

RECEIVED

MAY 01 1996

Department of Water Resources
IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO,
IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION
OF RIGHTS TO THE USE OF WATER FROM
THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: A43-11147
Date Received: 4/11/1996
Receipt No: 5019081
Received By: KKC

NOTICE OF CLAIM TO A WATER RIGHT
ACQUIRED UNDER STATE LAW

1. Name: PAUL A WARD 208-638-5526
Address: HC 61 BOX 1335
ELBA ID 83342

AND/OR

Name: BEVERLY WARD 208-638-5526
Address: HC 61 1335
ELBA ID 83342

2. Date of Priority: OCT 19, 1928

3. Source: SPRINGS Trib. to: SINKS

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
13S	24E	25	NE	SE	NW		CASSIA
			NW	SE	NW		CASSIA

5. Description of diverting works:
CONTOUR DITCH CUTTING ACROSS SPRING CHANNELS

6. Water is used for the following purposes:

Purpose	From	To	C.F.S.	(or)	A.F.A.
IRRIGATION	04/01	10/31	0.300		

7. Total Quantity Appropriated is:
0.300 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:

10. Place of Use:

Township	Range	Section	1/4 of	1/4	Lot	Use	Acres
13S	24E	25	SW	NE		IRR	5.0
			SE	NW		IRR	10.0
Section Acres							15.0
Total Acres							15.0

11. Place of use in counties: CASSIA

12. Do you own the property listed above as place of use? YES

13. Other Water Rights Used:

14. Remarks:

15. Basis of Claim: BENEFICIAL USE

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do _____ do not _____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.

Number of attachments: _____

For Individuals:

I/We do solemnly swear or affirm that the statements contained in the foregoing document are true and correct.

Signature of Claimant(s): Saul A. Ward Date: 4/29/96
Beverly Hard Date: 4/29/96

State of Idaho)
County of Cassia) SS.

Subscribed and sworn (or affirmed) before me this 29th day
of April 19 96

Barbara Andersen
Notary Public

Seal

Residing at Albion, Id

My Commission Expires 7-23-99



State of Idaho

DEPARTMENT OF WATER RESOURCES

Southern Region, 222 Shoshone St. East, Twin Falls, Idaho 83301-6105 (208) 736-3033
Fax (208) 736-3037

PHILIP E. BATT
Governor

KARL J. DREHER
Director

May 1, 1996

PAUL A WARD
HC 61 BOX 1335
ELBA ID 83342

RE: SNAKE RIVER BASIN ADJUDICATION CLAIM A43-11147

Dear Mr Ward

Enclosed is your copy of the above listed claim and the receipt.
Please review this claim to verify that the data is correct.

I plan on going to the Elba area next week, weather permitting. When
I set a date I will contact you.

Sincerely

Kelly K Christensen
Sr Water Resource Agent

Enclosures

RECEIVED

Date Received

RECEIVED

RECEIVED

APR 17 1996

State of Idaho

APR 11 1996

APR 15 1996

Department of Water Resources
Southern Region

REQUEST FOR EXTENSION OF TIME
TO FILE ADJUDICATION CLAIM(S)

Department of Water Resources
Southern Region

Department of Water Resources

The Idaho Department of Water Resources will consider this form as a request by the claimant for an additional period of time in which to file claim(s) beyond the 90 days allowed by Section 42-1409(10), Idaho Code.

Name of Claimant Paul A. Ward & Beverly Ward RO# 63815526
Phone Number
Mailing Address HCLL BX 1335 Elba City Id State 83342 Zip
County(s) where place of use is located Cassia Date claim originally due

Identify water right(s) for which extension is requested

State why an extension of time is requested explaining how a diligent effort has been made to meet the deadline:

My father did not file on these
springs, so we are filing on them.

