

Considered: _____

Vested Right Claim ☒
WATER PERMIT NO. 1388-1

MAP No. same

Name of Applicant Bowman Ditch c/a Albert Jeffery

Post Office Address RR1, Spearfish SD 57783

Amount of Water Claimed 8.0 cfs Total Acres 215.8

Source of Water Supply Spearfish Creek

Water to be used for irrigation County Lawrence

About 6 miles N of Spearfish.

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved _____ Subject to _____

F.F. & C.L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY _____ Date Received December 22, 1986 Fee \$15⁰⁰ Remarks _____

Corrected Application Received _____ Period of Annual Use _____

WATER QUALITY APPROVAL RECEIVED NA APPROVED/CONDITIONAL (Circle one)

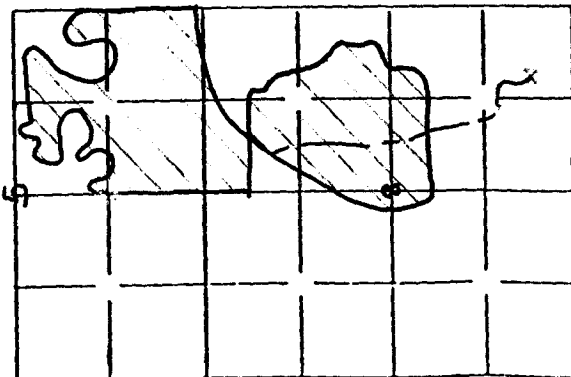
WI-1 Description same as Application YES _____ NO _____ REMARKS _____

Diversion Point Spearfish Creek: SE $\frac{1}{4}$ SE $\frac{1}{4}$

section 8-T7N-R2E

Land to be Irrigated SE $\frac{1}{4}$ section 5; NE $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$,

SE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$ section 8; all in T7N-R2E



Well Log: Driller NA Licensed YES _____ NO _____

Depth of Well _____ REMARKS _____

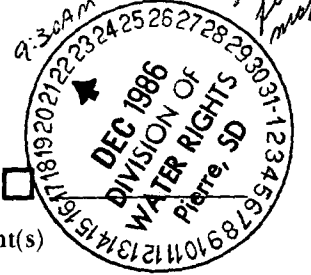
Type of Map aerial photo PREPARED BY Rassool Ahadi Reviewed and the Number

assigned on June 22, 1987 By Ron Duvall

No. 1388-1 Hydrologic Unit 10120203
 Map No. same Basin Belle Fourche R
 Newspaper Queen City Mail, Box 7, Spearfish (Wed)
Belle Fourche Daily Post, 1004 5th Ave

Application For Permit To Appropriate Water Within The State Of South Dakota

Type of Application: Check one or more of the following:

New ☐ Vested Right ☒ Future Use ☐☐ Application to amend Permit No. _____ with old priority date retained☐ Change diversion point(s) ☐ Add diversion point(s) ☐ Change acreage ☐ Other ☐☐ Application to: ☐ Change use ☐ Change diversion point(s) ☐ Add diversion point(s)☐ Add Acreage ☐ Increase diversion rate ☐ Other _____ See Permit No. _____☐ Application to: ☐ Use ☐ Transfer water reserved by Future Use Permit No. _____1. Name of Applicant Bowman Ditch/Albert Jeffery Phone No. 642-2162Post Office Address RR 1 Spearfish South Dakota State 57783
(Street, RR or Box) Zip Code2. Amount of water claimed (c.f.s) 8 Total acres irrigated 215.83. Source of Water supply Spearfish Creek4. Location of point of diversion 1300 ft W, 300 ft N of SE Corner of Section 8 T7N-R2ECounty Lawrence5. Counties where water will be used Lawrence6. Annual period during which water is to be used April 1 thru October 31

7. 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.
SEE ATTACHED SHEET	

Land Description	No. Acres Irr.

Attach sheet if more space is needed

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

This is an application to file a vested right claim pursuant to SDCL 46-5-49

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map (see instruction)

STATE OF SOUTH DAKOTA
County of Lawrence ssI, Albert Jeffery the applicant, certify that I have read the foregoing application, 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 Albert JefferySubscribed and sworn to before me this Dec day of 1986
EVA M. WALDROP, Notary Public
My Commission Expires September 13, 1990

Notary Public (or other qualified officer)

BOWMAN DITCH

Section 5, T7N-R2E

SW $\frac{1}{4}$ SE $\frac{1}{4}$	37.5 Acres		
SE $\frac{1}{4}$ SE $\frac{1}{4}$	38.0 Acres		
NW $\frac{1}{4}$ SE $\frac{1}{4}$	10.0 Acres		
NE $\frac{1}{4}$ SE $\frac{1}{4}$	16.0 Acres	Subtotal	101.5 Acres

Section 8, T7N-R2E

SW $\frac{1}{4}$ NE $\frac{1}{4}$	38.0 Acres		
SE $\frac{1}{4}$ NE $\frac{1}{4}$	18.5 Acres		
NW $\frac{1}{4}$ NE $\frac{1}{4}$	24.3 Acres		
NE $\frac{1}{4}$ NE $\frac{1}{4}$	3.1 Acres	Subtotal	83.9 Acres

NW $\frac{1}{4}$ SE $\frac{1}{4}$	19.2 Acres		
NE $\frac{1}{4}$ SE $\frac{1}{4}$	7.4 Acres	Subtotal	26.6 Acres

SE $\frac{1}{4}$ NW $\frac{1}{4}$	1.9 Acres	Subtotal	1.9 Acres
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NE $\frac{1}{4}$ SW $\frac{1}{4}$	1.9 Acres	Subtotal	1.9 Acres
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TOTAL ACRES FOR BOWMAN DITCH 215.8 ACRES

SOUTH DAKOTA

VESTED WATER RIGHT NO. 1388-1 FOR IRRIGATION

Date of Receipt of Claim December 22, 1986.

Date of Validation February 27, 1991.

The Water Management Board validated Vested Water Right Claim No. 1388-1 for irrigation purposes for Bowman Ditch, RR 1, Spearfish, SD 57783 with the following limitations, conditions and qualifications:

1. Vested Water Right No. 1388-1 validates a vested right claim to appropriate 8.0 cubic feet of water per second (cfs) from Spearfish Creek to irrigate 215.8 acres via the Bowman Ditch. The Spearfish Creek diversion point for the Bowman Ditch is located in the SE1/4 SE1/4 Section 8, T7N, R2E. The irrigated acreage is located in the SE1/4 Section 5; NE1/4, N1/2 SE1/4, SE1/4 NW1/4, NE1/4 SW1/4 Section 8; all in T7N, R2E.
2. The appropriation may not exceed the amount of water needed for beneficial use for irrigation. The appropriation may not exceed 3 acre feet per irrigated acre per year. The water is to be used during the following annual period: April 1 - October 31.
3. The priority date of the Vested Water Right is June 11, 1877.
4. The water use system has been constructed and water has been applied to beneficial use.
5. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. That Vested Right No. 1388-1 is subject to domestic use rights. Diversion of water under Water Right No. 1388-1 is contingent upon supplies being available first to domestic users.
2. That the flow measuring device on Bowman Ditch continue to be maintained and records of diversions be kept as directed by the Chief Engineer and reported to the Chief Engineer annually.

WATER MANAGEMENT BOARD

By: _____


Chief Engineer

APR 25 1991

date

Division of Water Rights
Dept. of Water and Natural Resources

STATE OF SOUTH DAKOTA

VESTED RIGHT WATER LICENSE NO. 1388-1 FOR IRRIGATION

(1) Bowman Ditch of RR 1, Spearfish, SD 57783 made Application No. 1388-1, December 22, 1986 for validation of a vested right claim to appropriate 8.00 cubic feet of water per second from Spearfish Creek, Lawrence County, South Dakota for irrigation purposes. Vested Water Right No. 1388-1 was validated February 27, 1991 with a priority date of June 11, 1877. Construction of the described water supply system and application of water to beneficial use has been completed and complies with applicable provisions of South Dakota State Law.

The applicable portions of Location Notice No. 35871 were incorporated into Validated Vested Water Right No. 1388-1 with the abandoned portions of Location Notice No. 35871 cancelled.

(2) The applicant is entitled to divert 8.0 cubic feet of water per second for beneficial use. The Spearfish Creek diversion point for the Bowman Ditch is located 1300' W and 300' N of the SE corner of Section 8, T7N, R2E (SE 1/4 SE 1/4).

The location of the irrigated acreage is:

Section 5, T7N-R2E

SW 1/4 SE 1/4	37.5 Acres
SE 1/4 SE 1/4	38.0 Acres
NW 1/4 SE 1/4	10.0 Acres
NE 1/4 SE 1/4	16.0 Acres

Section 8, T7N-R2E

SW 1/4 NE 1/4	38.0 Acres
SE 1/4 NE 1/4	18.5 Acres
NW 1/4 NE 1/4	24.3 Acres
NE 1/4 NE 1/4	3.1 Acres

NW 1/4 SE 1/4	19.2 Acres
NE 1/4 SE 1/4	7.4 Acres

SE 1/4 NW 1/4	1.9 Acres
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NE 1/4 SW 1/4	<u>1.9 Acres</u>
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Total	215.8 Acres
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(3) Pursuant to Section 46-5-30.1 Bowman Ditch of RR 1, Spearfish, SD 57783 the holder(s) and/or owner(s) of Vested Water Right No. 1388-1 is issued a license to appropriate 8.0 cubic feet of water per second

from Spearfish Creek with a priority date of June 11, 1877 from the location specified in (2) of this license. The water is to be used for the purpose of irrigation. This license is subject to any limitations, conditions or qualifications listed in Vested Water Right No. 1388-1 and subject to South Dakota State Law.



JOHN HATCH, Chief Engineer
Water Rights Division
Department of Water and Natural
Resources

APR 25 1991

Affidavit of Water Use

No. _____

(Type or Print in Ink)

Note: This Form is supplemental to Form 2 and is to be used when an affidavit pertaining to construction and water use already constructed is needed, primarily with vested right claims.

**Affidavit Of Construction Of Water Use System
And Application Of Water To Beneficial Use**

Name of Applicant (Same as Form 2) Bowman Ditch

Post Office Address RR 1 Spearfish South Dakota 57783
(Street, RR or Box) (State) (Zip Code)

A. Notice of Appropriation June 25, 1887 Date of Posting June 20, 1887

Date of recording August 13, 1894 Recording date Lawrence County 100 426
Where Book Page

B. Date of start of construction of water supply system 1877C. Date that water was first applied to beneficial use 1877 Ref: Lawrence Co. Book 90 p.422 Quit
ClaimD. Name of owner of original water supply system Erasmus D. Ralph & J. M. KenyonE. Amount of water originally applied to beneficial use 400 miners inchesF. Present Use of Water - Amount of water now being used irrigation- 400 miners inchesDate that this water was first used 1877

G. Chronological History of Water Use

My Father purchased our farm in 1924. We have used the ditches every year since. Abstracts we have from previous owners go back to year 1877. They used the ditches through those years.

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)
 County of Lawrence) ss

I, Albert Jeffery the applicant, certify that I have read the foregoing
(print or type)
 and that the matters therein stated are true.

Signed _____

Subscribed and sworn to before me Eva Waldrop, 1986

Eva M. Waldrop
 Notary Public or other qualified officer **EVA M. WALDROP, Notary Public**
 My Commission Expires September 10, 1992

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.

ALBERT JEFFERY 19____
 (Print name)

____ 19____
 (Print name)

RECEIPT

Division of Water Rights

410663

South Dakota Department of Water and Natural Resources

Pierre, December 22, 1986

RECEIVED OF Bowman Ditch/Albert Jeffery, RR 1, Bpxea Spearfish, South Dakota 57783

the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>1388-1</u> to Appropriate Water, to construct works and to put water to beneficial use	15	00	VR
Fee for Application for Permit No. _____ to Appropriate Water for Future Use			
Fee to retain Future Use Permit No. _____ after period of seven years.			
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 Certified Copy of _____			
Fee for Print Copy of Map _____			
Fee for Certifying _____			
Fee for _____			
(Any Other Work Provided by Law)	Total	15	00

By John Hatch
Chief Engineer JOHN HATCH (ms)

DIVERSION RATE RECORD

Ditch Company Bureau

Month July

Ditch President _____

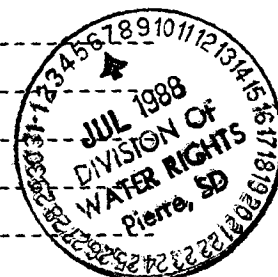
Year 1968

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____

Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21	9:10	3 1/2		Stearns	
22	3:30	3		Stearns	1" RAIN
23	7:00	4 1/2		Stearns	
24	4:15	3 1/4		"	
25	7:00				
26					
27	5:30	3			
28	5:45	8			
29	12:20	5			
30	4:35	6			5" RAIN
31					



DIVERSION RATE RECORD

Ditch Company Boulevard

Month July

Ditch President _____

Year 1985

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time AM	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1	7:36	6 1/2			
2	6:56	6 1/8			
3	9:15	5 3/8			
4	8:10	5			
5	1:10	7 1/4			
6	7:05	6 1/8			
7	5:30	5 1/4			
8	6:50	5 1/4			
9	5:30	5 1/8			
10	6:10	6 1/8			
11	7:10	6 1/4			
12	7:10	7 1/4			
13	8:40	7 1/2			
14	7:30	6 3/4			
15	9:10	5 1/2			
16	12:15	5 1/4			
17	6:40	4 1/4			
18	6:30	5 1/2			
19	11:10	5 1/2			
20	6:30	5 1/4			
21	7:10	5			
22	7:10	5 1/2			
23	7:10	4			
24		0			Ditch closed
25		0			
26		0			
27		0			
28	7:10	5			
29		0			
30	7:30	5 1/4			
31	6:30	3			

DIVERSION RATE RECORD

Ditch Company Pawnee

Month August

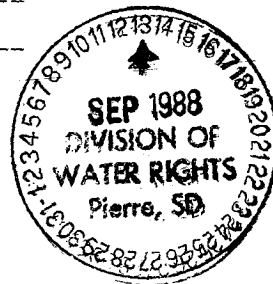
Ditch President _____

Year 1988

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1					
2					
3					
4	6:10	2 3/4			
5	5:30	4 1/2			
6	8:00	7			
7		4			
8		1 1/2			
9		1			
10	5:30	6 1/2			
11					
12	8:30	5			
13		5			
14	6:15	5 1/4			
15	6:50	5 1/2			
16		5			
17		5			
18		5			
19	6:00	5			
20	7:10	5			
21	6:30	5 1/4			
22		5 1/4			
23	7:10	5			
24	8:10	5 1/4			
25	7:30	5 1/4			
26	7:00	5			
27	7:50	5 1/4			
28	6:20	8 1/2			
29	6:35	8 1/2			
30		5 1/4			
31	6:15	5 1/4			

DIVERSION RATE RECORD

Ditch Company Bowan

Month SEP

Ditch President _____

Year 1988

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



ate	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1	6:30	7 1/2			
2	1:30	1 1/2			
3	2:30	1 1/2			
4					
5					
6	1:30	0 1/2			
7	6:30	1 1/2			
8					
9	6:30	1 1/2			
10					
11					
12					
13					
14	6:30	1 1/2			
15					
16					Ditch shut off for haying
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

DIVERSION RATE RECORD

Ditch Company _____

Month _____

Ditch President _____

Year _____

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25				"	
26				"	
27				"	
28				"	
29				"	
30		1/2		"	3 1/4" x 4" WIRE
31					

DIVERSION RATE RECORD

Ditch Company San Juan

Month June

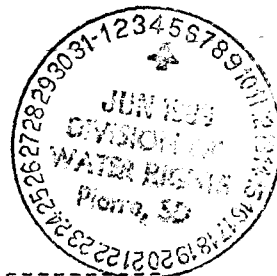
Ditch President John Smith

Year 1897

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1					
2	5:30	8 1/4		J. Jennings	Reservoir overflowing
3	6:11	8 1/2		Jennings	
4	6:00	8 1/2		Jennings	2 miles west of here
5	6:20	8 1/2		Jennings	
6	6:05	8		Jennings	
7	6:20	8		Jennings	
8				J. Jennings	
9		1 1/2		Jennings	
10	6:10	7 3/8		Jennings	
11		7 1/2		Jennings	
12	5:45	7 1/2		Jennings	
13	5:50	7 1/4		Jennings	
14	6:50	7		Jennings	
15	6:10	7 1/4		Jennings	
16	6:05	6 1/2		Jennings	
17	5:50	6 1/2		Jennings	
18	6:00	2		Jennings	Ditch plugged by trash
19	6:05	7 1/2		Jennings	
20	6:15	7		Jennings	
21	7:10	0		Jennings	Flow stopped by the dam
22		0		Jennings	
23	5:45	8 1/4		Jennings	
24	6:10	8 1/4		Jennings	
25	5:50	8 1/4		Jennings	
26	9:05	8 1/2		Jennings	
27	7:25	8 1/4		Jennings	
28	6:30	8		Jennings	
29	8:32	8 1/2		Jennings	
30	4:05 pm	8 1/2		Jennings	
31	4:55 pm	8 1/2		Jennings	

