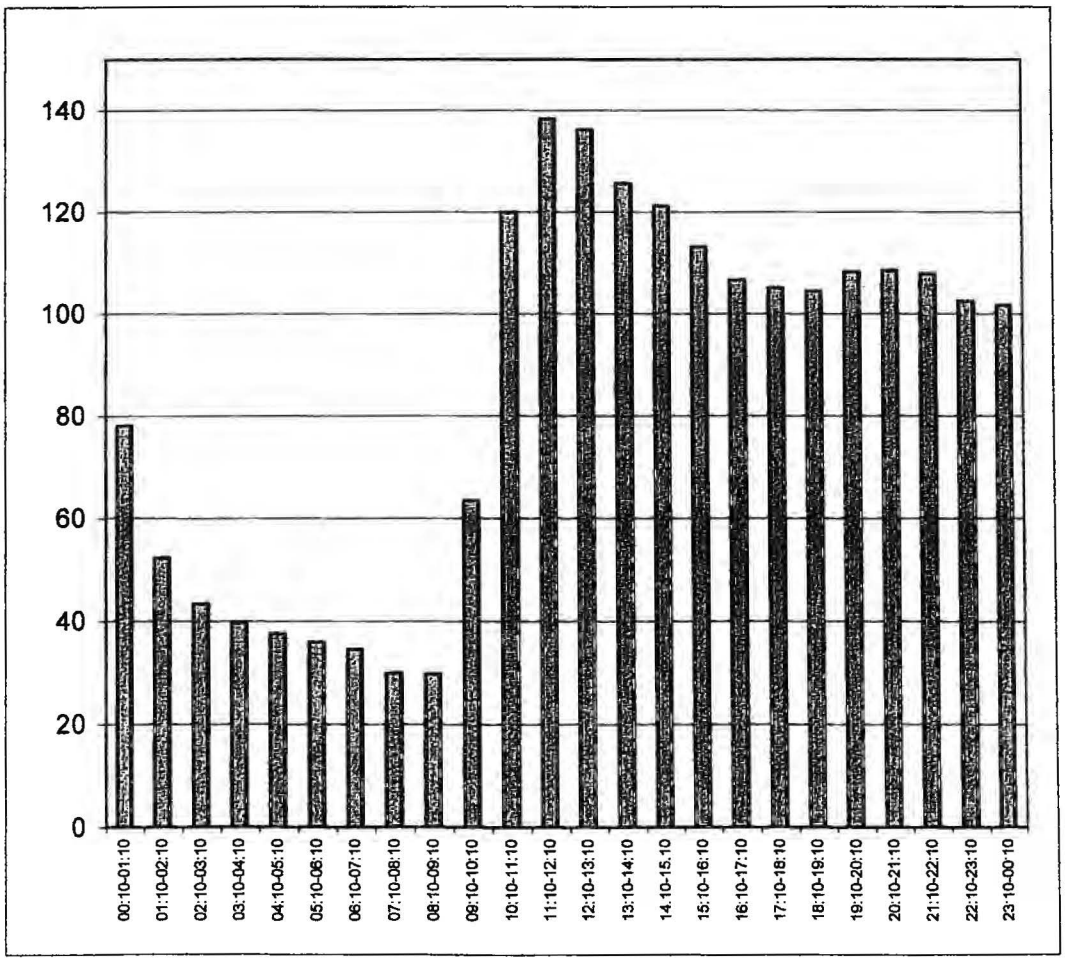


□ DAILY SUI Site # 368770 5640 Emery Po d MH Mon 26 Nov 2001

Total Flow:	126009 gal		
Average Flow:	87.49 gpm		
Minimum Flow:	27.7 gpm @		8:00
Maximum Flow:	227.26 gpm @		20:00

Hourly Average Flow

00:10-01:10	77.99 gpm	12:10-13:10	:	136.16 gpm
01:10-02:10	52.23 gpm	13:10-14:10	:	125.56 gpm
02:10-03:10	43.24 gpm	14:10-15:10	:	121.13 gpm
03:10-04:10	39.68 gpm	15:10-16:10	:	113.12 gpm
04:10-05:10	37.55 gpm	16:10-17:10	:	106.56 gpm
05:10-06:10	35.84 gpm	17:10-18:10	:	105.05 gpm
06:10-07:10	34.45 gpm	18:10-19:10	:	104.5 gpm
07:10-08:10	29.83 gpm	19:10-20:10		108.21 gpm
08:10-09:10	29.66 gpm	20:10-21:10		108.52 gpm
09:10-10:10	63.39 gpm	21:10-22:10		107.85 gpm
10:10-11:10	119.98 gpm	22:10-23:10		102.43 gpm
11:10-12:10	138.3 gpm	23:10-00:10		101.74 gpm