Claimant requests an extension to May 11, 19 96
Signature Saul A. Ward Date of request Apr 11, 19 96
Title Owner

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

The above request for extension of time is hereby [☒ granted] [☐ denied] for the following reasons:

other claims were timely filed, except claims and
wave late fee.

and if granted the filing deadline is extended to May 11, 19 96

Signed this 15 day of April, 19 96

Director or his designated agent
David B. Shaw
Adjudication Bureau Chief

Mail to: Idaho Department of Water Resources
1301 N. Orchard St.
Boise, ID 83706



State of Idaho

DEPARTMENT OF WATER RESOURCES

Southern Region, 222 Shoshone St. East, Twin Falls, Idaho 83301-6105 (208) 736-3033
Fax (208) 736-3037

PHILIP E. BATT
Governor

KARL J. DREHER
Director

April 25, 1996

PAUL A WARD
HC 61 BOX 1335
ELBA ID 83342

RE: LATE CLAIM A43-11147

Dear Paul

Enclosed is your claim form for the spring. Please sign and have your signature notarized and then return the claim to this office with the required \$65.00 filing fee.

If you have any questions please call this office.

Sincerely

Kelly K Christensen
Sr Water Resource Agent

Enclosures

6/9/94

COMMUNICATION DOCUMENTATION

This form is to be used to document public record information requests regarding any SRBA claim or claims. The form may also be used to document IDWR communications requesting information regarding any SRBA claim or claims when the request is not made in writing or the claim verification report is not readily available to document the request. This form is to be filed in all relevant claim files or a central office file.

IDWR Employee/Agent Kelly K Christensen

DATE

April 25, 1996 8:10am

CUSTOMER

PAUL WARD

SUBJECT: FILING A43-11147

phone call (X) walk-in (.)

He received the approved extension of time to file a late claim and requested that I mail him a copy of the claim for him to sign and have notarized. I said that I would.

**NOTICE OF ERROR
REPLY**

Please type or print clearly, fill out this form completely and mail.

Return this reply form to IDWR by the deadline date printed below if you want IDWR to change your recommendation or you want to let IDWR know that you agree with its recommendation.

YOUR DEADLINE FOR RETURNING A NOTICE OF ERROR REPLY IS: June 15, 2001

Water right number: 43-11147

BEVERLY WARD
PO BOX 444
ELBA ID 83326
Telephone Number: (208)638-5526

PAUL A WARD
PO BOX 444
ELBA ID 83326
Telephone Number: (208)638-5526

RECEIVED

JUN 04 2001

Department of Water Resources
Southern Region

1. Describe the portion of the proposed recommendation with which you disagree (e.g. priority date, period of use, source):

2. Describe the changes you wish to make in the proposed recommendation:

3. Give a brief explanation as to why you disagree with these portions:

☒ I AGREE with this proposed recommendation: no changes need to be made.

DATE:

5/31/01

SIGNATURE:

Paul A. Ward

Please print your name:

Paul A. Ward

IDWR Regional Office, 1341 Fillmore St, Suite 200, Twin Falls, ID 83301, 2087363033



State of Idaho

DEPARTMENT OF WATER RESOURCES

1341 Fillmore Street, Suite 200, Twin Falls ID 83301-3380

Phone: (208) 736-3033 FAX: (208) 736-3037

SOUTHERN REGION

DIRK KEMPTHORNE
Governor

KARL J. DREHER
Director

June 6, 2001

PAUL A WARD
BEVERLY W WARD
1960 S ELBA/ALMO RD
ELBA ID 3342

RE: Snake River Basin Adjudication (SRBA)
Notice of Claim No. 43-200, 43-205, 43-241,
43-328, 43-329, 43-330, 43-331, 43-474, 43-2337,
43-10176, 43-10177, 43-10619, 43-10620, 43-11147
Change of Address Notification

Dear Claimant(s):

Thank you for notifying us of your change in
Address on the water right claim(s) referenced above.
Our records have been updated accordingly.

If you have any questions, please feel free to
contact this office.