DIVERSION RATE RECORD

Ditch Company BOWMAN

Month JULY

Ditch President ALBERT JEFFERY

Year 1989

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1	7:10	8 3/4		Jefferys	
2	7:05	8 1/2		Jefferys	
3	7:08	8 1/2		Jefferys	
4	4:10pm	2 3/4		Jefferys	Turned back down
5	8:05	2 1/2		Jefferys	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28	7:10	4 1/4		Jefferys	
29	9:15	4 1/4		Jefferys	
30	5:45	4		Jefferys	
31					

DIVERSION RATE RECORD

Ditch Company BOWMAN

Month July

Ditch President WILLIAM J. JONES

Year 1929

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1	6:30	3 1/2		JENNINGS	
2	6:50	7 1/2			
3	6:00	6 3/4			
4	9:10	6 1/2			
5	8:50	7			
6	4:00	5 1/8			
7	11:50	6 1/2			
8	8:17	5 1/4			
9	6:27	2 3/4			
10	7:35	3 1/4			
11	9:20	5 1/2			
12	9:00	5 1/4			
13	8:00	5 1/4			
14	7:00	7 3/4			
15	7:21	8 1/4			raised
16					
17					
18	7:10	10			
19	6:00	9 1/4			
20	5:00	9 3/4			
21					
22	11:50	9			
23	7:00	9 1/2			
24	11:45	8 3/4			
25	8:15	7 3/4			
26	3:03	6 1/2			
27	0				shut down for trapping
28	0				
29	0				
30	0				
31	0				

DIVERSION RATE RECORD

Ditch Company BOWMAN

Month August

Ditch President ALBERT JEFFERY

Year 1989

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1		0			shut down for haying
2		0			
3		0			
4		0			
5		0			
6		0			
7		0			
8		0			
9		0			
10		0			
11	2:31 pm	5 1/4		Eric Skene	
12	6:15	5 1/4			
13	6:40	5 1/4			
14	7:00	5 1/4			
15	7:20	5 1/4			
16	7:40	3 1/2			
17	8:00	2 1/2			
18	7:10	2 1/8			
19	6:10	2 1/8			
20	5:10	2 1/4			
21					
22	8:30	2 1/4			
23	8:15	2 1/8			
24	8:10	2 1/8			
25	7:51	2 1/8			
26	7:30	2 1/4			
27	2:10 pm	3 1/8			
28	4:39 pm	3 1/2			
29	6:30	2 1/8			
30	7:00	2 1/8			
31	7:00	0			

DIVERSION RATE RECORD

Ditch Company Edward

Month Sept

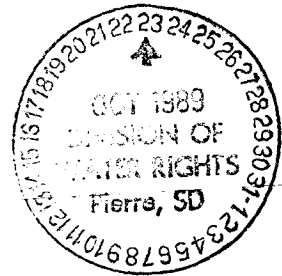
Ditch President Albert J. J. J.

Year 1989

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1	4:30	4 7/8			
2	4:45	5 1/8			
3	5:00	4 3/4			
4	5:15	4 7/8			
5	5:30	5 3/4			
6	5:45	6 1/4			
7	6:00	5 3/8			
8	6:15	7 1/4			
9	6:30				
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

DIVERSION RATE RECORD

Ditch Company Bear River

Month June

Ditch President W. J. S. Hays

Year 1990

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

DIVERSION RATE RECORD

Ditch Company BOWMAN

Month July

Ditch President _____

Year 1990

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____



Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23	7:24	10 1/2			
24	7:51	7 7/8			
25	9:45	8 1/4			
26	2:53				
27	7:04	7 1/2			
28	8:10	8			
29	12:15	8 1/2			
30	1:00	7 1/2			
31	8:00	8 1/4			

17. 10. 1990
was not sufficient
to be used for the
purpose of the
study.

DIVERSION RATE RECORD



Ditch Company _____

Month _____

Ditch President _____

Year _____

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width _____ ft.

☐ B) Weir: Crest Length _____ ft. ☐ C) Other: _____

Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1	7 05	8 5/8			
2	7 45	7 3/4			
3	7 57	8 1/4			
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16	5 40	8 1/4			
17	9 50	7 5/8			
18	10 15	7 1/2			
19	11 48	7 1/2			
20	12 00	7 3/4			
21	10 15	8 1/2			
22	12 45	8 3/4			
23	10 15	8 1/2			
24	7 45	8 3/8			
25	6 44	8 3/8			
26	7 00	8 1/4			
27	7 00	8 1/4			
28	3 45	5 3/4			
29	7 06	6 3/4			PAID 11/95
30	7 00	6 1/2			
31	7 42	7 1/4			

DIVERSION RATE RECORD

Ditch Company Bowling

Month

Ditch President

Year

Type of Measuring Device?

☐ A) Parshall Flume: Throat Width ft.

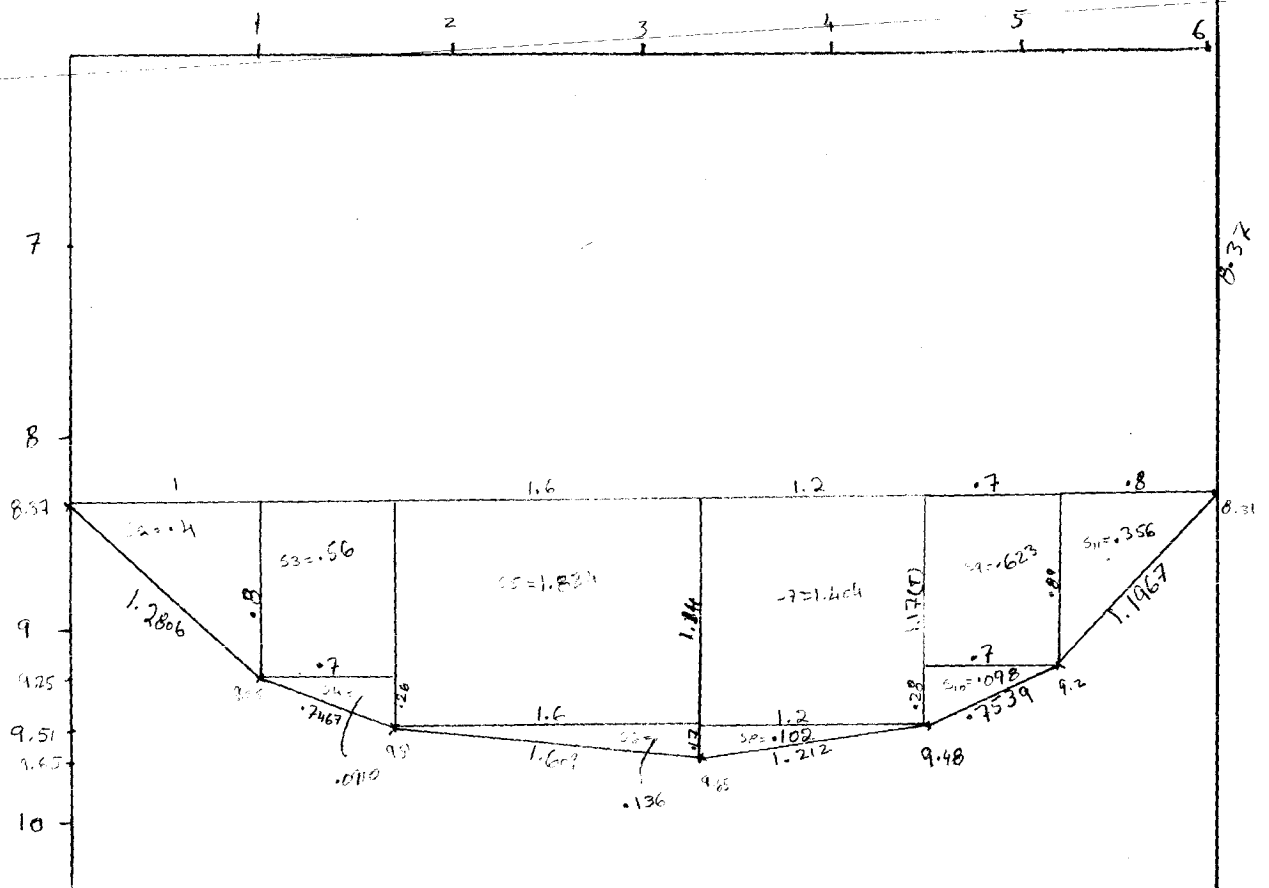
☐ B) Weir: Crest Length ft. ☐ C) Other:

Date	Time	Head (ft.)	No. of Acres Being Irrigated	Name of the Gauge Reader	Remarks
1	858	8 7/8			
2					
3					
4	511	11 7/8			
5	1155	4			
6	710	3 1/2			
7	128	2 1/4			
8					
9					
10	652	10			
11	630	10			
12	615	10			
13	450	9 7/8			
14		9 1/8			
15		9 1/2			
16		9 1/4			
17	655	9 1/4			
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					



Bowman Ditch

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



Ditch Capacity:

$$Q = V \cdot A$$

$$V = \frac{1.49}{n} R^{\frac{2}{3}} S^{\frac{1}{2}}$$

$$n = .035$$

$$R = \frac{A}{wp} = \frac{5.594}{6.7489} = .8228$$

$$S = .0036 \text{ ft/ft}$$

$$V = 2.243 \text{ FPS}$$

$$Q = 2.243 \times 5.594 = \underline{\underline{12.6 \text{ CFS}}}$$

Gate Capacity:

$$Q = C_d (b - 2nH) \sqrt{g} H^{\frac{3}{2}}$$

$$Q = \underline{\underline{58.8 \text{ CFS}}}$$

Vested BCFS

$$C_d = .587$$

$$b = 4'$$

$$H = 3'$$

$$n = .1$$

$$g = 32.2 \text{ ft/s}^2$$

Ditch Capacity: 12.6 CFS

Gate Capacity: 58.8 CFS

Vested Right: 8 CFS

DIVERSION DITCH SERVICE

NAME OF THE DITCH: *Bowman Ditch*

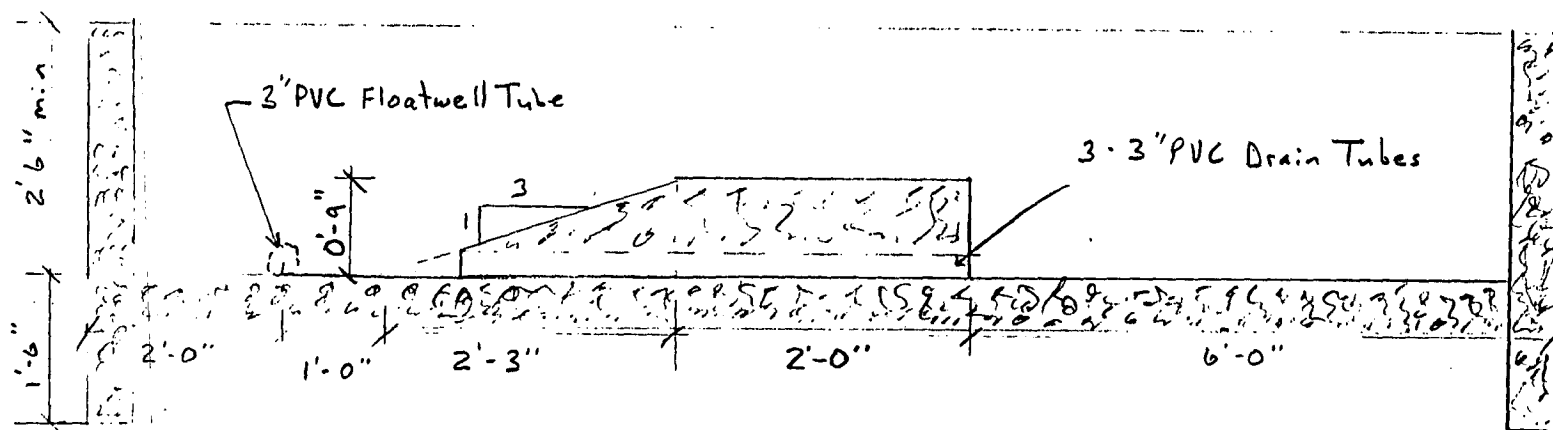
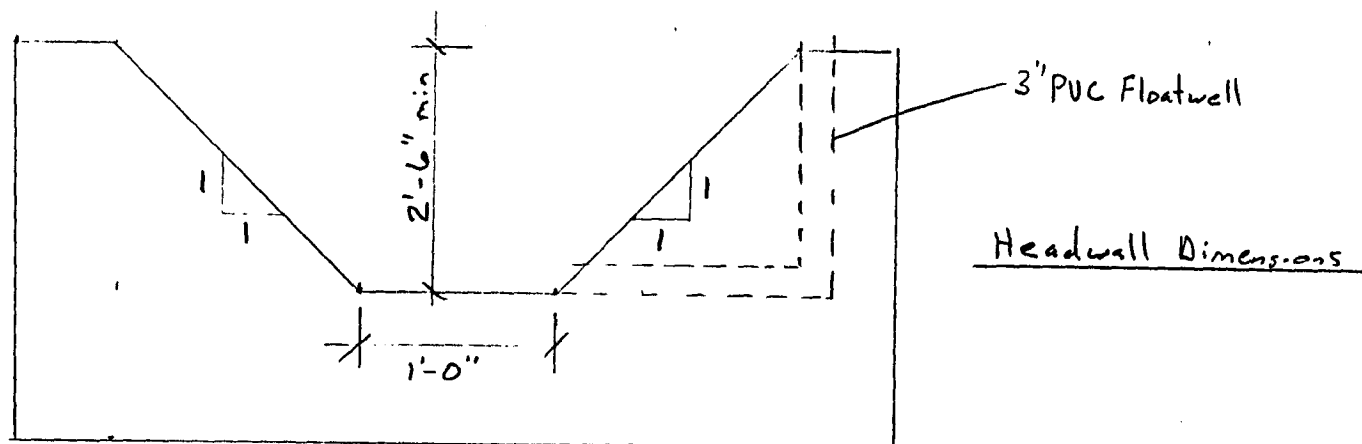
ADDRESS:

DIVERSION POINT: *SE 1/4 SEC. 8 T 7 N-R 2 E*; SOURCE:

MAXIMUM DIVERSION RATE: *C.F.S.*

ACREAGE SERVED: *215.8* ACRES

LANDOWNER'S NAME	LOCATION OF LAND BEING IRRIG. BY THIS DITCH	ACREAGE	COMMENTS
<i>Albert Jeffery</i>	<i>T 7 R 2</i>	<i>100.1</i>	
<i>Phil Kirsch</i>	<i>T 7 R 2</i>	<i>115.8</i>	



Flume FA-1

~~Flume FA-1~~

Constructing Simple Measuring Flumes For Irrigation Canals

Albert J. Clemmens and John A. Replogle¹

Introduction

Poor irrigation water management causes many serious water-supply and water-quality problems. Farmers and other water users are being encouraged to develop their own water management plans or improve existing ones. A major step in implementing any plan is measuring the amount of irrigation water applied. Correct application depends on accurate discharge rate information, both for the main irrigation stream entering the field and for runoff leaving the field.

Typical water-measuring devices—sharp- and broad-crested weirs and flumes such as the parshall, cutthroat, and short- and long-throated trapezoidal that are used in open channels or ditches—are cumbersome and expensive. Since most of these measuring devices require laboratory calibration, flumes used in the field are limited to the particular shapes and sizes for which these calibrations are available.

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Flume Design Procedure

Table 1 can be used as a design aid for selecting the appropriate flume. The example shown in table 1 is for a 36-inch ditch with a 2-foot bottom and 1:1 slopes that is used to carry a maximum of 20 cubic feet per second (cfs). If the ditch flows about 25 inches deep at this discharge, what sill height should be selected? To use the table for this example, begin by finding in the basic information about the canal or ditch where the flume is to be located (lines 1-3). Line 1 is simply the vertical depth of the canal, d , line 2 is the width of the canal bottom, B_1 , and line 3 is the canal wall sideslope, Z , expressed as a ratio of horizontal to vertical distance. Line 4 is the maximum discharge rate. Line 5 is the flow depth. Line 6 is the existing freeboard in the ditch prior to flume construction (line 1 minus line 5).

Once this information is obtained, the selection procedure is straightforward. Table 2 gives flume calibrations for three sizes of flumes (sill heights) for each of three ditch shapes. To begin the selection procedure, find the ditch shape in table 2 (A, B, or C) that matches lines 2 and 3 in table 1. In this example, the ditch shape corresponds to canal shape B. Choose any one of the three flume sizes from that group. For this example, FB1 was tried first. Record the information from table 2 for that flume size in the blanks provided for lines 7 through 12 on table 1. (The repetition of some information in table 1 assures that the appropriate flume group and size are chosen from table 2.)

The remaining section of table 1 is a check on the flow conditions that would exist if the trial flume size were installed. Figure 3 shows a profile of flume and a typical water surface resulting from flume placement. From the appropriate column of table 2, find the sill-referenced flow depth, Y_1 , for the design discharge, Q_m , and enter it under line 13 in table 1. For the example, $Y_1 = 1.143$, for $Q_m = 20$. Add lines 12 and 13 to obtain the total ditch water depth, line 14, $D_1 = S + Y_1$. Subtract line 5 from line 14 to get the actual rise in water level caused by the flume, line 15, $\Delta Y_1 = D_1 - d_m$ (fig. 3). Next, calculate the rise in water surface that the flume must cause so that it will operate properly, line 16, $\Delta Y_2 = 0.15 Y_1$. If the actual increase in water depth, ΔY_1 , is less than that required, ΔY_2 ($\Delta Y_1 - \Delta Y_2 = \Delta Y_3 < 0$) then the flume cannot be expected to operate properly (line 17), because it will be submerged, as for FB1 of the example.