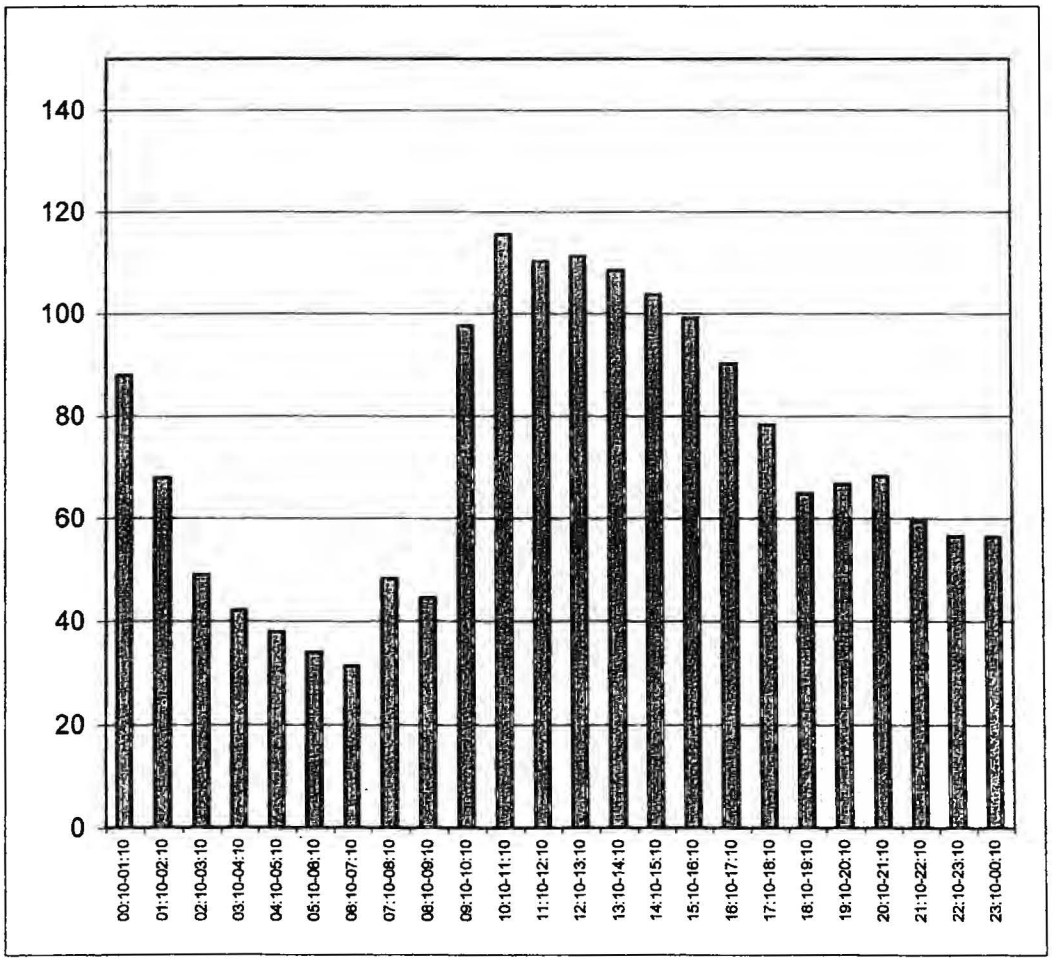


□ DAILY SUI Site # 368770 5640 Emery Po d MH Tue 27 Nov 2001

Total Flow:	117010 gal	
Average Flow:	81.25 gpm	
Minimum Flow:	30.74 gpm @	6:20
Maximum Flow:	118.19 gpm @	10:20

Hourly Average Flow

00:10-01:10	87.89 gpm	12:10-13:10	:	111.21 gpm
01:10-02:10	67.75 gpm	13:10-14:10	:	108.41 gpm
02:10-03:10	48.92 gpm	14:10-15:10	:	103.71 gpm
03:10-04:10	42.1 gpm	15:10-16:10	:	99.1 gpm
04:10-05:10	37.96 gpm	16:10-17:10	:	90.14 gpm
05:10-06:10	33.94 gpm	17:10-18:10	:	78.14 gpm
06:10-07:10	31.21 gpm	18:10-19:10	:	64.79 gpm
07:10-08:10	48.18 gpm	19:10-20:10		66.53 gpm
08:10-09:10	44.49 gpm	20:10-21:10		68.16 gpm
09:10-10:10	97.52 gpm	21:10-22:10		59.42 gpm
10:10-11:10	115.42 gpm	22:10-23:10		56.54 gpm
11:10-12:10	110.24 gpm	23:10-00:10		56.33 gpm