Sincerely,

Trish Fawcett
Technical Records Specialist

/tf



IDAHO DEPARTMENT OF WATER RESOURCES
SOUTHERN REGION
1341 FILLMORE ST STE 200
TWIN FALLS ID 83301-3380
(208) 736-3033

DIRK KEMPTHORNE
GOVERNOR

KARL J DREHER
DIRECTOR

RECEIVED

MAY 31 2001

Department of Water Resource
Southern Region

CHANGE IN ADDRESS

☐ Water Right Number(s): 43-331, 43-330, 43-329, 43-328.

43-205, 43-200, 43-10176, 43-2337

43-10177, 10620, 11147, -241, -474

☐ Old Mailing Address:

PO Box 444

Elba

☐ New Mailing Address:

Paul A Ward

Beverly W Ward.

1960 S Elba / Almo Rd Elba 83342

☐ New Telephone Number: (208) 638 - 5526

☐ Signature of Claimant(s): x Paul A. Ward

Date:

FOR IDWR USE ONLY

Initial Review and Data Entry

Date: By:

Further Action Needed:

Further Action Taken

Date: By:

Final Review and Data Entry

Date: 5/31/01 By: [Signature]

02/07/2001

IDAHO DEPARTMENT OF WATER RESOURCES
PRELIMINARY RECOMMENDATION OF WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 43-11147

NAME AND ADDRESS: BEVERLY WARD
PAUL A WARD
HC 61 BOX 1335
ELBA, ID 83342

VERIFIED BY KKC

SOURCE: SPRINGS

TRIBUTARY: SINKS

QUANTITY: 0.3 CFS

PRIORITY DATE: 10/19/1928

POINT OF DIVERSION: T13S R24E S25 NESENW Within CASSIA County
T13S R24E S25 NWSNW Within CASSIA County

PURPOSE AND
PERIOD OF USE:

<u>PURPOSE OF USE</u>	<u>PERIOD OF USE</u>	<u>QUANTITY</u>
IRRIGATION	4-01 10-31	0.30 CFS

PLACE OF USE:

<u>IRRIGATION Within CASSIA County</u>					
T13S R24E S25	SWNE	18	T13S R24E S25	SENE	11
T13S R24E S25	SWNW	4.9	T13S R24E S25	SENW	31
T13S R24E S25	NESW	6.9	T13S R24E S25	NESE	15
T13S R24E S25	NWSE	14			

100.8 ACRES TOTAL

THIS RIGHT IS LIMITED TO THE IRRIGATION OF 15 ACRES WITHIN
THE PLACE OF USE DESCRIBED ABOVE IN A SINGLE IRRIGATION
SEASON. USE OF THE RIGHTS LISTED BELOW IS LIMITED TO THE
IRRIGATION OF A COMBINED TOTAL OF 100.8 ACRES IN A SINGLE
IRRIGATION SEASON COMBINED RIGHT NOS.: 43-00241 AND 43-11147

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS
NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE
EFFICIENT ADMINISTRATION OF THE WATER RIGHTS AS MAY BE
ULTIMATELY DETERMINED BY THE COURT AT A POINT IN TIME NO LATER
THAN THE ENTRY OF A FINAL UNIFIED DECREE. SECTION 42-1412(6),
IDAHO CODE.
PROPERTY IS ALSO KNOWN AS HOMESTEAD ENTRY SURVEY NO. 104

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

AJ0743NP
(00-124)

IDAHO DEPARTMENT OF WATER RESOURCES
ADJUDICATION CLAIMS PROOF READING REPORT
(REGIONAL)

01/04/00 14:00:20
Page 1

Water Right Number - R43-11147

Prefix Translation: RESEARCH

Old (D) Number -

*** C - CURRENT OWNER ***
WARD

PAUL A

VERIFIED BY *[Signature]*
1-4-00

WARD

BEVERLY

1 - HC 61 BOX 1335
2 -
3 -
City- ELBA
Phone - 208-638-5526
1 - HC 61 1335
2 -
3 -
City- ELBA
Phone - 208-638-5526