This limit on the flume submergence assures that the water depth upstream from the flume will not affect the water depth reading upstream from the flume at the gage location. If ΔY_3 is negative, a higher sill must be used, so lines 7-17 are repeated for a higher sill height, as for FB2. For this trial size, ΔY_3 is positive and the design criteria have been met. Where the selection produces a ΔY_3 that is greater than about 3 inches, a lower and more economical sill should be tried.

Table 1. Broad-crested weir design and selection

Canal Data

1. Constructed depth-- $d = 3$ ft. = 36 in.
2. Bottom width-- $B_1 = 2$ ft. = 24 in.
3. Sideslopes-- $Z = 1/1$

Flow Data for Canal Without Weir in Place

4. Maximum discharge rate-- $Q_m = 20$ cfs
5. Flow depth for Q_m -- $d_m = 2.08$ ft. = 25 in.
6. Freeboard-- $f_b = 0.92$ ft. = 11 in.
(line 1 minus line 5)

Weir Selection Using Tables

7. Trial flume identification: Trial 1 Trial 2 Trial 3
8. Bottom width, B_1 (matches line 2) FB1 FB2 FB3
9. Sill width, B_3 2.0 2.0 2.0
10. Sideslopes, Z (matches line 3) 1/1 1/1 1/1
11. Critical section (sill) length, L 3.00 2.50 2.00
12. Trial sill height, S 1.00 1.25 1.50

Submergence - Freeflow Check, Weir in Place

13. Sill-referenced flow depth for Q_m (tables) 1.14 1.09 1.04
14. Upstream water depth (line 12 plus line 13) 2.14 2.34 2.54
15. Actual increase in water depth: (line 14 minus line 5) 0.26 0.26 0.46
16. Required increase in water depth: (line 15 x line 13) 0.17 0.16 0.16
17. Submergence check: (line 15 minus line 16) -0.11 0.09 0.30
(If negative a higher sill must be used, and repeat lines 7-17 with a new trial.)
18. Actual freeboard: (line 1 minus line 14) - 0.66 0.46
19. Required freeboard: (line 1 minus line 13) - 0.22 0.21
20. Freeboard check: (line 18 minus line 19) 0.44 0.25
21. Flume selection: If both checks, (lines 17 and 20), are okay, use that trial. If one or the other are not met, repeat lines 7-20 for a new trial. If none of the standard flumes works, see text.

22. Flume selected FB3

Comments FB3 was chosen due to uncertainty about the actual water depths. Since ΔY_3 and f_b are both fairly large, FB3

Location

Example Problem

How were Q_m and d_m determined? Estimated

Flume Design Criteria

The profile and cross section of the b-c-w flume are shown in figure 3. The important design dimensions are the sill height, S , and the sill length, L . The sill represents the floor of the throat section for these flumes. The sides of the throat section are the existing channel walls. The sill length is less important for design and need not be considered in selecting sizes for the new style measuring flume. There are certain conditions, however, under which the sill length limits the design. If it is too short, the flow lines will not be parallel throughout the throat section and the flume ratings may deviate by as much as 10 percent from those presented in this publication (see p.9). When this condition exists, the rating tables are marked to indicate that a longer throat could be used.

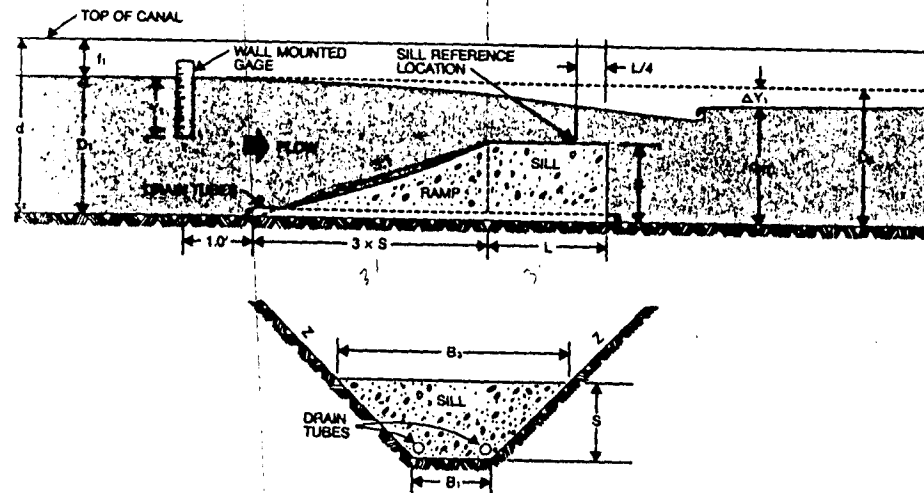


FIGURE 3.—Flume dimensions in profile (top) and cross section (bottom).
 Abbreviations used in the profile are as follows: d = constructed depth; D_1 = upstream water depth; f_1 = actual freeboard; Y_1 = sill-referenced flow depth; L = sill length; Y_1 = actual increase in water depth caused by the flume; S = sill height; d_m = flow depth; $3 \times S$ = three times the sill height (ramp length).
 Abbreviations used in the cross section (bottom) are as follows: B_3 = sill width; B_1 = canal bottom width; Z = sideslopes; S = sill height.

The sill height is the most important design dimension for controlling the water levels in the ditch. The sill must be high enough so that it obstructs the usual flow in the ditch, causing the water surface upstream from the flume to rise as shown in figure 3. Field and laboratory experience with this style of flume has shown that flumes will operate satisfactorily at 85 percent submergence. For example, the downstream water depth should be no more than 85 percent of the upstream water depth, both measured from the elevation of the top of the sill. Thus, one criterion for design is that the required minimum depth change caused by the flume at maximum flow should be 15 percent of the sill reference depth, Y_1 .

Another criterion of sill height is that it not cause so much of an obstruction in flow that the ditch upstream from the flume is overtopped. The Soil Conservation Service recommends that the freeboard for stable subcritical flow in trapezoidal channels be 20 percent of the energy head at normal depth. (This is approximately 20 percent of the flow depth for canals with very slow-moving flow.) Because of the stable nature of the flow upstream from the b-c-w flumes, the free board requirement there can usually be reduced from 20 percent of D_1 to 20 percent of Y_1 , which is the sill reference depth (fig. 3). These two criteria must be met for the full range of expected flow conditions. The conditions for both criteria are most crucial at the maximum expected flow rate, Q_m , for these shapes of flumes. Thus, the design is based on the maximum expected discharge and the associated depth, d_m . Since this water depth is important to the design, some engineering assistance may be required to get accurate maximum depth-discharge relationships.

Three selected sill heights have been chosen to accommodate the usual range of flows for three standard-sized slipformed canals. Design and selection of a flume is a simple, straightforward procedure.

The actual freeboard with the flume in place, line 1 minus line 14, is entered in line 18. The required freeboard, 20 percent $\times$ line 13, is entered in line 19. If the actual freeboard, f_1 , is less than the required freeboard, f_2 , $-f_2 = f_3 < 0$ then the freeboard requirement has not been met (line 20). If the criteria outlined for lines 17 and 29 are both met ($\Delta Y_3 > 0$ and $f_3 > 0$), in the example for FB2, then the flume trial will work for that situation. If one or the other is not met, a different flume size (sill height) should be tried. In the example, flume FB2 could have been selected; however, if FB3 had been tried first, as shown in trial 3 of table 1, it also would satisfy the criteria of line 19 and could be selected.

In some individual situations, the selection may be based on the certainty of the values used for Q_m and d_m . Here, if d_m were actually 27 inches (2.25 ft), f_3 for flume FB2 would be $-0.073'$, and the flume would be submerged. In flume FB3 would probably be chosen, since there is still plenty of freeboard (line 20, table 1). If two trials work and neither is close to the two limits, then in general, select the lowest sill that satisfies the criteria; in this case FB2 would have been chosen. The reason for choosing the lower sill is that it will cause the least head loss in the canal if it works, and if it doesn't work, the sill can easily be raised by capping it with new concrete. If the highest sill height had been used and the design flow rate had been too low, the canal might overtop and the sill height would be difficult to lower.

In some situations, more than one sill height will work. In other situations one or more of the flume sizes given here will work. If the highest sill is too low or the lowest sill too high, try another location along the ditch where the flow conditions are different. If a suitable location cannot be found, a new flume can be computed that will be tailored to the particular site. If a flume sill is too low and the next largest sill is too high, either look for a location where a lower sill can be used or use the larger sill and add additional sidewall height to the ditch upstream from the flume.

There are some limitations on these flumes that are related to the ratio between the throat or sill length, L , and the upstream depth, Y_1 , presented in the discussion of parallel flow in the section on Flume Design Criteria (p.4). In table 2, several columns have a horizontal dashed line near the bottom indicating the column (that is, for FA3, between 0.720 and 0.773). If flow depths corresponding discharges below these lines (higher values) are used, about 6 inches should be added to the throat length, L . This will not have a significant effect on the other discharge ratings as listed above the dashed

Table 2. Flume calibrations—water depth at gage location referenced to weir crest (in feet)

	CANAL SHAPE A B = 1.0' Z = 1:1				CANAL SHAPE B B ₁ = 2.0' Z = 1:1				CANAL SHAPE C B ₁ = 2.0' Z = 1.25:1			
	FA1 B ₁ =3.00' L=1.00' S=0.75'	FA2 B ₁ =3.00' L=1.50' S=1.00'	FA3 B ₁ =3.50' L=1.00' S=1.25'	Flow rate (ft ³ /s)	FB1 B ₁ =4.00' L=2.00' S=1.00'	FB2 B ₁ =4.50' L=2.50' S=1.25'	FB3 B ₁ =5.00' L=3.00' S=1.50'	Flow rate (ft ³ /s)	FC1 B ₁ =5.125' L=3.00' S=1.25'	FC2 B ₁ =5.75' L=3.50' S=1.50'	FC3 B ₁ =6.375' L=4.00' S=1.75'	
0.5	0.143		0.130	1	0.189	0.175	0.164	2	0.252	0.234	0.217	
1.0	.161		.146	2	.292	.271	.254	4	.387	.362	.340	
1.5	.177		.161	3	.375	.350	.328	6	.495	.465	.437	
2.0	.192		.175	4	.447	.418	.393	8	.589	.554	.523	
2.5	.207		.189	5	.511	.480	.452	10	.673	.634	.599	
3.0	.221		.202	6	.570	.536	.506	12	.749	.708	.670	
3.5	.248		.226	7	.625	.589	.556	14	.819	.776	.735	
4.0	.273		.249	8	.676	.638	.604	16	.885	.839	.796	
4.5	.296		.271	9	.725	.685	.649	18	.947	.899	.854	
5.0	.318		.292	10	.771	.729	.691	20	1.006	.956	.909	
5.5	.340		.312	11	.814	.771	.732	22	1.061	1.010	.962	
6.0	.369		.338	12	.856	.812	.771	24	1.115	1.062	1.012	
6.5	.389		.358	13	.896	.851	.809	26	1.166	1.112	1.061	
7.0	.400		.370	14	.935	.889	.845	28	1.215	1.159	1.107	
7.5	.417		.386	15	.973	.925	.881	30	1.26	1.206	1.153	
8.0	.434		.403	16	1.009	.960	.915	32	1.31	1.25	1.196	
8.5	.451		.420	17	1.044	.994	.948	34	1.35	1.29	1.24	
9.0	.468		.437	18	1.078	1.027	.980	36	1.40	1.34	1.28	
9.5	.485		.454	19	1.113	1.061	1.014	38	1.44	1.38	1.32	
10.0	.502		.471	20	1.143	1.091	1.042	40	1.48	1.42	1.36	
10.5	.519		.488	21	1.173	1.121	1.071	42	1.52	1.46	1.40	
11.0	.536		.505	22	1.205	1.152	1.101	44	1.58	1.51	1.45	
11.5	.553		.522	23	1.235	1.181	1.129	46	1.62	1.55	1.49	
12.0	.570		.539	24	1.26	1.21	1.158	48	1.67	1.60	1.54	
12.5	.587		.556	25	1.29	1.24	1.186	50	1.71	1.64	1.58	
13.0	.604		.573	26	1.32	1.27	1.21	52	1.75	1.69	1.62	
13.5	.621		.590	27	1.35	1.30	1.24	54	1.79	1.73	1.67	
14.0	.638		.607	28	1.38	1.32	1.26	56	1.84	1.77	1.70	
14.5	.655		.624	29	1.41	1.35	1.29	58	1.88	1.82	1.75	
15.0	.672		.641	30	1.44	1.38	1.32	60	1.92	1.86	1.80	
15.5	.689		.658	31	1.47	1.41	1.35	62	1.96	1.90	1.84	
16.0	.706		.675	32	1.50	1.44	1.38	64	2.00	1.94	1.88	
16.5	.723		.692	33	1.53	1.47	1.41	66	2.04	1.98	1.92	
17.0	.740		.709	34	1.56	1.50	1.44	68	2.08	2.02	1.96	
17.5	.757		.726	35	1.59	1.53	1.47	70	2.12	2.06	1.99	
18.0	.774		.743	36	1.62	1.56	1.50	72	2.16	2.10	2.04	
18.5	.791		.760	37	1.65	1.59	1.53	74	2.20	2.14	2.08	
19.0	.808		.777	38	1.67	1.60	1.54	76	2.24	2.18	2.12	
19.5	.825		.794	39	1.70	1.63	1.57	78	2.28	2.22	2.16	
20.0	.842		.811	40	1.73	1.66	1.60	80	2.32	2.26	2.20	

Flume Construction

Once a satisfactory flume design has been chosen, flume construction is simple and straightforward. The flume has two sections—a ramp and a sill (throat section) (fig. 3). The sill should be level with no large irregularities. The width of the sill, B_s , should be as close to the value given in table 2 as the desired accuracy of measurement (that is, a 1 percent error in B_s will produce roughly a 1 percent error in discharge). With the wide sills used here, an error of one-half inch in sill width would cause about a 1 percent error. Within limits, the sill length in the flow direction has very little effect on the discharge reading. Errors of 2 or 3 inches in length would cause virtually no change in discharge reading, especially if the error makes the throat longer. While the sill height is of prime importance to design because it controls the water surface elevation and submergence properties, precise vertical location of the sill is not critical to discharge rating, except when it causes the sill width dimension to deviate significantly. For example, an error of one-half inch in sill height, which can be caused by irregularities in the channel bottom, would change the sill width by 1 inch for a channel with 1:1 slopes. This would cause only about a 2 percent error. The flume dimensional tolerances thus allow flumes to be placed in slipform ditches, which vary slightly in shape from the standard. These tolerances should not, however, be an excuse for sloppy or poor construction but can make construction quick and easy.

The upper edge of the ramp should join the sill edge such that it does not rise above the sill to cause unpredictable flow separation. Precision edge matching of the two sections or slight rounding of the joint corner is desirable. When the ramp is hand-troweled into place avoid making large rumps or bumps. The ramp should be fairly uniform across with an approximate 3:1 slope. The ramp may be slightly concave as shown in figure 3. The ramp need not taper to zero thickness but can be ended abruptly when it becomes 2 to 3 inches thick.

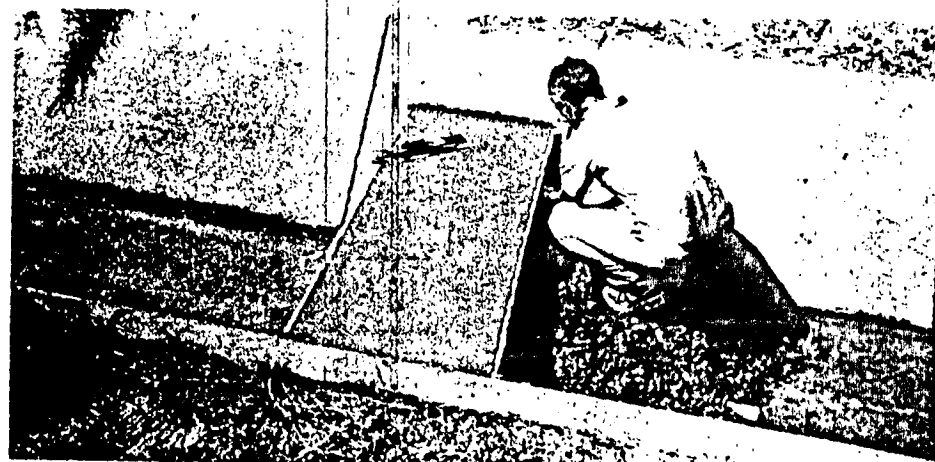
Drain tubes should be installed as shown in figure 3 to allow the ditch to drain for mosquito control. Flow through the drain tubes will usually be negligible compared with flow through the flume. If tubes 2 to 3 inches in diameter or larger are used, the upper ends can be plugged to stop the flow. Sediment, which tends to accumulate at the base of the ramp, may plug the drains and should be cleaned out periodically. Sediment will not significantly accumulate in the ditch behind the flume if it did not normally accumulate in the ditch previously. Special flumes can be designed for sediment-laden ditches where 6 inches or more of sediment is normally deposited between cleanout periods.