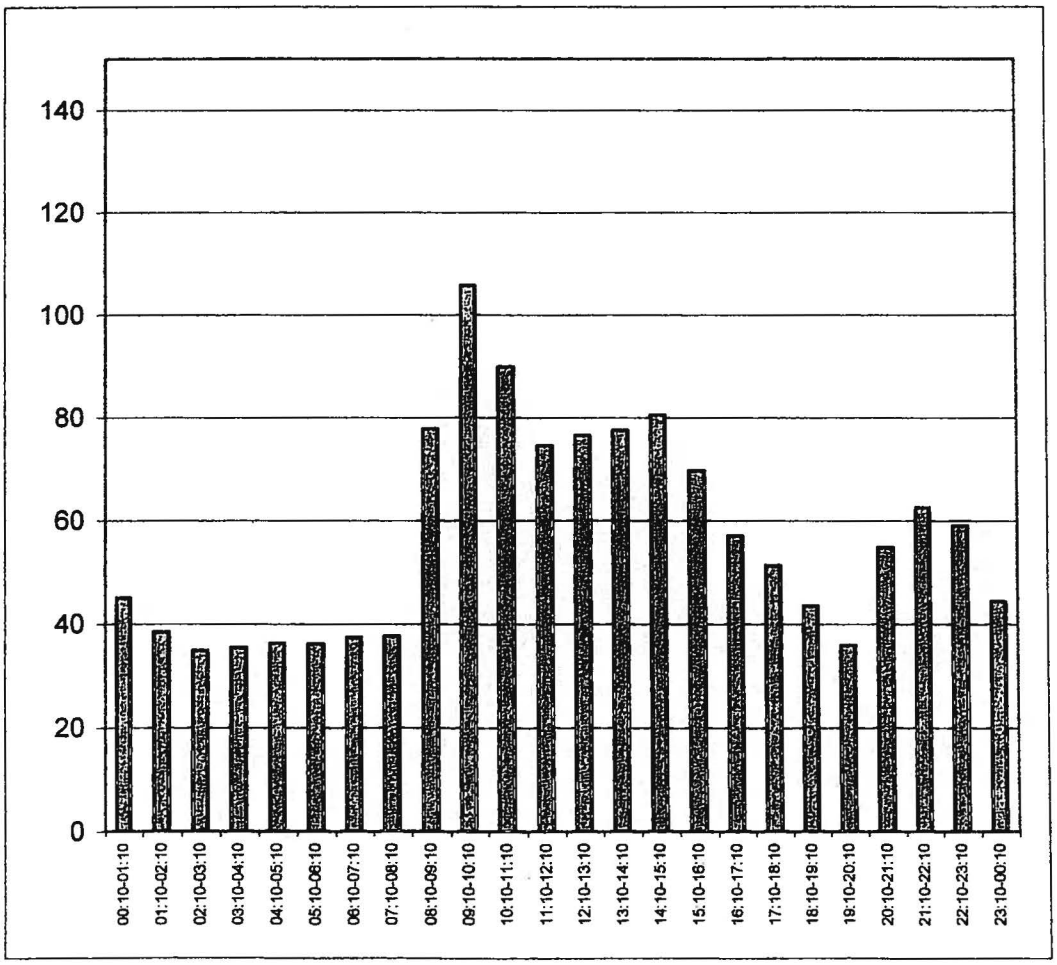


□ DAILY SUI Site # 368770 5640 Emery Po d MH Wed 28 Nov 2001

Total Flow:	84707 gal	
Average Flow:	58.82 gpm	
Minimum Flow:	34.05 gpm @	2:30
Maximum Flow:	118.26 gpm @	9:05

Hourly Average Flow

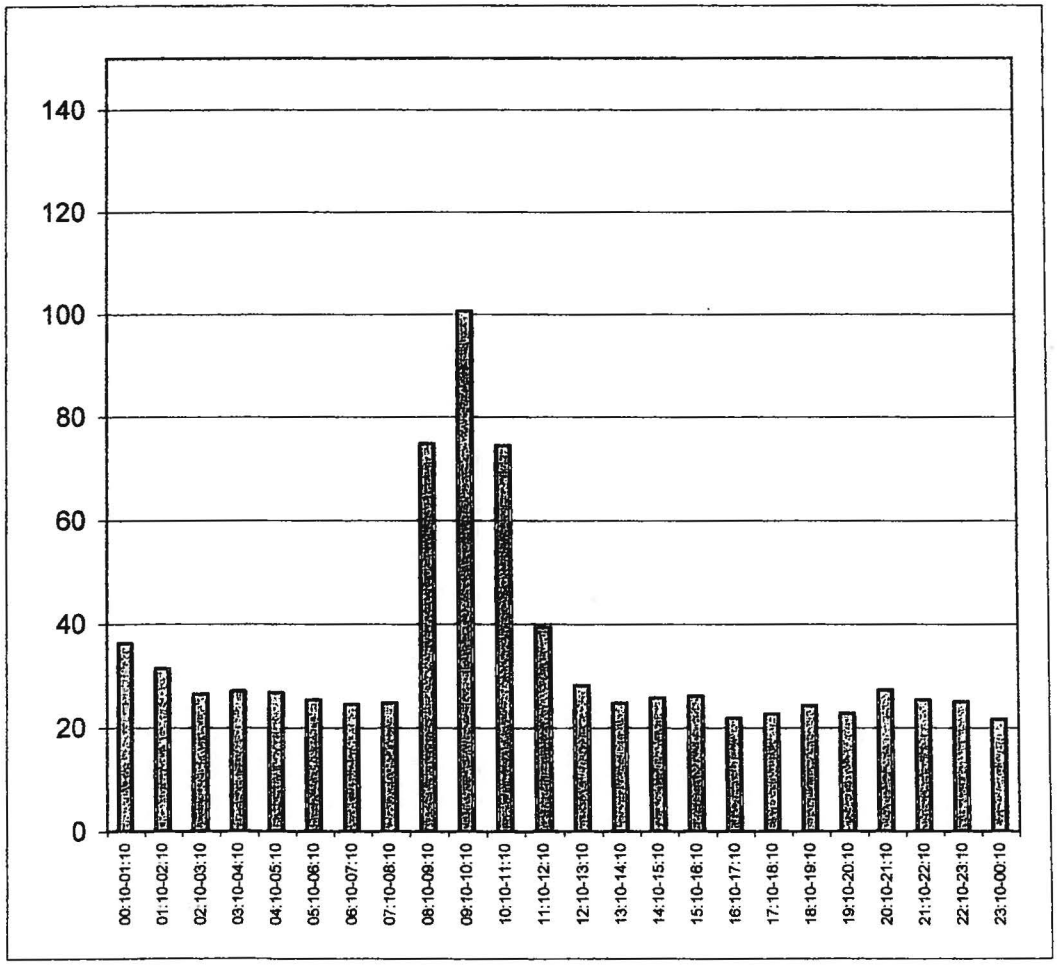
00:10-01:10	45.01 gpm	12:10-13:10	:	76.52 gpm
01:10-02:10	38.38 gpm	13:10-14:10	:	77.47 gpm
02:10-03:10	34.9 gpm	14:10-15:10	:	80.47 gpm
03:10-04:10	35.36 gpm	15:10-16:10	:	69.61 gpm
04:10-05:10	36.22 gpm	16:10-17:10	:	56.95 gpm
05:10-06:10	36.17 gpm	17:10-18:10	:	51.2 gpm
06:10-07:10	37.4 gpm	18:10-19:10	:	43.48 gpm
07:10-08:10	37.57 gpm	19:10-20:10		35.84 gpm
08:10-09:10	77.74 gpm	20:10-21:10		54.77 gpm
09:10-10:10	105.75 gpm	21:10-22:10		62.53 gpm
10:10-11:10	89.85 gpm	22:10-23:10		58.97 gpm
11:10-12:10	74.54 gpm	23:10-00:10		44.35 gpm