State- ID Zip- 83342
State- ID Zip- 83342

Priority Date - - - +
10/19/1928

Region - - - +
17 SOUTHERN

Stage - - - +
J - BENEFICIAL USE

Status - - - +

Source - - - +
SPRINGS

Tributary - - - +
SINKS

TwN Rng Sec Tract Lot Rflg County Point of Diversion
13S 24E 25 NE SE NW (31) CASSIA
NW SE NW (31) CASSIA

Code	Description	Period From	Period To	Water Use	Diversion Rate	Diversion Volume
01 - IRRIGATION		04/01	10/31		0.300	

+ - Total Div. Rate - + + - Total Div. Volume - + + - Total Consumptive Use - + + - KW Usage - +
0.300 0.0

TwN	Rng	Sec	Tract	Lot	Acres	Place of Use	Code	Description	County
13S	24E	25	SW NE		18.0	01	IRRIGATION		(31) CASSIA
13S	24E	25	SE NE		11.0	01	IRRIGATION		(31) CASSIA
13S	24E	25	SW NW		4.9	01	IRRIGATION		(31) CASSIA
13S	24E	25	SE NW		31.0	01	IRRIGATION		(31) CASSIA
13S	24E	25	NE SW		6.9	01	IRRIGATION		(31) CASSIA
13S	24E	25	NE SE		15.0	01	IRRIGATION		(31) CASSIA
13S	24E	25	NW SE		14.0	01	IRRIGATION		(31) CASSIA

Total Acres: 100.8

+ - - Diversion Means - CONTOUR DITCH CUTTING ACROSS SPRING CHANNELS
+ - - Non-Irrigation Use -
+ - - Other Rights for Same Use -

Prefix Translation: RESEARCH

POU1 THIS RIGHT IS LIMITED TO THE IRRIGATION OF 15 ACRES WITHIN THE PLACE OF USE DESCRIBED ABOVE IN A SINGLE IRRIGATION SEASON. USE OF THE RIGHTS LISTED BELOW IS LIMITED TO THE IRRIGATION OF A COMBINED TOTAL OF 100.8 ACRES IN A SINGLE IRRIGATION SEASON. COMBINED RIGHT NOS.: 43-00241 AND 43-11147.

PROPERTY IS ALSO KNOWN AS HOMESTEAD ENTRY SURVEY NO. 104.

C16 - THE FOLLOWING WATER RIGHTS FROM THE FOLLOWING SOURCES OF WATER
- IN BASIN 72 SHALL BE ADMINISTERED SEPARATELY FROM ALL OTHER WATER
- RIGHTS IN BASIN 72:

- THE FOLLOWING WATER RIGHTS FROM THE FOLLOWING SOURCES OF WATER
- IN BASIN 72 SHALL BE ADMINISTERED SEPARATELY FROM ALL OTHER WATER
- RIGHTS IN THE SNAKE RIVER BASIN:
- WATER RIGHT NO. SOURCE

- ALL WATER RIGHTS WITHIN BASIN 72 ARE FROM CONNECTED SOURCES
- OF WATER IN THE SNAKE RIVER BASIN AND SHALL BE ADMINISTERED CONJUNCTIVELY.
- THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS

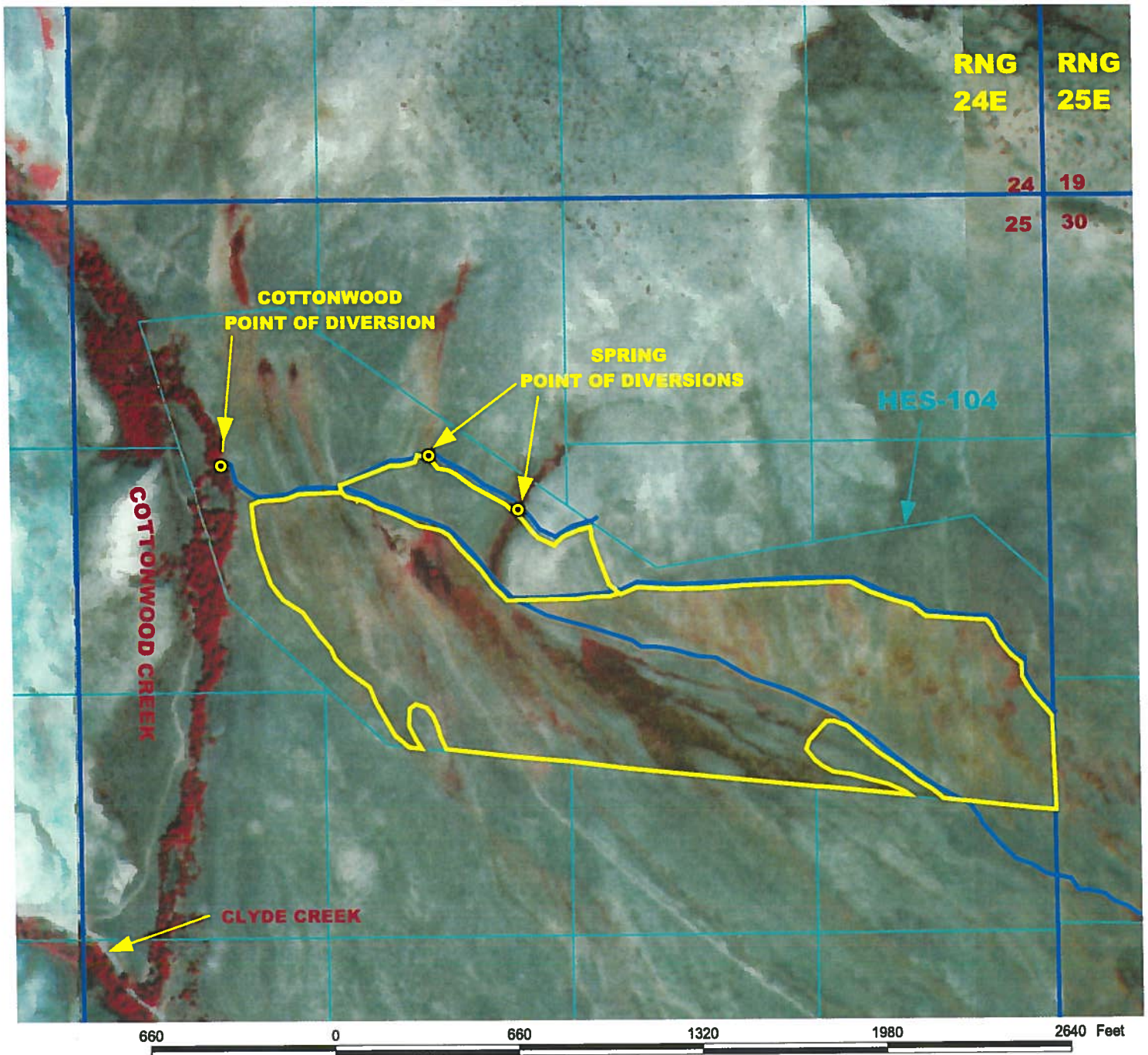
- THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS
- NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT
- ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY
- DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE
- ENTRY OF A FINAL UNIFIED DECREE, SECTION 42-1412(6) IDAHO CODE

+ - - - - Comments - - - - -
No Comments Found

40/00/10 KCHRISTE

Court Report Filing	- 00/00/0000	Field Inspection Made	- 09/07/1994	Civil Case Number	- 39516
Objection Filed Date	- 00/00/0000	Field Inspection Flag	-	Old Case Number	-
Response Filed Date	- 00/00/0000	Verified Date	-	Old Judicial District	-
Claim Received Date	- 05/01/1996	Last Amended Date	- 00/00/0000	Temporary Right	- P
		Receipt Number	- S019081	Water District	-
		POU Ownership Flag	- Y	Federal/State Indicator	- S
		Name Connector	- AND/OR	Presumption Flag	-
				Notice of Error Flag	-

RECOMMENDED PLACE OF USE FOR 43-00241 AND 43-11147



PLACE OF USE
TWP 13S RNG 24E, SEC 25
data entry on: JANUARY 4, 2000

GIS PLACE OF USE PRESENTATION
1987 AND/OR 1988 NAPP PHOTOGRAPHY
DATA ENTRY BY KELLY K CHRISTENSEN

-  **POINT OF DIVERSION**
-  **PLACE OF USE**
-  **SECTION LINES**
-  **QUARTER/QUARTER LINES**

CASSIA CO.