Cast-in-place construction is straightforward. Cut out two pieces of plywood, each matching the cross section of the sill as shown in figure 3, with the corners cut out for inserting the drain tubes (cutting out the corners is necessary anyway since few slipform ditches have distinct corners). Cut 2- by

2-inch spacers to length, L , for holding the two forms apart. With the spacers between the two plywood forms, wire tie the plywood forms together. This makes the form for pouring the sill. Next, clean out a section of the ditch and place the forms on the bottom of the ditch. Insert the drain tubes and shim the forms so that the tops are level in the cross-ditch direction and with respect to each other. It is easy to see whether the form closely matches the ditch. Small errors are not important. As the form is filled with concrete, remove the 2- by 2-inch spacers. The concrete will hold the plywood apart. Use the plywood forms as screed edges for screeding and troweling the sill to a smooth, level surface.

After the concrete in the sill has taken initial set, the upstream form can be removed and the ramp hand-troweled into place (fig. 4). Both the ramp and sill can be broom-finished.

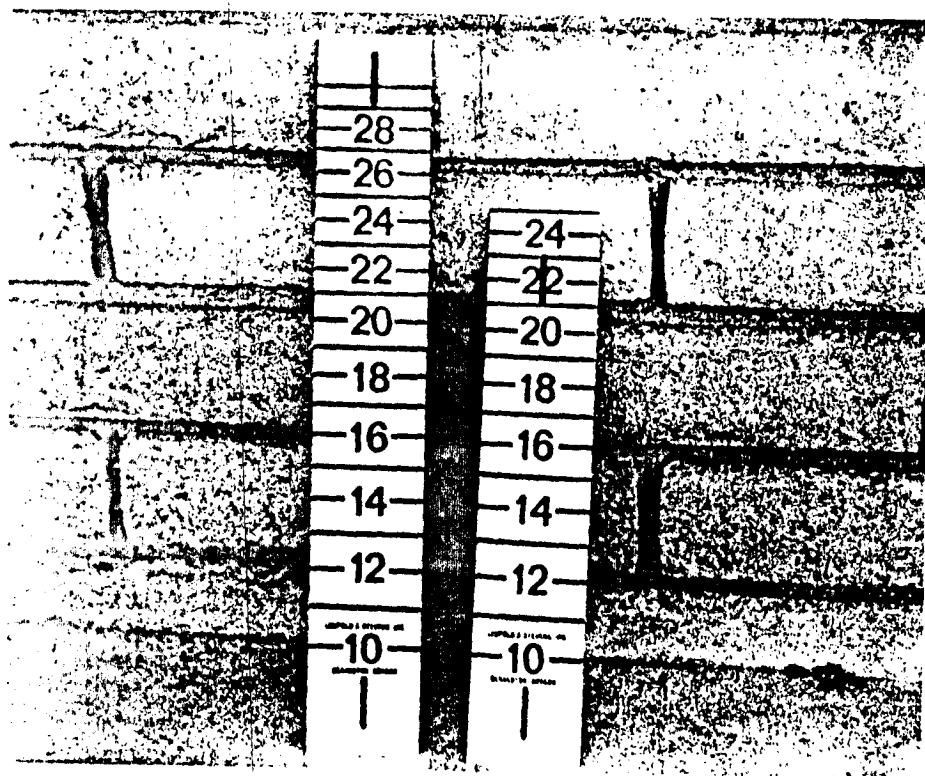
For single-pour construction, the upstream form can be made of a metal frame constructed from angle iron. This frame provides the upstream screeding edge for finishing the sill and is left permanently in place within the flume structure. Thus, both the sill and the ramp can be constructed at the same time, without waiting or returning to the site.



PN-6553
FIGURE 4. — Construction of b-c-w flume FB3 installed in a 30-in ditch near Tacna, Ariz. The sill (throat section) has been poured. The upstream form is being removed so that the ramp can be poured (flow will be from right to left).

Gage Construction and Placement

A convenient type of gage to use is one marked in discharge units and tached to the canal wall. Gages can be constructed of 0.125- by 1.5-inch uminum bar stock and stamped with a chisel, hammer, and a metal-amping die set. The gages must be cleaned with a wire brush periodically to move deposits. Since baked enamel gages are easier to read but must be stom ordered, they are considerably more expensive (fig. 5). The gage is aced on the sidewall and the vertical depths given in table 2 must be nverted to sloping distances by multiplying the vertical depths by 1.414,



PN-6554

FIGURE 5. — Commercially available baked enamel, wall-mounted gages marked in cfs . The slotted holes make gage placement easier.

1.414, and 1.601 for ditch shapes A, B, and C, respectively. The discharge values are then marked on the gage at these calculated distances from the gage zero (the zero point need not be marked on the gage).

To obtain accurate discharge ratings, the gage must be carefully surveyed into place with a surveyor's level and rod. The reference elevation for mounting the gage is along the centerline of the canal on top of the sill at about $L/4$ from the downstream end of the flume (fig. 3). This eliminates errors caused by a nonlevel sill. Often the ditch sideslopes are not exactly as intended, thus a wall-mounted gage could be in error. To eliminate most of the error, the gage is referenced and mounted so that the gage is most accurate at the most commonly used discharge. The greatest errors will then occur at gage readings which are seldom used. Mount the gage so that the mark for the most commonly used discharge is at a vertical distance, Y_1 , above the sill reference location, corresponding to the same discharge in table 2.

The gage can be mounted on the wall with lead anchors and screws. A slotted hole can be used to adjust the gage to the proper elevation, or the holes can be drilled in the gage after the anchors are in place. Always check the gage after it has been fastened to make sure that it hasn't slipped. Because of the controlled error in the design and construction processes, which can hold the basic uncertainty of the device to less than ± 2 percent, most of the introduced error will be in the final gage reading. The wall-mounted gage is easily read to within ± 5 percent at most all flows, and for the midrange and higher flows ± 5 percent of the true discharge is easily accomplished. If the water surface is choppy, a skimmer can be placed upstream to reduce the surface waves. Use a stilling well and point gage if greater accuracy is desired.

Book 90, P. 422 Pennington Co.
QUIT-CLAIM DEED

Know all Men by these Presents:

That we Erasmus D. Ralph and Sallie E. Ralph his wife of the County of Pennington in the State of South Dakota, parties of the first part, in consideration of the sum of Seventy-five Dollars, in hand paid by William Bowman, County of Lawrence and State of South Dakota, party of the second part, the receipt whereof is hereby acknowledged, do hereby Grant, Remise, Release and Quit-claim unto the said party of the second part his heirs and assigns forever, all our estate, right, title, interest, claim property and demand of, in and to the following real property, situate in the County of Lawrence State of South Dakota, and described as follows: to-wit: An undivided three-eighths ($\frac{3}{8}$) interest of a certain Irrigating Ditch and water right, situated in said Lawrence County, and taking water from Spearfish river or creek and described as follows to-wit: beginning at Spearfish creek on the South East quarter of the South East quarter of Section eight, Township seven North Range Two East B.H.M. and running thence in a northerly direction across said section eight; thence in an easterly direction across the South East quarter of Section five (5) of said township and thence in a Northeasterly direction across the South West quarter of Section four (4) of said township to Red Water Creek, said Ditch having been located by said Erasmus D. Ralph, J. M. Kenyon and others in the year 1877. Reserving however from this deed to said Ralph and his legal representatives, the right of way and privilege of passing through said ditch such an amount of water as the said Ralph may turn therein from a ditch now owned by said Ralph and which takes water from a ditch owned by said Ralph, McVey, Kemper and others and providing further reserving from this deed by said Ralph the right of way and privilege of passing water through branch ditches now constructed as follows to-wit: beginning at a point on the South East quarter of section five, said township and range, and running in a northerly direction to the Northeast quarter of the South East quarter of said section five and beginning at a point on said South East quarter of section five and running in a northeasterly direction to the Northwest quarter of the South West quarter of section four, said township and range, and providing further that said Bowman shall have no right in or to said ditch or to any water of said ditch, after it crosses the line between said sections four and five.

To Have and to Hold the Same, together with all the hereditaments and appurtenances thereunto in any wise appertaining.

WITNESS, our hands and seals this 6th day of March A. D. 1894.

Signed and Delivered in Presence of

Erasmus D. Ralph

Charles H. McKinnon

Sallie E. Ralph

Citations from Abstract

Quit Claim Deed

Erasmus D. Ralph and Sallie E. Ralph, his wife to William Bowman (of Lawrence County, South Dakota March 3, 1904. Book 90, Page 422-Filing Date April 14, 1904. Consideration \$575.00. Acknowledged 1904 before Charles H. McKibben, N.P., Pennington County, S. Dak.) Conveys: All our estate, right, title, interest, claim property and demand of, in and to the following real property, situate in the County of Lawrence State of South Dakota, and described as follows, to-wit: An undivided three-eighths (3/8) interest of a certain irrigating ditch and water right, situated in said Lawrence County, and taking water from Spearfish Creek on the South East quarter of the South East quarter of Section 8, Township 7, North Range Two East, S.R.M. and running thence in a northerly direction across said Section eight; Thence in an easterly direction across the South East quarter of Section 5 (5) of said Township and thence in a northeasterly direction across the South West quarter of Section Four (4) of said township to Red Water Creek, said Ditch having been located by said Erasmus D. Ralph, J. M. Kenyon and others in the year 1877 reserving however from this deed to said Ralph and his legal representatives, the right of way and privilege of passing through said ditch such an amount of water as he said Ralph may turn therein from a ditch now owned by said Ralph and which takes water from a ditch owned by said Ralph, McVey, Kemper and others and providing further reserving from said deed by said Ralph the right of way and privilege of passing water through branch ditches now constructed as follows to-wit: beginning at a point on the South East quarter of Section five, said township and range and running in a northerly direction to the Northeast quarter of the South East quarter of Section five and running in a north-easterly direction to the North West quarter of the South West quarter of Section four, said township and range and providing further that said Bowman shall have no right in or to said ditch or to any water of said ditch, after it crosses the line between said Sections four and five. To Have and To Hold the Same, Together with all the hereditaments and appurtenances thereunto in any wise appertaining.

SSE Erasmus D. Ralph
Sallie E. Ralph

AND IN WITNESS WHEREOF THE FOREGOING INSTRUMENTS OF THE NOTARY, SIGNED BY OR FOR HIMSELF, HE HAS HEREUNTO SET HIS HAND AND SEAL OF OFFICE, AT SIOUX FALLS, SOUTH DAKOTA, THIS 14TH DAY OF APRIL, 1904.
NOTARY PUBLIC, SIOUX FALLS, S. DAK. 25 VOL NO 1
5-4-82
DATE RECORDED
RECORDED

No. 35871

LOCATION CERTIFICATE
WATER RIGHT

By
Wm. Bowman
25th day of June A.D., 1887,
at 2:30 o'clock P.M.
John Baker,
Register of Deeds.
By J. E. Baker, Deputy

9.2

Know all men by these presents: That I, William Bowman of Lawrence County, Dakota Territory, have located and claimed and appropriated four hundred inches of the waters of Spearfish Creek or River or so much as can be conveyed in my ditch and flume which is four and a half feet wide at the top, four feet wide at the bottom and eighteen inches deep. Said water right as now claimed by me was located June 20, 1887 but has been actually used by me and my predecessors since 1878 except that during that time a smaller amount of water has been appropriated and used than is now claimed and that I now enclose my ditch and the conveying capacity of the same. This water right is taken from Spearfish Creek or River, and the upper end of my ditch is located on the farm of Benjamin F. Walter in Section 8 in Township No. 7 North of Range No. 2 East B.H.M. from the place of beginning my ditch runs northerly over the "Flaherty Farm" on to my own land where it is terminate at present. This water right is claimed and the water appropriated for mining, milling, agricultural and domestic purposes with more especial intention at present to use the same for agricultural and domestic purposes.

This location is made without waiving any rights acquired held or enjoyed under and by virtue of the prior appropriation and use of said water by me and my predecessors before referred to or any location that may have been made by any of my predecessors but the claim heretofore made by me and the conveying capacity of my ditch are now enlarged as herein declared and specified.

Date of this certificate June 25, 1887.

Wm. Bowman

STATE OF SOUTH DAKOTA)

ss

CITY OF LAWRENCE

FILED FOR RECORD
JUN 27 1887
J. E. BAKER, DEPUTY

No. 35871

LOCATION CERTIFICATE
WATER RIGHT

By
Wm. Bowman
Fifth day of June A.D., 1887.
at 2:00 o'clock P.M.
John Baker,
Register of Deeds.
By J. E. Bering, Deputy

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This location is made without waiving any rights acquired held or enjoyed under and by virtue of the prior appropriation and use of said water by me and my predecessors before referred to or any location that may have been made by any of my predecessors but the claim heretofore made by me and the conveying capacity of my ditch are now enlarged as herein declared and specified.

Date of this certificate June 25, 1887.

Wm. Bowman

BONMAN DITCH

<u>Name</u>	<u>Field</u>	<u>Acres</u>	<u>Total</u>
Kissack Bros.	A	115.8	115.8
Mrs George Jeffery	B	100.1	<u>100.1</u>
		Ditch Total	215.9

COMMISSION

H. E. Beresgen, Ellenville
R. H. Brady, Mitchell
Carl Crona, Gettysburg
Lawren A. Davis, Belle Fourche
John Harrison, Watanda
Paul Russell, Edgemont
John Sutton, Oelids

SOUTH DAKOTA

State Water Resources Commission

STATE OFFICE BUILDING

PIERRE, SOUTH DAKOTA

January 16, 1961

J. W. GRINER
Chief Engineer
and
Executive Officer

Mr. Albert Jeffery
RFD 2
Spearfish
South Dakota

Re. Bowman

The State Water Resources Commission has been making a study of water use pertaining to the surface flows of Redwater River and its tributaries in South Dakota.

As a part of this study, lands being irrigated have been mapped. During the summer of 1960, you or a representative of your irrigation system was contacted, and the irrigated fields were outlined on aerial photographs. Using these aerial photographs, the irrigated fields have been mapped and measured.

Enclosed is a map showing the fields irrigated in your irrigation system, the owners or tenants, field acreages and source of water supply. Also enclosed is a list showing the acreage for each field, the irrigator of the field and the total acreages for the irrigation system.

The State Water Resources Commission asks that you check these items, particularly the fields and acreages. If you feel that any of these items are wrong or inaccurate, let us know and we will check further on such items. If you are satisfied with the map and acreages as shown, the Commission asks that they be so notified.

If you desire to go over these items with us, let us know and we will call on you with the aerial photographs and other pertinent data.

2.

If no word is received from you by February 15, 1961, the Commission will assume that you concur with the map and data as sent to you.

Sincerely,

J. W. GRIMES
Executive Officer

JWG:ls

P.S. It is our understanding that the ^{file} ~~map~~ shown on the enclosed map is considered as being irrigated under the Bowman Ditch Water Right.

A copy of this letter without the postscript was also sent to

Kinsack Brothers
RFD 1
Spearfish
South Dakota

December 14, 1961

Mrs. George Jeffery
c/o Mr. Albert Jeffery
RFD 2
Spearfish, S. Dak.

Kissack Brothers
RFD 2
Spearfish, S. Dak.

Re: Bowman Ditch

Dear Mrs. Jeffery:

The State Water Resources Commission has been making a study of water use pertaining to the surface flows of Redwater River and its tributaries in South Dakota.

As a part of this study, a search has been made for written records and documents which pertain to the diversions of the water. The Commission found the following pertaining to the Bowman Ditch:

(1) A Quit-Claim Deed, signed March 6, 1894 by Erasmus P. Ralph and Sallie E. Ralph, recorded in Book 92, page 422, Lawrence County in which they sold a 3/8 interest in the certain irrigation ditch and water right, stating further that the ditch had been located by Erasmus D. Ralph et al in the year 1877.

(2) A Quit-Claim Deed, signed August 13, 1894, wherein William and Mary E. Bowman sold to John W. Kissack, a 1/2 interest in a certain irrigating ditch and water right which was located in 1877 by Erasmus D. Ralph et al, said ditch starting in the SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 8, T7N, R2E, thence continuing in a northerly and easterly direction.

The 1877 location date mentioned in these Quit-Claim Deeds, while inconclusive, is the only information we have been able to obtain pertaining to the priority date of the Bowman Ditch.

No record was found wherein the Bowman Ditch Water Right was interpreted, determined or established by Court action. The data collected, as outlined above, is an indication that the Bowman Ditch has a priority date of 1877 for an unknown amount of water.

Mrs. George Jeffery
Kissack Brothers

December 14, 1961

It would be advisable for you to check to see if you can locate additional records that pertain to the Bowman Ditch. The Water Resources Commission would appreciate being informed about any additional data you find that you deem applicable, in order to obtain as complete a record as possible, and would arrange to have a representative meet with you to discuss the information contained in this letter and such additional information as you might find, if you so desire.

A letter dated January 16, 1961 was sent to you enclosing a map showing fields reported to be irrigated and the acreages of these fields. With your help these fields and acreages have been revised. Enclosed, for your information, is a copy of the revised map and the revised list of owners and acreages.