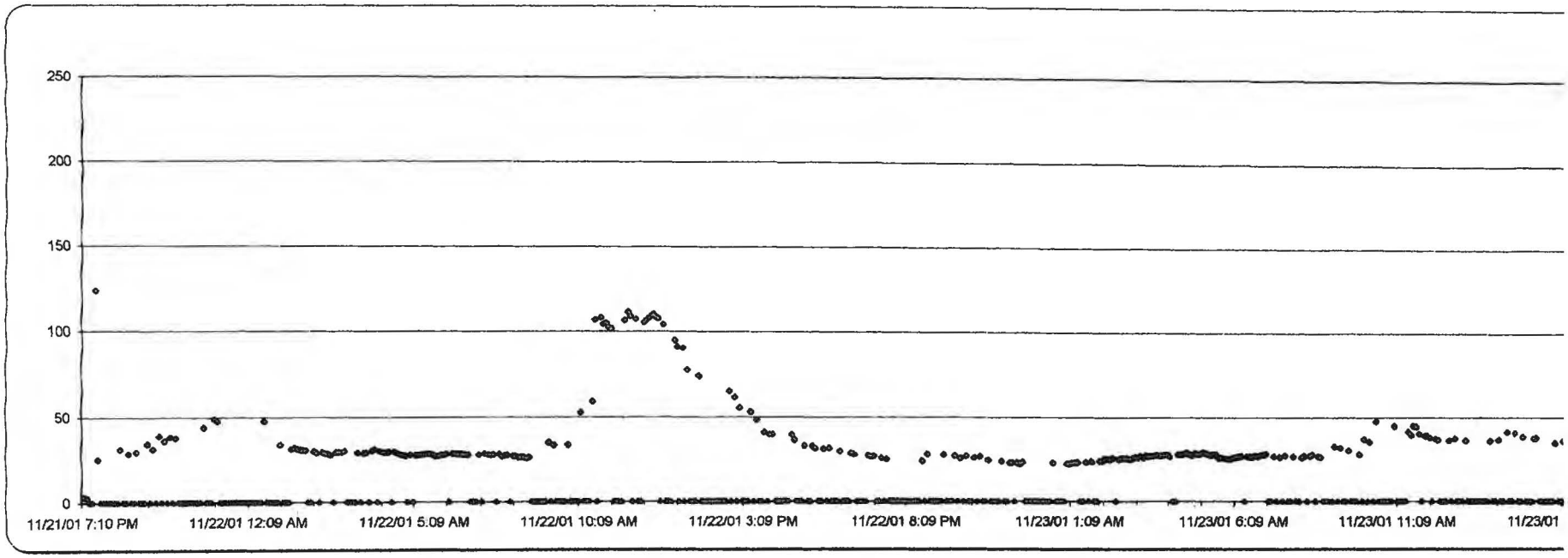


☐ DAILY SUI Site # 368770 5640 Emery Po d MH Thur 29 Nov 2001

Total Flow:	41071 gal		
Average Flow:	44.64 gpm		
Minimum Flow:	23.81 gpm @		6:15
Maximum Flow:	105.94 gpm @		9:10

Hourly Average	Flow		
00:10-01:10	36.17 gpm	12:10-13:10	28.15
01:10-02:10	31.32 gpm	13:10-14:10	24.71
02:10-03:10	26.49 gpm	14:10-15:10	25.76
03:10-04:10	26.97 gpm	15:10-16:10	26.12
04:10-05:10	26.7 gpm	16:10-17:10	21.91
05:10-06:10	25.41 gpm	17:10-18:10	22.6
06:10-07:10	24.52 gpm	18:10-19:10	24.19
07:10-08:10	24.76 gpm	19:10-20:10	22.79
08:10-09:10	74.77 gpm	20:10-21:10	27.21
09:10-10:10	100.61 gpm	21:10-22:10	25.32
10:10-11:10	74.49 gpm	22:10-23:10	24.96
11:10-12:10	39.39 gpm	23:10-00:10	21.63




250
200
150
100
50
0
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11/22/01 12:09 AM
11/22/01 5:09 AM
11/22/01 10:09 AM
11/22/01 3:09 PM
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11/23/01 1:09 AM
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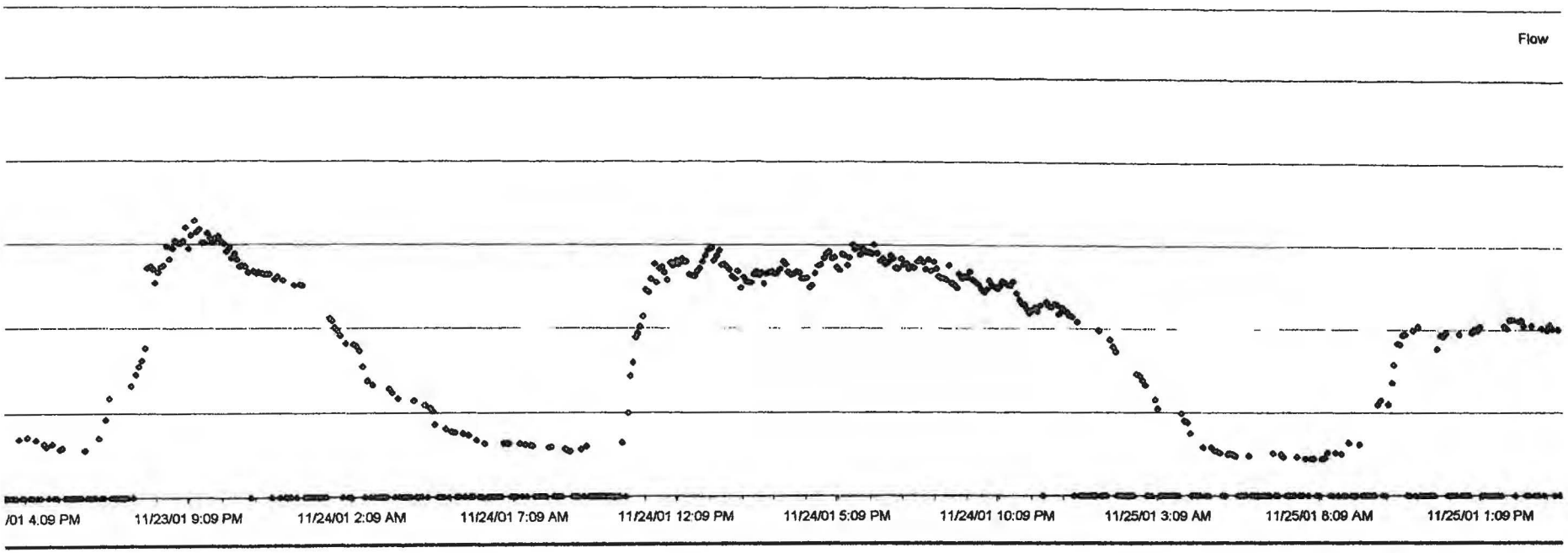
11/23/01 11:09 AM
11/23/01


Flow
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11/23/01 9:09 PM
11/24/01 2:09 AM
11/24/01 7:09 AM
11/24/01 12:09 PM
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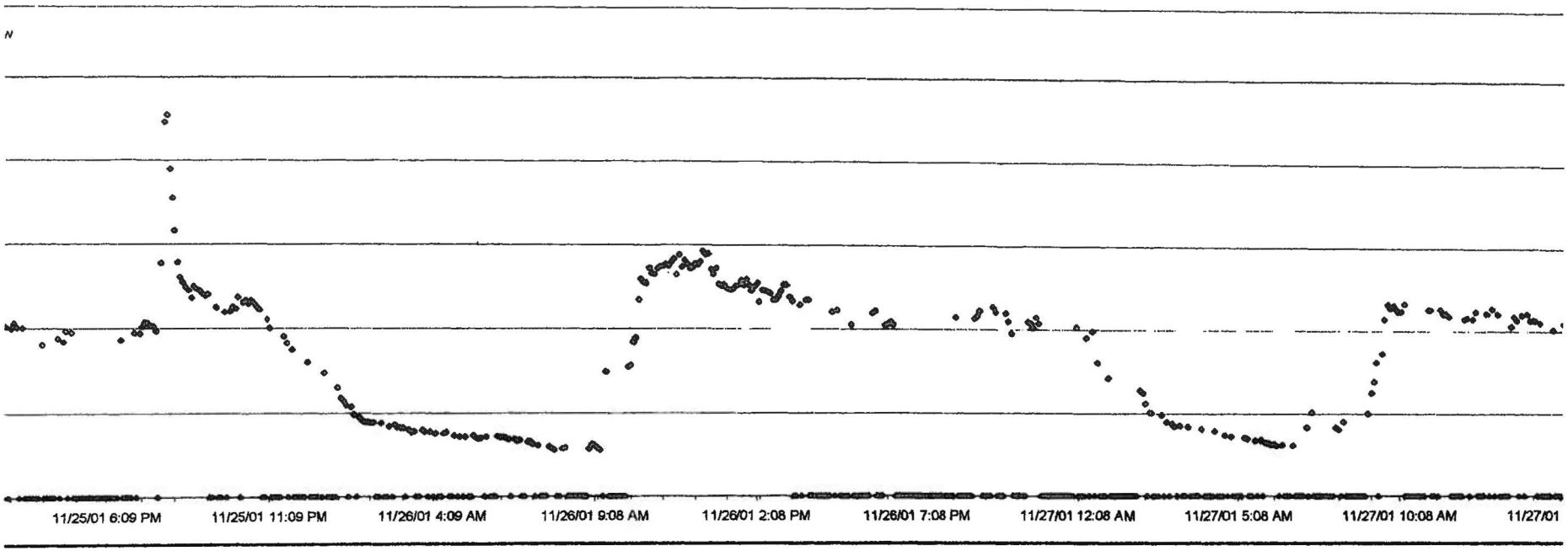
11/25/01 1:09 PM


N
11/25/01 6:09 PM
11/25/01 11:09 PM
11/26/01 4:09 AM
11/26/01 9:08 AM
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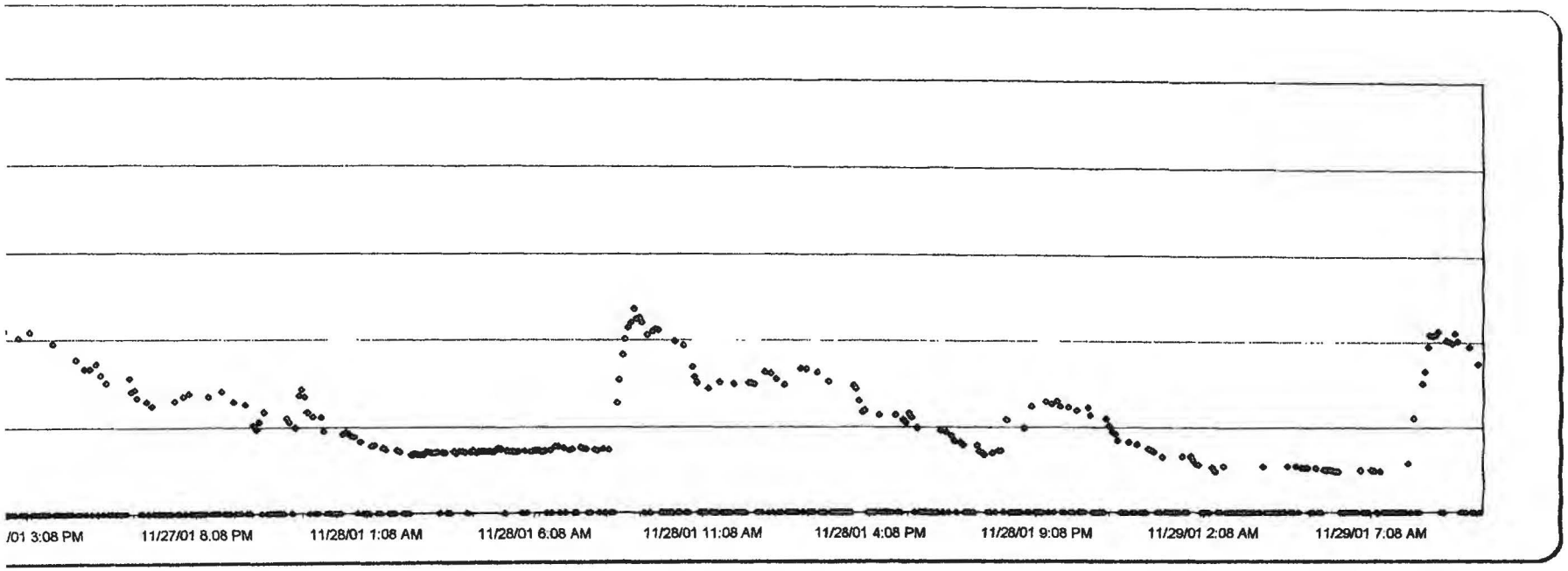
11/27/01 10:08 AM
11/27/01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11/27/01 8:08 PM
11/28/01 1:08 AM
11/28/01 6:08 AM
11/28/01 11:08 AM
11/28/01 4:08 PM
11/28/01 9:08 PM
11/29/01 2:08 AM
11/29/01 7:08 AM