Sincerely,

J. W. GRIMES
Executive Officer and
Chief Engineer

Encls: Map and List

 **Department of
Water & Natural Resources**

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

July 1, 1987

Bowman Ditch
c/o Albert Jeffery
RR 1
Spearfish SD 57783

Dear Mr. Jeffery:

This letter is to inform you that the vested right claim for Bowman Ditch has been reviewed. A report on the investigation of the vested right claim is being prepared. When the report is finalized your application will be complete pursuant to SDCL 46-2A-2. A recommendation will then be prepared and notice of hearing will be given stating the time and place the Water Management Board will consider the vested right claim. Tentatively, the hearing is to be scheduled for December 2 and 3, 1987 in the Black Hills area.

Please contact us if you have any questions.

Sincerely,



RON DUVALL
Water Resources Engineer
605 773-3352

Report on the Bowman Ditch (Spearfish Creek)
Vested Water Right Application No. 1388-1
September 28, 1987

Background

Pursuant to SDCL 46-5-49 and ARSD 74:02:01:20, Bowman Ditch has filed an application to validate a vested right claim to irrigate 215.8 acres of land in Sections 5 and 8, T7N-R2E in Lawrence County. The applicant claims 8.0 cfs of water from Spearfish Creek. The headgate is located in the SE1/4 SE1/4 Section 8, T7N-R2E.

Document Search

The following documents were found pertaining to the Bowman Ditch Claim:

- 1) A Quit-Claim Deed, signed March 6, 1894 by Erasmus D. Ralph and Sallie E. Ralph, and recorded in Book 92, Page 422, Lawrence County, in which they sold a 3/8 interest in a certain irrigation ditch and water right. The Deed stated that the ditch had been located by Erasmus D. Ralph et al; in the year 1877.
- 2) A Quit-Claim Deed, signed August 13, 1894, wherein William and Mary E. Bowman sold to John W. Kissack, a 1/2 interest in a certain irrigation ditch and water right which was located in 1877 by Erasmus D. Ralph et al. The Deed stated that the ditch began in the SE1/4 SE1/4 Section 8, T7N-R2E, and continued in a northerly and easterly direction.
- 3) A copy of Location Notice No. 35871 in which William Bowman located the same ditch claiming 400 miner's inches of Spearfish Creek water to be diverted and carried in the same ditch. This Location Notice is filed in Lawrence County June 25, 1887, and recorded in Book 51, Page 188.

Discussion

The Water Resources Commission investigated the irrigation from Bowman Ditch in the early 1960's. At that time, 215.9 acra were mapped as being irrigated from the ditch.

Lists of Spearfish Creek Water Rights prepared by the Water Resources Commission after the 1960's investigations, based upon available records, listed Bowman Ditch (1877 priority) after Cook Ditch (June 10, 1877 priority) and before Mann Ditch (early spring 1878 priority). Bowman Ditch can be assigned a month and day priority between June 11, 1877 and December 31, 1877. For validation purposes a priority date of June 11, 1877 can be

assigned as the official priority date for Bowman Ditch without changing any priority ranking or loss of rights for Spearfish Creek.

Recent investigations by Water Rights Division engineers have found that 215.8 acres are being served by Bowman ditch. The investigations showed that the ditch is capable of carrying 12.6 cfs and the headgate can divert a maximum of 58.8 cfs of water.

To determine the amount of water needed to irrigate 215.8 acres, two different methods were used:

- 1) State Law, SDCL 46-5-6 allows 1.0 cfs of water for each 70 acres of irrigation. If 1.0 cfs of water is necessary to irrigate 70 acres of land, 3.1 cfs of water will be used to irrigate 215.8 acres. Considering the efficiency of flood irrigation in this area, which according to SCS for this area is 50%, the total diversion rate required will be 6.16 cfs.
- 2) Using the SCS, S.D. Irrigation Guide, the peak consumption occurs in July. The crops in the area use 28.8% of their annual water consumption during the Month of July. Assuming the crops need 3.0 feet of water every irrigation season, a total of 647 acre-feet of water is needed for the season, from which 186 acre-feet or 3.0 cfs will be used in the Month of July. Considering a 50% water loss due to the system, the total diversion rate required will be 6.0 cfs.

Conclusions and Recommendations

- 1) The headgate and the ditch are capable of diverting and carrying more water than the amount claimed.
- 2) Based upon the 1 cfs per 70 acres criteria plus a 50% loss calculation, the peak quantity of water necessary to irrigate the land served by the Bowman Ditch would be 6.2 cfs. Comparing this to the SCS South Dakota Irrigation Guide calculations, this quantity of water appears to be reasonable. The application claims 8.0 cfs as the quantity of water necessary for the flood irrigation system to irrigate 215.8 acres. The quantity claimed based upon the calculations, is in excess of what would be reasonable.
- 3) It is recommended that the Bowman Ditch Vested Water Right Claim be validated for a diversion rate of 6.2 cfs for irrigation of 215.8 acres as described in Application No. 1388-1 with a priority date of June 11, 1877.

- 4) It is recommended that if Vested Water Right No. 1388-1 is validated, that the applicable portions of Location Notice No. 35871 be incorporated into No. 1388-1 and that the abandoned portions of Location Notice No. 35871 be cancelled.

MR Ahadi

Rassool Ahadi
Natural Resources Engineer

RECOMMENDATION OF CHIEF ENGINEER FOR VALIDATION OF VESTED WATER
RIGHT APPLICATION NO. 1388-1, Bowman Ditch

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Validation of Vested Water Right Application No. 1388-1, Bowman Ditch, c/o Albert Jeffery, RR 1, Spearfish, SD.

The Chief Engineer is recommending VALIDATION of Application No. 1388-1 for 6.2 cfs and that the applicable portions of Location Notice No. 35871 have been incorporated into No. 1388-1 and the abandoned portions of Notice No. 35871 have been cancelled, because 1) water has been appropriated as described for irrigation use with a priority date of June 11, 1877, 2) the use has been developed without unlawful impairment of existing rights, 3) the use is a beneficial use and 4) it is in the public interest with the following qualifications.

1. That Vested Water Right No. 1388-1 is subject to domestic use rights. Diversion of water under Water Right No. 1388-1 is contingent upon supplies being available first to domestic users.
2. That a flow measuring device be installed at or near the point of diversion for Bowman Ditch within one year of validation of Vested Water Right No. 1388-1. The measuring device shall be permanently installed. The design shall be approved prior to construction by the chief engineer.

See the attached report for additional information.



JOHN HATCH, Chief Engineer
October 16, 1987



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

October 22, 1987

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT THE
NEWSPAPERS RIGHT AWAY.

Bowman Ditch
c/o Albert Jeffery
RR 1
Spearfish SD 57783

Dear Mr. Jeffery:

Your Application No. 1388-1 for a vested water right claim has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of your claim has been sent to the Publishers of the QUEEN CITY MAIL printed at Spearfish and the BELLE FOURCHE DAILY POST printed at Belle Fourche. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your notice of hearing to validate a vested right and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. We must receive Proof of Publication before the application can be considered by the Water Management Board.

Sincerely,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

October 22, 1987

BELLE FOURCHE DAILY POST
1004 5th Ave
Belle Fourche SD 57717

Dear Sir:

Enclosed is a Notice of Hearing to Validate Vested Right Application No. 1388-1. Please publish this notice once each week for two consecutive weeks in your paper. The first publication should be on or before October 28, 1987.

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 Bowman Ditch, c/o Albert Jeffery, RR 1, Spearfish SD 57783.

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,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

FIRST TRANSMITTAL NOTICE

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 Validate A Vested Right Application which was first published in our issue of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

October 22, 1987

QUEEN CITY MAIL
Box 7
Spearfish SD 57783

Dear Sir:

Enclosed is a Notice of Hearing to Validate Vested Right Application No. 1388-1. Please publish this notice once each week for two consecutive weeks in your paper. The first publication should be on or before October 28, 1987.

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 Bowman Ditch, c/o Albert Jeffery, RR 1, Spearfish SD 57783.

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.

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Sincerely,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

FIRST TRANSMITTAL NOTICE

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 Validate A Vested Right Application which was first published in our issue of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Lawrence) ss.

I, Jimmie R. Stephenson hereby
certify that the annexed printed copy of Notice of Intent to Appropriate
Water was taken from the Queen City Mail

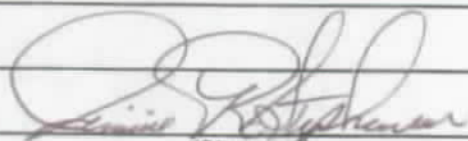
A newspaper which during the whole time of publication of said notice
herein after stated, has been and is printed and published in the

City of Spearfish

County of Lawrence and State of South Dakota;
that the said notice was published in said newspaper on the following
two dates:

October 28th

November 4th



(Signature)

Publisher

(Title)

11-4-87

(Date Signed)

Cost of Printing: _____

107 x .2564 = 27.43

107 x .2051 = 21.94

Total = 49.37

NOTICE OF HEARING
TO VALIDATE VESTED
RIGHT APPLICATION
NO. 1388-1 TO
APPROPRIATE WATER

Notice is hereby given that Bowman Ditch, c/o Albert Jeffery whose mailing address is RR 1, Spearfish, South Dakota has filed an application to validate a vested right claim to appropriate 8.0 cubic feet of water per second (cfs) from Spearfish Creek to irrigate 215.8 acres via the Bowman Ditch with a claimed priority date of 1877. The Spearfish Creek diversion point for the Bowman Ditch is located in the SE 1/4 SE 1/4 Section 8, T7N, R2E. The irrigated acreage is located in the SE 1/4 Section 5; NE 1/4, N 1/2 SE 1/4, SE 1/4 NW 1/4, NE 1/4 SW 1/4 Section 8; all in T7N, R2E.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends VALIDATION of Vested Water right Application No. 1388-1 for 6.2 cfs and that the applicable portions of Location Notice No. 35871 be incorporated into No. 1388-1 and that the abandoned portions of notice No. 35871 be cancelled, because 1) water has been appropriated as described for irrigation with a priority date of June 11, 1877, 2) the use has been developed without unlawful impairment of existing rights, 3) it is a beneficial use of water and 4) it is in the public interest.

Validation of this application will be considered by the Water Management Board at Howard Johnson's, Roosevelt and Jefferson Rooms, 2211 LaCrosse, Rapid City SD, December 2, 1987 at 1:00 pm.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve validation, 2) approve the validation with qualifications, 3) defer, or 4) deny validation of the application 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 applicant and the Chief Engineer by November 20, 1987. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing



address of the petitioner or his legal
counsel if legal counsel is obtained.
The applicant need not file a petition.

This application is made pursuant

to the provisions of SDCL 46-1-1 thru

46-1-9, 46-1-12 thru 46-1-15; 46-2-

3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-

17; 46-2A-1 thru 46-2A-10, 46-2A-

12, 46-2A-14, 46-2A-15, 46-2A-18,

46-5-1 thru 46-5-13 thru 46-

5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-

5-30.4, 46-5-31, 46-5-49; and Board

Rules ARSD, 74:02:01:01 thru

74:02:01:15 and 74:02:01:19 thru

74:02:01:22.

This hearing is in adversary pro-

ceeding. The applicant 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, fur-

ther information on this applica-

tion or to assure access to the hearing

by the handicapped can contact the

Pierre SD (605 773-3352) for assis-

tance prior to the hearing date. The

time of the hearing will be automati-

cally extended for at least twenty days

upon written request of the applicant

or person who has filed a petition to

oppose or support the application.

The hearing is in adversary pro-

ceeding. The applicant 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, fur-

ther information on this applica-

tion or to assure access to the hearing

No. 1388-1

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Butte) ss.

I, Marian Sures hereby

certify that the annexed printed copy of Notice of Intent to Appropriate

Water was taken from the Belle Fourche Daily Post

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 Belle Fourche

County of Butte and State of South Dakota;
that the said notice was published in said newspaper on the following
two dates:

October 27, 1987

November 3, 1987

Marian Sures
(Signature)

Editor
(Title)

November 3, 1987
(Date Signed)

Cost of Printing: 43.08

129 Lines - 2 times

Public Notice

NOTICE OF HEARING
TO VALIDATE
Vested Right Application
No. 1388-1
to Appropriate Water

Notice is hereby given that Bowman Ditch, c/o Albert Jeffery whose mailing address is RR 1, Spearfish, South Dakota has filed an application to validate a vested right claim to appropriate 8.0 cubic feet of water per second (cfs) from Spearfish Creek to irrigate 215.8 acres via the Bowman Ditch with a claimed priority date of 1877. The Spearfish Creek diversion point for the Bowman Ditch is located in the SE 1/4 SE 1/4 Section 8, T7N, R2E. The irrigated acreage is located in the SE 1/4 Section 5; NE 1/4, N 1/2 SE 1/4, SE 1/4 NW 1/4, NE 1/4 SW 1/4 Section 8; all in T7N R2E.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends VALIDATION of Vested Water Right Application No. 1388-1 for 6.2 cfs and that the applicable portions of Location Notice No. 35871 be incorporated into No. 1388-1 and that the abandoned portions of No. 35871 be cancelled, because 1) water has been appropriated as described for irrigation with a priority date of June 11, 1877, 2) the use has been developed without unlawful impairment of existing rights, 3) it is a beneficial use of water and 4) it is in the public interest.

Validation of this application will be considered by the Water Management Board at Howard Johnson's, Roosevelt and Jefferson Rooms, 2211 LaCrosse, Rapid City, SD, December 2, 1987 at 1:00 p.m.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve validation, 2) approve the validation with qualifications, 3) defer, or 4) deny validation of the application after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision 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 applicant and the Chief Engineer by November 20, 1987. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

This application is made pursuant to the provisions of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15, 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17, 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-18, 46-5-1 thru 46-5-17, 46-5-13, 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-49, and Board Rules ARSD 74-02:01:01 thru 74-02:01:15 and 74-02:01:19 thru 74-02:01:22.

This hearing is an adversary proceeding. The applicant 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 application or to assure access to the hearing by the handicapped can contact the Water Rights Division, Joe Foss Bldg., Pierre SD (605 773-3352) for assistance prior to the hearing date. The time the hearing will be automatically extended for at least twenty days upon written request of the applicant or person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by November 20, 1987.

11/3

Instruction to Newspaper - Publish first publication of the following Notice on or before October 28, 1987 with 2nd publication 1 week later. The applicant is responsible for payment.

NOTICE OF HEARING To Validate
Vested Right Application No. 1388-1 to Appropriate Water

Notice is hereby given that Bowman Ditch, c/o Albert Jeffery whose mailing address is RR 1, Spearfish, South Dakota has filed an application to validate a vested right claim to appropriate 8.0 cubic feet of water per second (cfs) from Spearfish Creek to irrigate 215.8 acres via the Bowman Ditch with a claimed priority date of 1877. The Spearfish Creek diversion point for the Bowman Ditch is located in the SE 1/4 SE 1/4 Section 8, T7N, R2E. The irrigated acreage is located in the SE 1/4 Section 5; NE 1/4, N 1/2 SE 1/4, SE 1/4 NW 1/4, NE 1/4 SW 1/4 Section 8; all in T7N, R2E.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends VALIDATION of Vested Water Right Application No. 1388-1 for 6.2 cfs and that the applicable portions of Location Notice No. 35871 be incorporated into No. 1388-1 and that the abandoned portions of No. 35871 be cancelled, because 1) water has been appropriated as described for irrigation with a priority date of June 11, 1877, 2) the use has been developed without unlawful impairment of existing rights, 3) it is a beneficial use of water and 4) it is in the public interest.

Validation of this application will be considered by the Water Management Board at Howard Johnson's, Roosevelt and Jefferson Rooms, Rapid City SD, December 2, 1987 at 1:00 pm.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve validation, 2) approve the validation with qualifications, 3) defer, or 4) deny validation of the application 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 applicant and the Chief Engineer by November 20, 1987. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

This application is made pursuant to the provisions of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-18; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-49; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15 and 74:02:01:19 thru 74:02:01:22.

This hearing is an adversary proceeding. The applicant 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 application or to assure access to the hearing by the handicapped can contact the Water Rights Division, Joe Foss Bldg, Pierre SD (605 773-3352) for assistance prior to the hearing date. The time of the hearing will be automatically extended for at least twenty days upon written request of the applicant or person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by November 20, 1987.

November 24, 1987
(date)

page 1

Parties of Record before Water Management Board regarding Vested Right
Application No. 1388-1, Bowman Ditch

For:

Albert Jeffery
Bowman Ditch
RR1

Spearfish SD 57783

Interested

Richard Beringson, Secretary
SD Dept of Game, Fish & Parks
Andersen Bldg, 445 E Capitol
Pierre SD 57501

Against:

B.E. Martin, Regional Director
Bureau of Reclamation
PO Box 36900
Billings MT 59107-6900

Bruce Laymon
U.S. Bureau of Reclamation
PO Box 226
Newell SD 57760

South Dakota
**Department of
Game, Fish and Parks**

Division of Wildlife
Sigurd Anderson Building
445 East Capitol
Pierre, South Dakota 57501-3185
(605) 773-3381

November 16, 1987



Mr. John Hatch, Chief Engineer
Division of Water Rights
S.D. Department of Water & Natural Resources
Joe Foss Building
Pierre, SD 57501

Dear Mr. Hatch:

Pursuant to the notice provided by the Chief Engineer under SDCL 46-2A-4 the South Dakota Department of Game, Fish and Parks intends to be a party to water right claim 1388-1 on Spearfish Creek, Lawrence County.