Station: BRIDGEWATER
State: SD **County:** MCCOOK **Standard Time:** CENTRAL

Observation Time (LST) **Temperature:** **Precipitation:** 9900 **Evaporation:** **Soil:**

Record of Climatological

**** These data are preliminary a through full, quality control**

Preliminary	Year	Month	Day	Temperature (°F) 24 hrs. ending at observation time Max.	Min.	at Observation	Precipitation (see **) 24 Hour Amounts ending at observation time: Rain, melted snow, etc. (Inches & hundredths)	Snow, ice pellets (Inches & tenths)	At Observation Time: Snow, ice pellets, hail, ice on ground (Inches)	Evaporation: 24 Hour Wind Movement (miles)	Amount of Evaporation (Inches & hundredths)	Soil Temp 4 inch depth: Ground Cover (see *)	Max.	Min
*	2001	11	1	68	45	99999	9999.99	9999.9	99999		999.99			
*	2001	11	2	62	32	99999	9999.99	9999.9	99999		999.99			
*	2001	11	3	65	31	99999	9999.99	9999.9	99999		999.99			
*	2001	11	4	70	31	99999	9999.99	9999.9	99999		999.99			
*	2001	11	5	72	35	99999	9999.99	9999.9	99999		999.99			
*	2001	11	6	75	41	99999	9999.99	9999.9	99999		999.99			
*	2001	11	7	999999	999999	99999	9999.99	9999.9	99999		999.99			
*	2001	11	8	71	34	99999	9999.99	9999.9	99999		999.99			
*	2001	11	9	999999	999999	99999	9999.99	9999.9	99999		999.99			
*	2001	11	10	66	30	99999	9999.99	9999.9	99999		999.99			
*	2001	11	11	61	27	99999	9999.99	9999.9	99999		999.99			
*	2001	11	12	64	34	99999	9999.99	9999.9	99999		999.99			
*	2001	11	13	65	39	99999	9999.99	9999.9	99999		999.99			
*	2001	11	14	65	43	99999	9999.99	9999.9	99999		999.99			
*	2001	11	15	67	33	99999	9999.99	9999.9	99999		999.99			
*	2001	11	16	70	33	99999	9999.99	9999.9	99999		999.99			
*	2001	11	17	72	41	99999	9999.99	9999.9	99999		999.99			
*	2001	11	18	67	46	99999	9999.99	9999.9	99999		999.99			
*	2001	11	19	50	23	99999	9999.99	9999.9	99999		999.99			
*	2001	11	20	49	18	99999	9999.99	9999.9	99999		999.99			
*	2001	11	21	58	25	99999	9999.99	9999.9	99999		999.99			
*	2001	11	22	64	29	99999	9999.99	9999.9	99999		999.99			
*	2001	11	23	54	35	99999	9999.99	9999.9	99999		999.99			
*	2001	11	24	46	34	99999	1.55	9999.9	99999		999.99			
*	2001	11	25	43	32	99999	0.68	9999.9	99999		999.99			
*	2001	11	26	36	27	99999	0.36	9999.9	99999		999.99			
*	2001	11	27	32	19	99999	0.19	9999.9	99999		999.99			
*	2001	11	28	27	17	99999	9999.99	9999.9	99999		999.99			
*	2001	11	29	999999	999999	99999	9999.99	9999.9	99999		999.99			
*	2001	11	30	999999	999999	99999	9999.99	9999.9	99999		999.99			
		Summary		59.2	32.1									

The '*' flags in Preliminary indicate the data have not completed processing and quality control and may not be identical to the original obse

All 9's (e.g. 999999, 99999.9, etc.) in the data column indicate that the value was not received or is missing

***Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulc; 7=Grass muck; 8=Bare muck; 0=Unknov**

****The values T in the Precipitation category above indicate a TRACE value was recorded for these elements**

This page was dynamically generated on Wed Jan 02 16:06:58 EST 2002 via http://lwf.ncdc.noaa.gov/servlets/DLYP (1.02a)

Station: BRIDGEWATER
State: SD **County:** MCCOOK **Standard Time:** CENTRAL ID 75 132

Observation Time (LST) **Temperature:** **Precipitation:** **Evaporation:** **Soil:**