GF&P is an interested and potentially affected party by virtue of statutory authority to manage fish and wildlife resources of the state (SDCL Chapter 41). The pending water right claim could affect the quantity of water available for natural resource management.

Thank you for the opportunity to comment on this pending water right application.

Sincerely,

Richard J. Beringson
Secretary

RJB/ld

cc: Bowman Ditch % Albert Jeffery



United States Department of the Interior

BUREAU OF RECLAMATION

Missouri Basin Region

P.O. Box 36900

Billings, Montana 59107-6900

IN REPLY
REFER TO: MB-450
870.



John Hatch, Chief Engineer
Water Rights Division
Joe Foss Building
Pierre, SD 57301

NOV 19 1987

Dear Mr. Hatch:

Pursuant to South Dakota Civil Law 1-26, we hereby make known our objections to Applications to Validate Vested Water Rights (applications) Nos. 1388-1, 1390-1, 1394-1, 1395-1, 1399-1, 1400-1, 1402-1, 1405-1, 1408-1, 1409-1, 1410-1, 1411-1, 1412-1, 1413-1, 1415-1, 1417-1, 1423-1, and 1425-1. These applications are scheduled for consideration by the Water Management Board in Rapid City, South Dakota, on December 2, 1987, at 1:00 pm.

We concur with the Chief Engineer's recommendations regarding the diversion rates for the applications listed above and would object to increases in the diversion rates above those recommended by the Chief Engineer. The Bureau of Reclamation (Bureau) is the owner of water rights for the Belle Fourche Irrigation Project (Project) located on the Belle Fourche River. Most of the vested rights (with the exception of application No. 1423-1) have points of diversion located on tributaries to the Belle Fourche River upstream of the Project diversion dam. The Project could be adversely impacted if the applications are validated with flow rates in excess of those historically utilized.

Finally, we request that you send a copy of the Chief Engineer's recommendation regarding each of the applications listed above to Bruce Laymon who will be representing the Bureau's interests at the hearings. His mailing address is listed below.

U.S. Bureau of Reclamation
Attention: Bruce Laymon
Belle Fourche Project Office
P.O. Box 226
Newell, SD 57760

If you have any questions regarding our interest in these matters, please contact Dave Nelson at (406) 657-6639 or Bob Pike at (406) 657-6469.

Sincerely yours,


Donald R. Glaser

For B. E. Martin
Regional Director

Enclosure

Identical letters sent to attached listing

Mr. Ralph Bahm
RR 1, Box 196
Spearfish, SD 57783

Ms. Della Crago
RR 1, Box 24
Belle Fourche, SD 57717

Mr. Dick Cundy
St. Onge Road
Spearfish, SD 57783

Homestake Mining Company
P.O. Box 875
Lead, SD 57754

Mr. Albert Jeffery
RR 1
Spearfish, SD 57783

Mr. Leland Johnson
Mr. Keith Johnson
RR 1, Box 1011
Spearfish, SD 57783

Mr. Richard Lausser
RR 1, Box 195
Spearfish, SD 57783

Redwater Irrigation Association
P.O. Box 351
Belle Fourche, SD 57717

Mr. R. Thornton Vallery
Star Route, Box 188
Nisland, SD 57762

Mr. James Chenowith
Box 248
Woodrow, CO 80757

Mr. Ralph Crago
RR 1, Box 52B
St. Onge, SD 57779

Mr. Melvin Delzer
Box 1045
Spearfish, SD 57783

Mr. Robert Humphrey
Rt. 1, Box 170
Spearfish, SD 57783

Mr. James Jennings
RR 1, Box 182C
Spearfish, SD 57783

Mr. William Lambert
Box 335
Beulah, WY 82712

Mr. Josef Meier
421 Meier Street
Spearfish, SD 57783

Mr. Wesley W. Thompson
Rt. 1, Box 198A
Spearfish, SD 57783

**South Dakota
Department of
Game, Fish and Parks**

**Division of Wildlife
Sigurd Anderson Building
445 East Capitol
Pierre, South Dakota 57501-3185
(605) 773-3381**

November 20, 1987

Mr. John Hatch, Chief Engineer
Division of Water Rights
S.D. Department of Water & Natural Resources
Joe Foss Building
Pierre, SD 57501



Dear Mr. Hatch:

Pursuant to the filings made by the S.D. Department of Game, Fish and Parks to the attached list of applicants, some confusion exists regarding the intent of the filings. For your information when dealing with inquiries to the nature of the GF&P interest in the upcoming hearings the following information should be useful.

GF&P intends to participate in the upcoming water right validations by supporting the water rights staff recommendations that will bring each water right into legal compliance with existing laws, e.g. appropriate quantities of water for the land base, appropriately sized and gauged headgates for the right in question, abandonment of unused quantities of water, etc. GF&P filed with your office and each applicant so that we would officially be parties to the hearing process and be able to carry out the mandated duties of the Department under SDCL Chapter 41. We also are of the opinion that the Department would have been negligent in not participating in proceedings that relate to water resource allocation directly affecting waters that support fish and wildlife values.

I hope this information will aid you in describing the nature of the interest the Department of Game, Fish and Parks has in the upcoming proceedings. If you have any questions you can contact me at 773-5511.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Ron Koth', written over a horizontal line.

Ron Koth
Water Permits Coordinator

RK/ld

SOUTH Dakota Department of
Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

December 9, 1987

NOTICE

TO: Bowman Ditch, c/o Albert Jeffery, RR 1, Spearfish SD 57783
and Parties of Record (see attached list)

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352



SUBJECT: Deferral of Consideration on Vested Right Application No. 1388-1, Bowman Ditch

The Water Management Board deferred Vested Right Application No. 1388-1 at the December 2 and 3, 1987 Board meeting in Rapid City. The Board deferred consideration of the application to allow collection of flow data for Bowman Ditch during the 1988 irrigation season. Notice will be given when Application No. 1388-1 is rescheduled for hearing. The Board included in the motion to defer, that a permanent flow measuring device is to be installed on Bowman Ditch at or near the point of diversion. Design is subject to approval by the Chief Engineer. The device is to be used for measuring ditch flows during the 1988 irrigation season. After approval of the device design, a method of record-keeping will then be determined, cooperatively, between the Division of Water Rights and Bowman Ditch. A measuring device design will need to be submitted to the Chief Engineer by February 1, 1988 to ensure approval of the design and installation of the device prior to the beginning of the 1988 irrigation season.

cc: Harold Deering, Assistant Attorney General
John Guhin, Assistant Attorney General

CERTIFICATION

I hereby certify that on December 9, 1987 I have personally deposited with the U.S. Mail, postage prepaid envelopes containing Notice of Deferral of Consideration on Vested Right Application No. 1388-1, Bowman Ditch addressed as stated on the Parties of Record sheet.

KAREN SCHLAAK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 11th day of December, 1987.



John Hatch
Notary Public

South Dakota
Department of
Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

March 11, 1988

Bowman Ditch
c/o Al Jeffery
RR 1
Spearfish SD 57783

RE: Diversion Rate Records, Vested Water Right Application
No. 1388-1

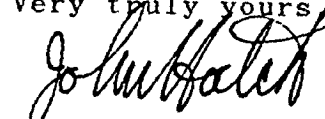
Dear Mr. Jeffery:

I am writing to ask for your comments on the enclosed draft of a "Diversion Rate Record" form for recording your ditch flow measurements. The Water Management Board at the December 2 and 3, 1987, Board Meeting in Rapid City, deferred your vested right claim until ditch flows could be measured during the 1988 irrigation season. The Board's motion required a permanent flow measuring device to be installed on the ditch at or near the point of diversion. The motion also stated that a method of record keeping will cooperatively be determined between the Division of Water Rights and the Ditch Company.

The flow measurements will need to be made when water is being diverted and on a daily basis. If the flow is to be recorded following opening or closing the headgate, the gauge reader will need to wait for the flow to stabilize before reading the gauge. The recording time and name of the gauge reader must be recorded. If possible, the number of acres being irrigated should be recorded. The "Remarks" column is provided for any comments you may have during data collection, i.e. "Rainy day, no diversion" etc.

The diversion rate records will need to be submitted to us at the end of each month. If you have any questions or comments regarding the "Diversion Rate Record" form or any suggested changes, please let us know.

Very truly yours,



JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

April 22, 1988



South Dakota Department of Water & Natural Resources
Joe Foss Office Building
Pierre, SD 57501-3181

Attn: Rassool Ahadi

Re: Measuring Flume Design - Cookburns, Kemper & Bowman Ditches

Dear Rassool:

Please find enclosed dimensional information for the flumes for the referenced ditches. These ditch companies are planning to use the long-throated weir, trapezoidal channel style flume for water measurement. Flume design is in accordance with USDA literature.

This flume design was selected because it offers relatively simple installation and low operating head loss. All of the referenced ditches have extremely shallow slope at the source end and therefore the use of higher head loss devices, such as parshall flume is not acceptable.

For the Cookburns ditch, we have selected a type FB1 flume as described by the USDA literature. This flume uses a 2-foot bottom width, 1:1 side slopes and a 1-foot high weir. A dimensional sketch is enclosed. Discharge rating will be in accordance with Table 2 of the literature, flume style FB1.

The Kemper ditch flume will be similar to the Cookburns flume. For these flumes, measurement of flow in the 10 to 25 cfs range is in the middle of the useful range of flow measurement as described by the literature.

The Bowman ditch will use a type FA1 flume. This will provide a bottom width of 1-foot, 1:1 side slopes and a 9-inch high weir. Measurements of flows from 5 to 12 cfs fall in the mid range of the rating for this flume as described by Table 2.

We do not prepare specifications for this project. Instructions to the installing contractor were to use 3,500 psi concrete and to provide 1/2-inch steel enforcing bars on 12-inch centers. Float-well tubes will be Schedule 40 PVC. No other materials are anticipated for the project.

Mr. Rassool Ahadi

April 22, 1988

Page Two

I have requested a base map on which to illustrate flume location but I do not have it available at this time. Flume location for the Cookburns ditch will be downstream of the existing steel flume and upstream of the hard surface road. Location of the Kemper ditch flume will be immediately upstream of the hard surface road nearest the head gate. Location of the Bowman ditch flume will be immediately north of the Jim Jennings' residence, downstream of the long steel culvert. Each of these locations was chosen as the nearest location to the head gate which provided adequate elevation change to provide flume submergence. We will provide map information when base maps are available.

It is my understanding that ditch owners are proceeding with construction of these flumes immediately. I apologize for not providing you more detailed information earlier. We would appreciate your review at your earliest convenience.

Sincerely,

DEWILD GRANT RECKERT
& ASSOCIATES COMPANY


Bruce Jennings, P.E.

BAJ:ldb



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

April 28, 1988

Bowman Ditch, c/o Albert Jeffery
RR 1
Spearfish, S.D. 57783

Re: Approval of the Plans and Specifications for a Measuring
Device

Dear Mr. Jeffery:

We have reviewed the plans and specifications for your measuring device, designed by Bruce Jennings, to be used to measure the flow in Bowman Ditch. The plan proposes to use a long-throated trapezoidal channel style flume, with a minimum depth of 2.5 feet, a sill height of 0.75 feet, bottom width of 1 foot and a side slope of 1:1. The plans and specifications are approved as submitted.

If you have any questions, please contact us.

Very truly yours,

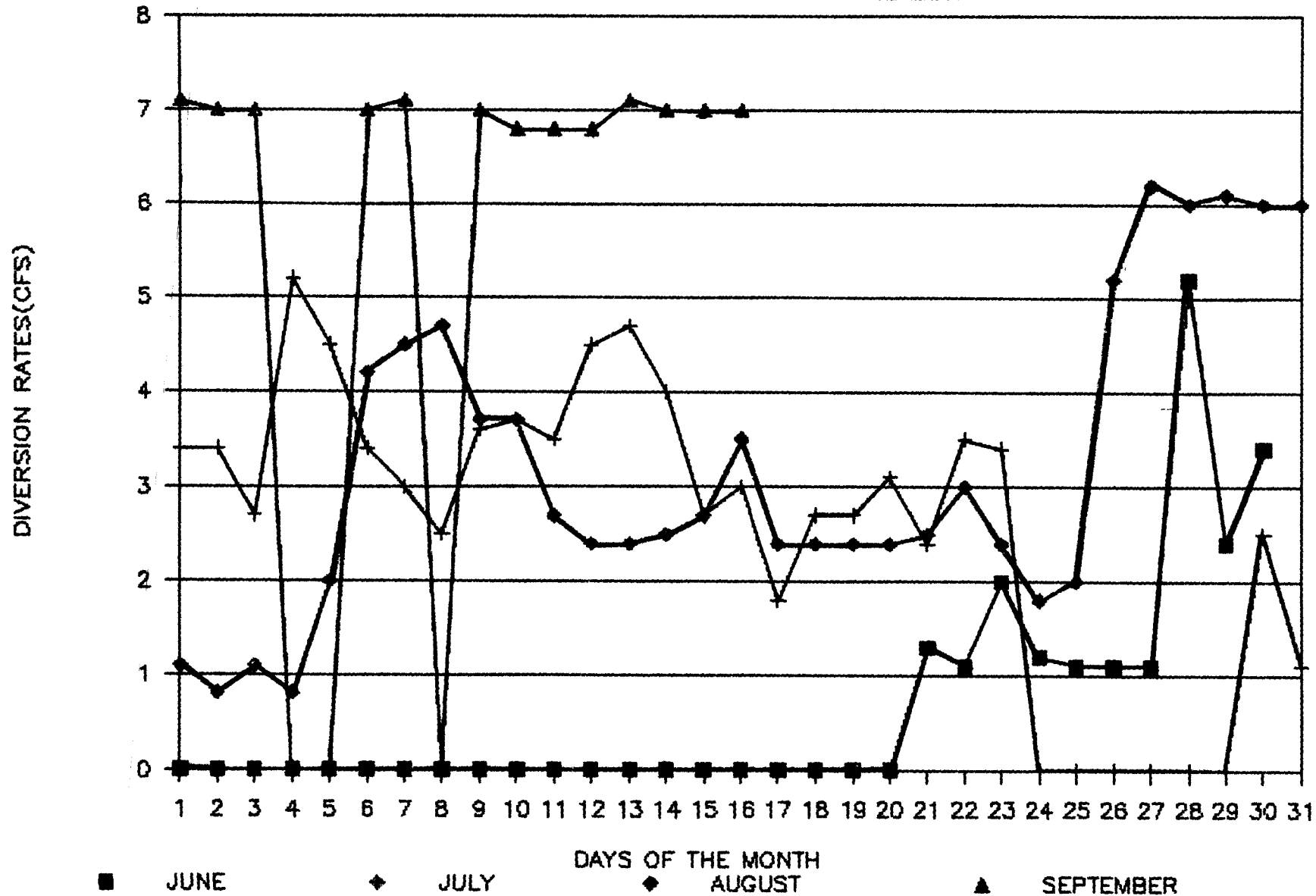
A handwritten signature in cursive script, reading "John Hatch".

JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

cc: Bruce Jennings

BOWMAN DITCH

DIVERSION RATES—1988 IRRIGATION SEASON



NDHach

11/28/88



R.R. I Box 182C
Spearfish, SD 57783
January 19, 1989

John Hatch, Chief Engineer
Division of Water Rights
SD Department of Water and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181

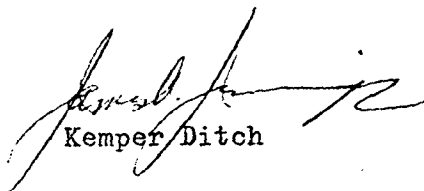
Dear John;

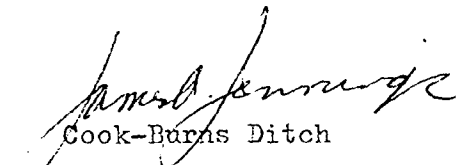
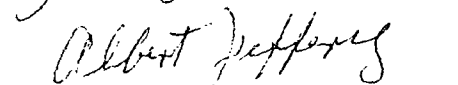
In 1988, at considerable expense to the ditch owners, measuring devices were placed in each ditch. This resulted in being able, for the first time in the history of the ditches, to determine the actual amount of water used on any given day. Records were kept and supplied to your office.

Due to the lack of rainfall during the 1988 growing season, Lawrence county was declared a disaster area. The lack of rainfall resulted in diminished stream flow, above normal water usage by the irrigators above us on the creek, and reduced underground return flow to the creek. The result was insufficient water in the creek to supply our ditches.

Because of the sub-normal 1988 season, we request an additional year's measurement of water diverted before the final ditch allotments are made.

Sincerely yours,


Kemper Ditch


Cook-Burns Ditch

Bowman Ditch



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

January 24, 1989

NOTICE

TO: Bowman Ditch
c/o Albert Jeffery
RR 1
Spearfish SD 57783
and Parties of Record (see attached list)

FROM: John Hatch, Chief Engineer *John Hatch*
Water Rights Division
605 773-3352

SUBJECT: Reconsideration of Deferred Vested Right Application
No. 1388-1

The Water Management Board will reconsider Vested Right Application No. 1388-1 at 11:00 am, March 1, 1989 in the Roosevelt Room, Howard Johnson's, I-90 and La Crosse, Rapid City SD. The agenda time is an estimate. The actual time of hearing may be later than 11:00 am due to prior agenda items. The Board deferred Application No. 1388-1 for one year at the March 2 and 3, 1988 Board meeting to allow collection of flow data for the ditch during the 1988 irrigation season.

The Chief Engineer is recommending that Application No. 1388-1 remain in deferred status due to dry conditions in 1988 and allow collection of additional flow data for another irrigation season. Applicable provisions of the Notice of Hearing published on October 27, and November 3, 1987 in the Belle Fourche Daily Post and Queen City Mail will still apply at this hearing.

cc: Larry Donovan, Assistant Attorney General



CERTIFICATION

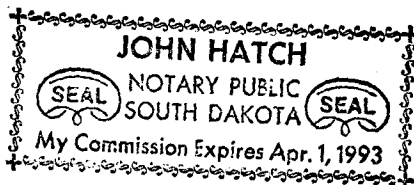
I hereby certify that on January 24, 1989 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Reconsideration of Deferred Vested Right Application No. 1388-1 addressed as shown on the Parties of Record sheet.

Karen Schlaak
KAREN SCHLAAK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 26th day of January, 1989.

John D. Lee
Notary Public



SOUTH Dakota Department of
Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

March 8, 1989

NOTICE

TO: Bowman Ditch
c/o Albert Jeffery
RR 1
Spearfish SD 57783
and Parties of Record (see attached list)

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352 

SUBJECT: Deferral of Vested Right Application No. 1388-1

On March 1, 1989, the Water Management Board allowed Application No. 1388-1 to remain in deferred status to allow collection of additional flow data during the 1989 irrigation season. Application No. 1388-1 will then be rescheduled for consideration by the Board after the 1989 irrigation season. Notice will be given of the time and place of hearing.

cc: Larry Donovan, Assistant Attorney General

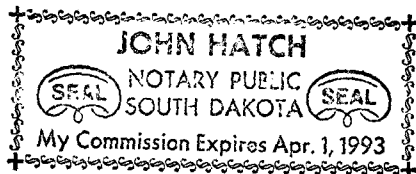
CERTIFICATION

I hereby certify that on March 8, 1989 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Deferral of Vested Right Application No. 1388-1 addressed as stated on the Parties of Record sheet.

Karen Schlaak
KAREN SCHLAACK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 9th day of March, 1989.



John H. Galt
Notary Public



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Bowman - ditch 1388-1

May 4, 1989

James Jennings
RR1, Box 182C
Spearfish, SD 57783

Dear Jim,

Enclosed you will find the diversion rate record forms you requested. I also sent you envelopes you could use to send us the records.

If you have any questions, please contact me.

Sincerely,

M. RASSOOL AHADI
Natural Resources Engineer.
(605) 773-3352





February 22, 1990

To: John Hatch, Chief Engineer
Water Rights Division
Joe Foss Building
523 East Capitol
Pierre, SD 57501

From: Bowman Ditch
R.R. 1 Box 180
Spearfish, SD 57783

Dear John,

Bowman ditch irrigators would appreciate deferral of application No. 4388-1 until March of 1991. This will allow the collection of flow data for the 1990 irrigating season. We will then have three year's data.

After the 1990 irrigating season we would like to meet with you or your representative to determine the amount and rate of flow of water to be allotted to the ditch.

Sincerely yours, *Albert Jeffery*
Phil Kersick Jr.



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

March 1, 1990

NOTICE

TO: Bowman Ditch
c/o Albert Jeffery
RR 1
Spearfish SD 57783
and Parties of Record (see attached list)

FROM: *John Hatch*
John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Reconsideration of Deferred Vested Right Application
No. 1388-1

The Water Management Board will reconsider Vested Water Right Application No. 1388-1 at 10:30 am, March 7, 1990, Roosevelt/Jefferson Room, Howard Johnson's, 2211 LaCrosse Street, Rapid City SD. The agenda time is an estimate. The actual time of hearing may be later than 10:30 am due to prior agenda items. The Board deferred Application No. 1388-1 for one year at the March 2 & 3, 1988 Board meeting to allow collection of flow data during the 1988 irrigation season.

The Chief Engineer is recommending that Application No. 1388-1 remain in deferred status due to dry conditions in 1988 and 1989 and allow collection of additional flow data for another irrigation season. Applicable provisions of the Notice of Hearing published on October 27 and November 3, 1987 in the Belle Fourche Daily Post and Queen City Mail will still apply at this hearing.

cc: John Haak, Assistant Attorney General

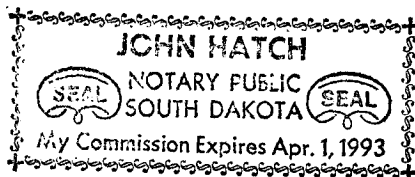
CERTIFICATION

I hereby certify that on March 1, 1990 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice concerning Reconsideration of Deferred Vested Right Application No. 1388-1 addressed as stated on the Parties of Record sheet.

Karen Schlaak
KAREN SCHLAACK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 5th day of March, 1990.



John Batch
Notary Public



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

March 12, 1990

NOTICE

TO: Bowman Ditch
c/o Albert Jeffery
RR 1
Spearfish SD 57783
and Parties of Record (see attached list)

FROM: John Hatch, Chief Engineer *John Hatch*
Water Rights Division
605 773-3352

SUBJECT: Deferral of Vested Right Application No. 1388-1

On March 7, 1990, the Water Management Board allowed Application No. 1388-1 to remain in deferred status to allow collection of additional flow data during the 1990 irrigation season. Application No. 1388-1 will then be rescheduled for consideration by the Board after the 1990 irrigation season. Notice will be given of the time and place of hearing.

cc: John Haak, Assistant Attorney General

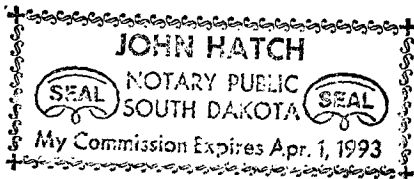
CERTIFICATION

I hereby certify that on March 12, 1990 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice concerning Deferral of Vested Right Application No. 1388-1 addressed as stated on the Parties of Record sheet.

Karen Schlaak
KAREN SCHLAACK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 13th day of March, 1990.



John Bates
Notary Public



Rassool Ahadi
South Dakota Department of Water and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Bowman

Dear Rassool;

The irrigators have approved the diversion rates from Spearfish Creek as follows:

Cook-Burns	17.8 cfs
Kemper	24 cfs
Bowman	8 cfs

I assume you will recommend these diversion rates to your board for approval at their December meeting in Rapid City.

I would appreciate receiving copies of the 1990 diversion rate records for each of the ditches. I also would like a copy of your graph illustrating water useage of cfs by days.

The notice in th Queen City Mail listed Homestake as applying for the time extension relative to the change of point of diversion for the Ramsdell ditch.

Sincerely yours,



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

November 14, 1990

Jim Jennings
RR 1, Box 182C
Spearfish, SD 57783

Dear Jim,

Enclosed please find copies of the diversion rates for Kemper, Cook-Burns, and the Bowman Ditches for the 1990 irrigation season as you requested. Enclosed you will also find copies of the hydrographs for Kemper and Cook-Burns Ditches. Please note that there was not enough data for Bowman Ditch to make a hydrograph for it.

If you have any other questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in dark ink, appearing to read "M. Rassool Ahadi". The signature is written in a cursive, flowing style.

M. RASSOOL AHADI
Natural Resources Engineer
(605)773-3352

enclosures

Handwritten initials or mark

Revised Report on Vested Water Right Application No. 1388-1
Bowman Ditch (Spearfish Creek)
November 20, 1990

Background

The Water Management Board, at the December 2 and 3, 1987 Board meeting in Rapid City, deferred consideration of Application No. 1388-1 to allow collection of flow data for Bowman Ditch during the 1988 irrigation season. The Division of Water Rights had recommended a diversion rate of 6.2 cubic feet of water per second for Bowman Ditch from Spearfish Creek. The ditch company, however, was not satisfied with the Division's recommendation and requested time to collect flow data to establish a diversion rate base for actual water use. Because of the low flow conditions, the ditch company did not believe the data collected during the 1988 irrigation season represented actual conditions. The ditch company requested that collection of flow data be continued during the 1989 and 1990 irrigation seasons.

Discussion

The recommended 6.2 cfs was based on 1.0 cfs for irrigation of 70.0 acres plus 50% water losses due to the method of irrigation and seepage from the ditch.

According to the applicant, the recommended 6.2 cfs diversion rate is not enough to adequately irrigate all of the land. Daily flow records were collected, by the ditch company, for three consecutive irrigation seasons. The maximum diversion rate was recorded to be 10.0 cfs. A diversion rate of 8.0 cfs, however, was diverted most frequently and can be used as the actual maximum diversion rate. The diversion rate of 8.0 cfs is also the amount of water that the applicant has claimed in the application based on Location Notice No. 35871. In the Location Notice, William Bowman located the ditch claiming 400 miner's inches (8.0 cfs) of Spearfish Creek water to be diverted and carried in the ditch.

Conclusions

1. The frequency of a diversion rate of 8.0 cfs during the last three irrigation seasons shows that this rate is the actual maximum diversion rate required.
2. Based on Location Notice No. 35871, the maximum diversion rate claimed by the applicant is 8.0 cfs.

3. The headgate should be controlled in such a manner that the diversion rate does not exceed the recommended rate.
4. Bowman Ditch Company is responsible for maintaining the ditch in its entirety and improvement of the irrigation system so that water losses are kept minimal.
5. Vested Water Right Application No. 1388-1 should be validated for a diversion rate of 8.0 cfs for irrigation of 215.8 acres, as described in Application No. 1388-1, with a priority date of June 11, 1877.
6. The flow measuring device on Bowman Ditch should continue to be maintained and monitored as required by the Chief Engineer.

MR Ahadi

M. RASSOOL AHADI
Natural Resources Engineer II

Approved By:

Delvin D. Brosz

DELVIN D. BROSZ, P.E.
Natural Resources Engineer IV

REVISED RECOMMENDATION OF CHIEF ENGINEER FOR VALIDATION OF
VESTED WATER RIGHT APPLICATION NO. 1388-1, Bowman Ditch

Pursuant to SDCL 46-2A-2, the following is the revised recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Validation of Vested Water Right Application No. 1388-1, Bowman Ditch, c/o Albert Jeffery, RR #1, Spearfish SD.

The Chief Engineer is recommending VALIDATION of Application No. 1388-1 for 8.0 cfs and that the applicable portions of Location Notice No. 35871 be incorporated into No. 1388-1 and the abandoned portions of Notice No. 35871 be cancelled, because 1) water has been appropriated as described for irrigation use with a priority date of June j11, 1877, 2) the use has been developed without unlawful impairment of existing rights, 3) the use is a beneficial use and 4) it is in the public interest with the following qualifications.

1. That Vested Water Right No. 1388-1 is subject to domestic use rights. Diversion of water under Water Right No. 1388-1 is contingent upon supplies being available first to domestic users.
2. That the flow measuring device on Bowman Ditch continue to be maintained and records of diversions be kept and reported to the Chief Engineer annually.

See the attached report for additional information.



JOHN HATCH, Chief Engineer
November 20, 1990

SOUTH Dakota Department of
Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

November 21, 1990

NOTICE

TO: Bowman Ditch
c/o Albert Jeffery
RR 1
Spearfish, SD 57783
and Parties of Record (see attached list)

FROM: John Hatch, Chief Engineer 
Water Rights Division
605 773-3352

SUBJECT: Validation of Vested Right Claim No. 1388-1, Bowman
Ditch

The Water Management Board will consider Validation of Vested Right Claim No. 1388-1 at 9:15 am, December 5, 1990 at the Hilton Inn, Deerfield Room, 445 Mt. Rushmore Road, Rapid City SD. The agenda time is an estimate. The actual time of the hearing may be later than 9:15 am due to prior agenda items. Applicable provisions of the Notice of Hearing published on October 27 and November 3, 1987 in the Belle Fourche Daily Post and October 28 and November 4, 1987 in the Queen City Mail will still apply at this hearing.

The Water Management Board originally deferred Vested Right Claim No. 1388-1 at their December 2 and 3, 1987 meeting to allow collection of flow data for Bowman Ditch. A copy of the revised report and Chief Engineer's revised recommendation are attached.

This hearing is an adversary proceeding. Any person having filed a petition and the Vested Right Claim holder have the right to be represented by a lawyer. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and the State Supreme Court as provided by law.

cc: John Haak, Assistant Attorney General

attachment

CERTIFICATION

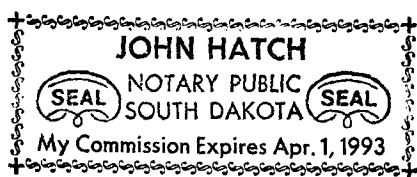
I hereby certify that on November 21, 1990 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Validation of Vested Right Claim No. 1388-1, Bowman Ditch addressed as stated on the Parties of Record sheet.

Maria R Arthur

Marie R. Arthur
Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 27th day of November, 1990.



John Hatch
Notary Public



DEPARTMENT OF WATER & NATURAL RESOURCES

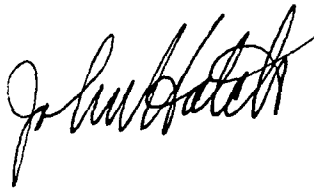
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

GREAT FACES. GREAT PLACES.

December 11, 1990

NOTICE

TO: Albert Jeffery
Bowman Ditch
RR 1
Spearfish, SD 57783
(and Parties of Record)

FROM: John Hatch, Chief Engineer 
Water Rights Division
605 773-3352

SUBJECT: Preparation of Findings of Fact, Conclusions of Law and
Final Decision

The Water Management Board has directed John Guhin, the Board's attorney to prepare proposed Findings of Fact, Conclusions of Law and a Final Decision on validation of Vested Right Application No. 1388-1. The Board will consider the proposed Findings, Conclusions and Final Decision at 1:00 pm, Meeting Room, Governor's Inn, 700 W Sioux, Pierre, SD. The agenda time is an estimate. The actual time of consideration may be delayed due to prior agenda items.

The Board has requested that a copy of the proposed Findings, Conclusions and Final Decision be mailed to each Board member and all Parties of Record (copy enclosed) by February 7, 1991. Any comments pertaining to the proposed Findings, Conclusions and Decision are to be mailed to each Board member, the Board attorney and all Parties of Record by February 18, 1991.

The public hearing was completed December 5, 1990. No additional testimony will be received on February 27, 1991.

cc: John Guhin, Deputy Attorney General
John Haak, Assistant Attorney General

CERTIFICATION

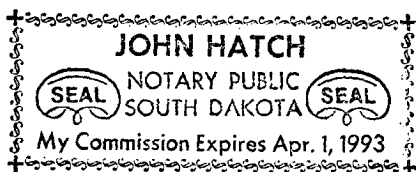
I hereby certify that on December 11, 1990, I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice regarding Vested Right Application 1388-1 addressed as stated on the Notice.

Jaci Konop

JACI KONOP
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 13th day of December, 1990.



John H. H. H.
Notary Public



DEPARTMENT OF WATER & NATURAL RESOURCES

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

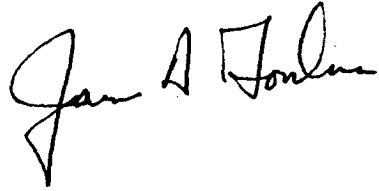
January 23, 1991

AMENDED NOTICE

TO: Albert Jeffery
Bowman Ditch
RR 1
Spearfish, SD 57783
(and Parties of Record)

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Preparation of Findings of Fact, Conclusions of Law and
Final Decision for Vested Right Claim No. 1388-1



The Notice of December 11, 1990, failed to include the date of the Water Management Board meeting at the Governors Inn in Pierre. This Amended Notice is to advise the parties that the Board will consider Findings of Fact, Conclusions of Law and Final Decision at 1:00 pm, February 27, 1991, Meeting Room, Governors Inn, 700 W Sioux, Pierre, SD.

Applicable provisions of the Notice of Preparation of Findings of Fact, Conclusions of Law and Final Decision dated December 11, 1990, will still apply at this time.

cc: John Guhin, Deputy Attorney General
John Haak, Assistant Attorney General

CERTIFICATION

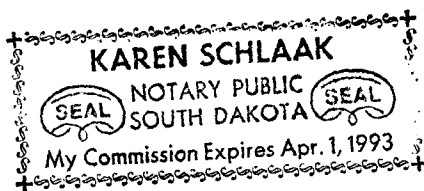
I hereby certify that on January 23, 1991, I have personally deposited with the U.S. Mail postage prepaid envelopes containing an Amended Notice regarding Vested Right Application 1388-1 addressed as stated on the Amended Notice.

Jaci Konop

JACI KONOP
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 23rd day of January, 1990.