Record of Climatological

**** These data are preliminary a through full, quality control**

Preliminary	Year	Month	Day	Temperature (°F) 24 hrs. ending at observation time Max.	Min.	at Observation	Precipitation (see **) 24 Hour Amounts ending at observation time Rain, melted snow, etc. (Inches & hundredths)	Snow, ice pellets (Inches & tenths)	At Observation Time Snow, ice pellets, hail, ice on ground (Inches)	Evaporation 24 Hour Wind Movement (miles)	Amount of Evaporation (Inches & hundredths)	Soil Temp 4 inch depth Ground Cover (see *)	Max.	Min
*	2001	12	1	30	8	99999	999.99	9999.9	99999		999.99			
*	2001	12	2	36	15	99999	999.99	9999.9	99999		999.99			
*	2001	12	3	47	17	99999	999.99	9999.9	99999		999.99			
*	2001	12	4	42	22	99999	999.99	9999.9	99999		999.99			
*	2001	12	5	45	25	99999	999.99	9999.9	99999		999.99			
*	2001	12	6	39	24	99999	999.99	9999.9	99999		999.99			
*	2001	12	7	40	20	99999	999.99	9999.9	99999		999.99			
*	2001	12	8	37	18	99999	999.99	9999.9	99999		999.99			
*	2001	12	9	37	19	99999	999.99	9999.9	99999		999.99			
*	2001	12	10	46	24	99999	999.99	9999.9	99999		999.99			
*	2001	12	11	35	22	99999	999.99	9999.9	99999		999.99			
*	2001	12	12	44	24	99999	999.99	9999.9	99999		999.99			
*	2001	12	13	33	18	99999	999.99	9999.9	99999		999.99			
*	2001	12	14	39	17	99999	999.99	9999.9	99999		999.99			
*	2001	12	15	41	23	99999	999.99	9999.9	99999		999.99			
*	2001	12	16	45	28	99999	999.99	9999.9	99999		999.99			
*	2001	12	17	41	18	99999	999.99	9999.9	99999		999.99			
*	2001	12	18	45	21	99999	999.99	9999.9	99999		999.99			
*	2001	12	19	37	12	99999	999.99	9999.9	99999		999.99			
*	2001	12	20	40	17	99999	999.99	9999.9	99999		999.99			
*	2001	12	21	40	18	99999	999.99	9999.9	99999		999.99			
*	2001	12	22	40	20	99999	999.99	9999.9	99999		999.99			
*	2001	12	23	23	11	99999	999.99	9999.9	99999		999.99			
*	2001	12	24	23	11	99999	999.99	9999.9	99999		999.99			
*	2001	12	25	17	4	99999	999.99	9999.9	99999		999.99			
*	2001	12	26	16	3	99999	999.99	9999.9	99999		999.99			
*	2001	12	27	25	10	99999	999.99	9999.9	99999		999.99			
*	2001	12	28	26	10	99999	999.99	9999.9	99999		999.99			
*	2001	12	29	16	1	99999	999.99	9999.9	99999		999.99			
*	2001	12	30	13	3	99999	999.99	9999.9	99999		999.99			
*	2001	12	31	999999	999999	99999	999.99	9999.9	99999		999.99			
	Summary			34.6	16.1									

The '*' flags in Preliminary indicate the data have not completed processing and quality control and may not be identical to the original obse

All 9's (e.g. 999999, 99999.9, etc.) in the data column indicate that the value was not received or is missing

***Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulc; 7=Grass muck; 8=Bare muck; 0=Unknov**

****The values T in the Precipitation category above indicate a TRACE value was recorded for these elements**

This page was dynamically generated on Wed Jan 02 16:08:38 EST 2002 via http://lwf.ncdc.noaa.gov/servlets/DLYP (1.02a)

Appendix F

Discharge Monitoring Report

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME CITY OF EMERY
ADDRESS PO BOX 303
EMERY SD 57332-0303

FACILITY LOCATION EMERY- CITY OF
EMERY SD 57332

ATTN: JOHN PUDWILL, JR., FINANCE OFF

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

Form Approved.
OMB No. 2040-0004

PERMIT NUMBER	DISCHARGE NUMBER
SD0021741	001 A

MINOR

F - FINAL

DISCHARGE TO WOLF CREEK

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	01	04	01	TO	01	04	30

*** NO DISCHARGE [ ] ***

NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	QUANTITY OR LOADING UNITS	QUANTITY OR CONCENTRATION MINIMUM	QUANTITY OR CONCENTRATION AVERAGE	QUANTITY OR CONCENTRATION MAXIMUM	QUANTITY OR CONCENTRATION UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMENT	******		(3R)	******	******	******				
74076 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	REPORT MO. AVG.	MGAL	******	******	******	*** ****		ONCE/ MONTH	NOT AP
Fecal Coliform	SAMPLE MEASUREMENT					720	720				
	PERMIT REQUIREMENT					30 Day	2000 Daily Max				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
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RECEIVED NOV 2001 Surface Water Quality Page

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
John Pudwill Jr Finance Offic	I Certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	605	443-4211	01	9	27
TYPED OR PRINTED			AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

IF NO DISCHARGE OCCURS DURING THE MONITORING PERIOD, "NO DISCHARGE" SHALL BE REPORTED.

DISCHARGE START DATE 4/30/01 DISCHARGE START TIME

DISCHARGE END DATE 5/2/01 DISCHARGE END TIME

Form 1 (RE 1) Pl editi av be

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME CITY OF EMERY

ADDRESS PO BOX 303
EMERY SD 57332-0303

FACILITY LOCATION EMERY- CITY OF
EMERY SD 57332

ATTN: JOHN PUDWILL, JR., FINANCE OFF

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

SD0021741	001 A
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	01	05	01	TO	01	05	31