Karen Schlaak
Notary Public

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE VALIDA-	)	FINDINGS OF FACT,
TION OF VESTED WATER RIGHT	)	CONCLUSIONS OF LAW
APPLICATION NO. 1388-1,	)	AND FINAL DECISION
BOWMAN DITCH	)	

FINDINGS OF FACT

I

This is an application by Bowman Ditch to validate a vested water right for 8.0 cfs of Spearfish Creek water to irrigate 215.8 acres of land in Lawrence County, with a claimed priority date of June 11, 1877.

II

The 215.8 acres have been continuously irrigated pursuant to South Dakota law.

III

The ditch company claimed a diversion rate of 8.0 cfs; the original recommendation of the Department was for 6.2 cfs. The Board, after hearing in 1987, required additional data, and data from 1988 through 1990 has been collected and presented to the Board.

IV

The ditch company demonstrated, to the satisfaction of the Board, that the claimed diversion rate of 8.0 cfs is justified.

V

Several factors combine to justify this conclusion and the diversion rate of 8.0 cfs. First, the actual use of

water at the 8.0 cfs rate was reasonably frequent during the three-year period of data collection ordered by the Board; this established a reasonable historical foundation for the claimed diversion rate.

VI

Second, the type of irrigation used and the nature of the soil and water in the area justify the diversion rate of 8.0 cfs. The type of irrigation now used in the area is flood irrigation, the same type of irrigation used under this claimed right for more than 100 years. The soils in the area are sandy and are underlain by gravel. When water travels over these lands slowly and at a low diversion rate, it tends to be absorbed quickly and does not reach the end of a large field until the soil near the diversion point is highly saturated. If, on the other hand, a higher rate of diversion is allowed, the water moves more speedily and the water will not be so easily absorbed and will reach the end of the field more quickly. The result is that the allowance of a higher diversion rate, if properly monitored, will result in more efficient use of water.

VII

Third, the Board finds that the hydrology of the area is conducive to the return of excess flows to the stream and to the support of springs in the area. In practical terms, therefore, the allowance of a greater diversion rate does not mean that a greater amount of water is lost to the hydrologic system of the area.

VIII

The Board finds that the opponent of the right failed to show a significant adverse effect from recognition of this right on fish and wildlife. The diversion is from a cold water fishery, Spearfish Creek, but it is also near the point at which that creek empties into Redwater Creek. No portion of the stream which is in the Black Hills National Forest will be affected by the diversion. Moreover, at no time during the three-year study did the irrigators dry up the creek. In addition, the opponent of the right failed to demonstrate that there was any significant public access to Spearfish Creek below the point of diversion of the ditch company. Finally, the recharge of springs caused by the irrigation itself provides positive wildlife benefits, including the support of wetlands.

CONCLUSIONS OF LAW

I

The Board has jurisdiction of this matter.

II

The amount of water provided for in the Final Decision has been appropriated for irrigation use since June 11, 1877.

III

The use has been developed without unlawful impairment of existing rights.

IV

The use for irrigation is a beneficial use.

V

SRCL 46-5-6 is not applicable to this claimed right because the claimed right predates the passage of the act in 1907.

VI

The use is in the public interest as qualified in the Final Decision.

FINAL DECISION

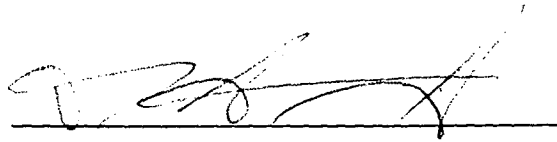
The application for validation of Vested Water Right No. 1388-1, Bowman Ditch, is approved for 8.0 cfs with a priority date of June 11, 1877, with the qualifications set out below. The applicable portions of Location Certificate No. 35871 are incorporated into No. 1388-1, and the abandoned portions of Location Certificate No. 35871 are cancelled.

1. That Vested Right No. 1388-1 is subject to domestic use rights. Diversion of water under Water Right No. 1388-1 is contingent upon supplies being available first to domestic users.
2. That the flow measuring device on Bowman Ditch continue to be maintained and records of diversions be kept as directed by the

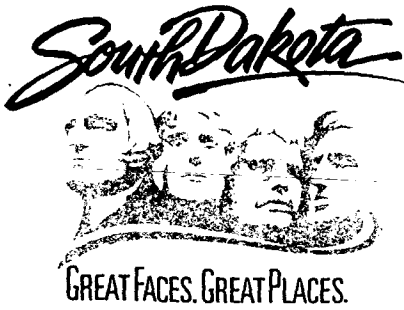
Chief Engineer and reported to the Chief
Engineer annually.

Dated this 8th day of March, 1991.

BY THE BOARD:

A handwritten signature in dark ink, consisting of several loops and a long horizontal stroke, positioned above a solid horizontal line.

d-pld207.jpg



DEPARTMENT OF WATER & NATURAL RESOURCES

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

March 12, 1991

NOTICE

TO: Albert Jeffery
Bowman Ditch
RR 1
Spearfish, SD 57783
(and Parties of Record)

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Adoption of Findings of Fact, Conclusions of Law and
Final Decision

This is to notify you that a Final Decision, including Findings of Fact, Conclusions of Law were adopted by the Water Management Board for Vested Right Application No. 1388-1 which was considered at the February 27, 1991, meeting.

A copy of the signed final Decision, Findings and Conclusion is enclosed for the applicant. Copies will be furnished to anyone else upon request. South Dakota Statutes provide that the decision of the Board may be appealed to the Courts.

cc: Diane Best, Assistant Attorney General

CERTIFICATION

I hereby certify that on March 12, 1991, I have personally deposited with the U.S. Mail, postage prepaid envelopes containing a Notice regarding Adoption of Findings of Fact, Conclusions of Law and Final Decision on Vested Right Application No. 1388-1 addressed as stated on the Notice.

Jaci R Konop

JACI R. KONOP
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 13th day of March, 1991.



John Hatch
Notary Public



DEPARTMENT OF WATER & NATURAL RESOURCES

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

GREAT FACES. GREAT PLACES.

APR 25 1991

1388-1

Albert Jeffery
Bowman Ditch
RR 1
Spearfish, SD 57783

Dear Mr. Jeffery:

Enclosed are your Validated Vested Water Right and Water License No. 1388-1. As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water.

Very truly yours,

A handwritten signature in cursive script, appearing to read "John Hatch".

JOHN HATCH, Chief Engineer
Water Rights Division
(605) 773-3352

enclosures



DEPARTMENT OF WATER & NATURAL RESOURCES

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

1388-1

May 6, 1991

TO: Spearfish Creek Water Right Owners
(See Attached List With Priority Dates)

FROM: John Hatch, Chief Engineer
Division of Water Rights
(605) 773-3352

SUBJECT: Diversions from Spearfish Creek

If drought conditions continue in the Black Hills area during 1991, we expect another irrigation season with very low flows in Spearfish Creek. As I understand it, during the 1990 irrigation season, there were short periods of time when there were no flows in Spearfish Creek at different locations.

I believe that a short reach of the creek channel below Cook Ditch's diversion received the most attention from the news media. Although state law does not require instream flows for fish and wildlife and aesthetic purposes, state law does give preference to water for domestic use which includes livestock watering.

We would like to work with you to maintain minimum flows in the creek for domestic use during 1991. Maintenance of minimum flows should reduce news media attention to Spearfish Creek.

If you have any questions, please contact Del Brosz or Rassool Ahadi, Division of Water Rights, 523 E. Capitol, Pierre, SD 57501. Phone: (605) 773-3352

cc: Representative Harvey Krautschun

SPEARFISH CREEK WATER RIGHTS

PERMIT NO.	NAME	PRIORITY DATE	RATE (CFS)
*43-1	Homestake Mining Co	01/04/1909	100.00
138-1	City of Spearfish	11/12/1917	0.50
141-1	City of Spearfish	03/01/1919	1.10
148-1	City of Spearfish	01/27/1930	1.50
150-1	City of Spearfish	01/27/1930	1.00
+1041-1	US Bur Sport & Fish	02/19/1937	6.66
X1385-1	Homestake Mining Co	10/01/1876	1.67
1386-1	Walton-Schuler Ditch	03/20/1887	8.50
1387-1	Tonn-Evans Ditch	05/01/1876	14.40
1388-1	Bowman Ditch	06/11/1877	8.0
1389-1	Cook Ditch	06/10/1877	21.60
1392-1	Mann Ditch	03/21/1878	1.45
1394-1	Kemper Ditch	07/31/1881	33.00
1399-1	Cook-Burns Ditch	06/15/1881	33.0
1400-1	Owens-Gay Ditch	03/01/1877	1.74
1403-1	Ramsdell Ditch	10/01/1876	2.00
1416-1	Richard Cundy	04/01/1920	0.20

* - Power Generation, non-consumptive

+ - Fish Hatcher in City of Spearfish

X - For municipal use, City of Spearfish

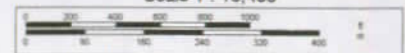
Bowman Ditch

Don Stroup
 OD DENR WR
 Donald E. Stroup
 9/25/05

Weir
 N44.57984°
 W103.89557°

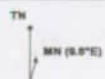
Diversion Point
 N44.57713°
 W103.89509°

Scale 1 : 10,400



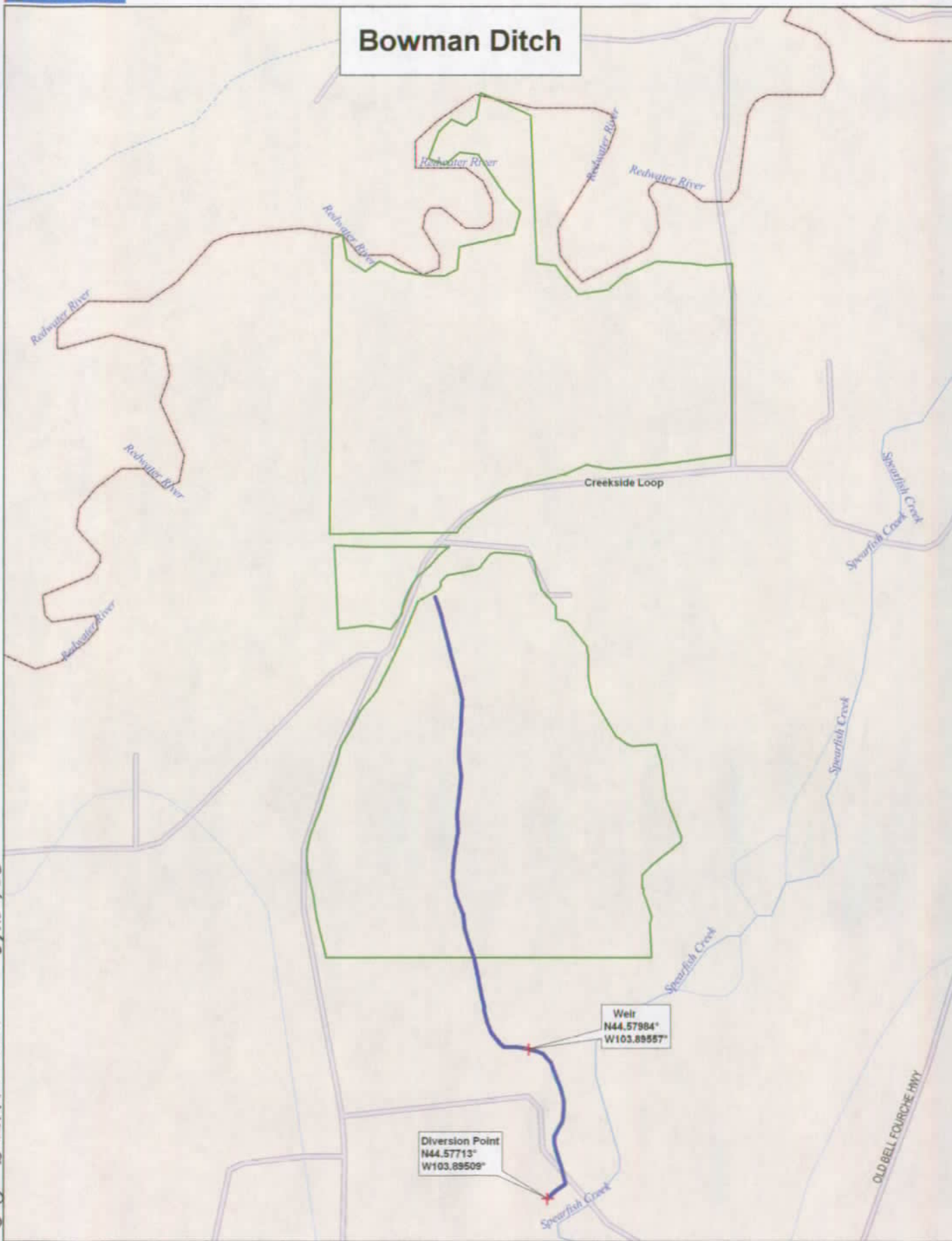
1" = 866.7 ft

Data Zoom 14-3



#1388-1

Bowman Ditch



Don Stropf
SD DENR WR
R. Arnold
3/25/05 Stamp

Rassool Ahad
WNR Engineer

Upper Power Canal

54
89

Bowman Ditch

Rassool Ahad

NRE

VR Appl No

1388-1

89

SPEARFISH CREEK IRRIGATION DITCHES - CONTACT INFORMATION

Updated 7/8/14

1392-1	<table><tr><td>MANN DITCH</td></tr><tr><td>Edgar Burr</td></tr><tr><td>209 Evans Ln</td></tr><tr><td>Spearfish, SD</td></tr><tr><td>605-642-7963</td></tr></table>	MANN DITCH	Edgar Burr	209 Evans Ln	Spearfish, SD	605-642-7963	<table><tr><td>COOK DITCH</td></tr><tr><td>Mike McGuigan</td></tr><tr><td>2350 Dairy Ln</td></tr><tr><td>Spearfish, SD</td></tr><tr><td>605-641-2052</td></tr></table>	COOK DITCH	Mike McGuigan	2350 Dairy Ln	Spearfish, SD	605-641-2052	1389-1	
MANN DITCH														
Edgar Burr														
209 Evans Ln														
Spearfish, SD														
605-642-7963														
COOK DITCH														
Mike McGuigan														
2350 Dairy Ln														
Spearfish, SD														
605-641-2052														
1403-1	<table><tr><td>RAMSDELL DITCH</td></tr><tr><td>Mike Kyte</td></tr><tr><td>1121 N. Main St.</td></tr><tr><td>Spearfish, SD</td></tr><tr><td>605-642-4932</td></tr></table>	RAMSDELL DITCH	Mike Kyte	1121 N. Main St.	Spearfish, SD	605-642-4932	<table><tr><td>SPRING BRANCH DITCH</td></tr><tr><td>Ross Delzer</td></tr><tr><td>19481 US Hwy 85</td></tr><tr><td>Belle Fourche, SD</td></tr><tr><td>605-642-3778</td></tr></table>	SPRING BRANCH DITCH	Ross Delzer	19481 US Hwy 85	Belle Fourche, SD	605-642-3778	1424-1	
RAMSDELL DITCH														
Mike Kyte														
1121 N. Main St.														
Spearfish, SD														
605-642-4932														
SPRING BRANCH DITCH														
Ross Delzer														
19481 US Hwy 85														
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DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

September 8, 2017

Phil Kissack
Bowman Ditch
19460 Creekside Loop
Spearfish, SD 57783

Bowman Ditch, Vested Water Right No. 1388-1

Dear Mr. Kissack:

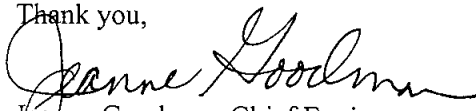
The hydroelectric facility that diverts Spearfish Creek flow near Maurice for power generation is undergoing construction activity. Specifically the city will be replacing the existing redwood penstock located above the hydro plant in the area between the forebay pond and the standpipe structure. This will result in a staged bypass into the natural creek channel at the Maurice dam. There will be a short period when all diversion into the hydro plant's tunnel will cease and the creek will flow freely below Maurice resulting in reduced flows in the creek downstream from the hydro generating plant near the city park.

A bypass at the Maurice dam of 20 cubic feet of water per second into the natural creek channel will begin approximately September 14, 2017. Total bypass into the natural creek channel will occur later in the month with a contractor scheduled completion date of October 3, 2017. While this will likely result in a temporary reduced flow, the city's goal is to keep water flowing through Spearfish and downstream areas without interruption.

While the irrigation season is winding down there are likely Spearfish Creek irrigation ditches still operating from the creek. Please notify others on your ditch of the potential temporary reduction of flow in Spearfish Creek through September to early October. We all know Spearfish Creek is a valuable resource to the area for irrigation, domestic use, aesthetics, and the fishery. As this construction project progresses DENR asks that everyone be mindful to maintain minimum flows in Spearfish Creek from Spearfish to the Redwater River to protect the resource.

If you have any questions please contact either Eric Gronlund of my staff at (605) 773-3352 or Cheryl Johnson, Spearfish Public Works Director at (605) 642-1333.

Thank you,


Jeanne Goodman, Chief Engineer
Water Rights Program

1392-1, 1403-1, 1386-1, 1388-1,
1389-1, 1424-1, 1399-1, 1394-1,
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SPEARFISH CREEK IRRIGATION DITCHES - CONTACT INFORMATION

Updated 7/8/14

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