Form Approved.
OMB No. 2040-0004

MINOR

F - FINAL
DISCHARGE TO WOLF CREEK

*** NO DISCHARGE [ ] ***

NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	UNITS	QUANTITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
TEMPERATURE, WATER DEG. CENTIGRADE 00010 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******			(04) 60 DEG. C			
	PERMIT REQUIREMENT	******	******	*** ****	******	REPORT 30DA AVG	REPORT DAILY MX			THREE/ DISCHG	INSTAN
FLOW RATE 00056 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	0.81 .6 million Gallons per Day		(03)	******	******	******				
	PERMIT REQUIREMENT	REPORT 30DA AVG	REPORT DAILY MX	MGD	******	******	******	*** ****		THREE/ DISCHG	INSTAN
BOD, 5-DAY (20 DEG. C) 00310 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******	405.1		(19)	X		
	PERMIT REQUIREMENT	******	******	*** ****	******	30 30DA AVG	45 MX 7DA AV	MG/L		THREE/ DISCHG	GRAB
PH 00400 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******			******	8.1	(12)			
	PERMIT REQUIREMENT	******	******	*** ****	6.0 MINIMUM	******	9.0 MAXIMUM	SU		THREE/ DISCHG	INSTAN
SOLIDS, TOTAL SUSPENDED 00530 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******	40	60	(19)	X		
	PERMIT REQUIREMENT	******	******	*** ****	******	30 30DA AVG	45 MX 7DA AV	MG/L		THREE/ DISCHG	GRAB
NITROGEN, AMMONIA TOTAL (AS N) 00610 1 3 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******	9.14	9.25	(19)			
	PERMIT REQUIREMENT	******	******	*** ****	******	30DA AVG	DAILY MX	MG/L		THREE/ DISCHG	GRAB
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******	******		(19)			
	PERMIT REQUIREMENT	******	******	*** ****	******	******	0.019 DAILY MX	MG/L		CHORNI /QUCUN	GRAB

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
John Pudwill Jr	I Certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	605 449.4201	01	9	27
TYPED OR PRINTED			AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

IF NO DISCHARGE OCCURS DURING THE MONITORING PERIOD, "NO DISCHARGE" SHALL BE REPORTED.

DISCHARGE START DATE 4/30/01 DISCHARGE START TIME

DISCHARGE END DATE 5/31/01 DISCHARGE END TIME

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PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME CITY OF EMERY

ADDRESS PO BOX 303
EMERY SD 57332-0303

FACILITY LOCATION EMERY- CITY OF EMERY SD 57332

ATTN. JOHN PUDWILL, JR., FINANCE OFF

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

PERMIT NUMBER	DISCHARGE NUMBER
SD0021741	001 A

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	01	05	01	TO	01	05	31

Form Approved.
OMB No. 2040-0004

MINOR

F - FINAL
DISCHARGE TO WOLF CREEK

*** NO DISCHARGE |__| ***

NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	UNITS	QUANTITY OR CONCENTRATION MINIMUM	QUANTITY OR CONCENTRATION AVERAGE	QUANTITY OR CONCENTRATION MAXIMUM	UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
COLIFORM, FECAL GENERAL 74055 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******	840	1100	(13)			
	PERMIT REQUIREMENT	******	******	*** ****	******	100 30DA GEO	2000 DAILY MX	/ 100ML		THREE/WEEK DISCHG	GRAB
FLOW 74076 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******		(3R)	******	******	******				
	PERMIT REQUIREMENT	******	REPORT MO TOTAL	MGAL	******	******	******	*** ****		ONCE/MONTH	NOT AP
	SAMPLE MEASUREMENT										
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RECEIVED NOV 23 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Surface Water Quality Section

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
John Pudwill JR	I Certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	605	449-4201	01	9	27
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

IF NO DISCHARGE OCCURS DURING THE MONITORING PERIOD, "NO DISCHARGE" SHALL BE REPORTED.

DISCHARGE START DATE 4/30/01 DISCHARGE START TIME

DISCHARGE END DATE DISCHARGE END TIME

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME CITY OF EMERY

ADDRESS PO BOX 303
EMERY SD 57332-0303

FACILITY LOCATION EMERY- CITY OF
EMERY SD 57332

ATTN: JOHN PUDWILL, JR , FINANCE OFF

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

Form Approved.
OMB No. 2040-0004

SD0021741	001 A
PERMIT NUMBER	DISCHARGE NUMBER

MINOR

F - FINAL
DISCHARGE TO WOLF CREEK

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	01	04	01	TO	01	04	30

*** NO DISCHARGE [ ] ***

NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	UNITS	QUANTITY OR CONCENTRATION MINIMUM	QUANTITY OR CONCENTRATION AVERAGE	QUANTITY OR CONCENTRATION MAXIMUM	UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
TEMPERATURE, WATER DEG. CENTIGRADE 00010 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******			(04) 45 DEG C			
	PERMIT REQUIREMENT	******	******	*** ****	******	REPORT 30DA AVG	REPORT DAILY MX			THREE/ DISCHG	INSTAN
FLOW RATE 00056 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	689,000 or .6 Million Per Gallons Day		(03)	******	******	******				
	PERMIT REQUIREMENT	REPORT 30DA AVG	REPORT DAILY MX	MGD	******	******	******	*** ****		THREE/ DISCHG	INSTAN
BOD, 5-DAY (20 DEG. C) 00310 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******	405.1	405.1	(19)	X		
	PERMIT REQUIREMENT	******	******	*** ****	******	30 30DA AVG	45 MX 7D AV	MG/L		THREE/ DISCHG	GRAB
PH 00400 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******			******		(12) 7.85 SU			
	PERMIT REQUIREMENT	******	******	*** ****	6.0 MINIMUM	******	9.0 MAXIMUM			THREE/ DISCHG	INSTAN
SOLIDS, TOTAL SUSPENDED 00530 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******		160.2	(19)	X		
	PERMIT REQUIREMENT	******	******	*** ****	******	90 30DA AVG	45 MX 7D AV	MG/L		THREE/ DISCHG	GRAB
NITROGEN, AMMONIA TOTAL (AS N) 00610 1 2 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******		10.6	(19)	X		
	PERMIT REQUIREMENT	******	******	*** ****	******	1.1 30DA AVG	2.0 DAILY MX	MG/L		THREE/ DISCHG	GRAB
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******		******	******		(19)			
	PERMIT REQUIREMENT	******	******	*** ****	******	******	0.017 DAILY MX	MG/L		CHLRN/ /OCCUR	GRAB

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE	DATE		
John Pudwill Jr Finance Office	I Certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	605 449-4211	01	7	27
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

IF NO DISCHARGE OCCURS DURING THE MONITORING PERIOD, "NO DISCHARGE" SHALL BE REPORTED

DISCHARGE START DATE 4/30/01 DISCHARGE START TIME

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