CLAIM NUMBER A43-00241 DATE 1-3-00 HES-104
A43-11147 AGENT KKC TRANSFER NUMBER
 CLAIMED ACRE TOTAL
 GIS ACRE TOTAL 100.8

Claimed	TWP	RNG	SEC	NE				NW				SW				SE				
				NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
00241	13S	24E	25			25	24	9	12	12	37	9				13	19			166
11147			25			5					10									15
FOUND P/U - GIS																				
00241	13S	24E	25			162	106			4.9	22.3	6.9				14.8	13.8			89.5
11147			25			1.5					9.1									10.6
						18	11			4.9	31	6.9				15	14			100.8
CLAIM																				
GIS																				
RECOM																				

B43-DBPOU.SHP
 SHAPE NOS.
49
50
 The claimed and found P/U for SWNE, 5 for each claim represent independent acres and therefore additive to find the total irrigated place of use for the two claims combined.

43-DBPOD.SHP
 NOS. DESCRIPTION
 33 Sec 25 NESW Cottonwood Cr
 34 Sec 25 NWSESW West Spring
 35 Sec 25 NESESW EAST Spring
 Water from the 2 springs can be diverted to the 10.6 Ac found for 43-11147. This water also does flow into the Cottonwood ditch (43-00241) and can reach a majority of the same P/U found for 43-00241. The spring water cannot reach a portion of W 1/2 NW 1/4 & SE NW of Sec 25. As the water from the springs is commingled at times with Cottonwood water and used on the P/U for 43-00241 I am recommending these two rights within a P/U. Cottonwood water cannot reach the 10.6 acres found for 43-11147 and is therefore limited to 89.5 acres within the 100.8 recommended.

DBF TABLES UPDATED
 B43-DBPOU.DBF
 B43-DBPOD.DBF
 PEG LAYOUT
 { 43-00241 and Cottonwood P/D Shared by multiple Rights.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
ADJUDICATION CLAIM VERIFICATION REPORT

14:50:07
04/19/99

PAGE: 15
QUICKLOOK INFORMATION

67
CLAIM NUMBER: A43-11147

WR ELEMENT	DATA DISCREPANCY Y/N	CORRESPONDENCE SENT/RECEIVED BY WHOM/DATE	FIELD EXAM BY WHOM/DATE	CHANGE CLAIM Y/N	ELEMENT DOCUMENTED WHOM/DATE	COMPLETED REVIEW WHOM/DATE	COMPLETED DATA ENTRY WHOM/DATE	VERIFIED DATE WHOM/DATE
PRIORITY DATE	Y		KKC 9-7-94	N	KKC 01-03-00	KKC 1-4-00	KKC 1-4-00	
POINT OF DIV	Y		"	N	"			
SOURCE	Y		"	N	"			
PLACE OF USE	Y		"	Y	" 1-4-00			
DIV. AMOUNT CFS/VOLUME	Y		KKC-CB 11-29-99	N	KKC 1-4-00			
CONSUMPTIVE USE	-		-	-	-			
PURPOSES OF USE			KKC 9-7-94	N	"			
PERIOD OF USE	Y		"	N	"			
BASIS OF CLAIM	Y		"	N	"			
REMARKS			"	Y	"			

BARCODE UPDATED
WHOM/DATE

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
ADJUDICATION CLAIM VERIFICATION REPORT

14:50:07
04/19/99

PAGE: 1
GENERAL INFORMATION

53
CLAIM NUMBER: A43-11147

LAST: WARD FIRST: PAUL A
ADDRESS: HC 61 BOX 1335
CITY: ELBA STATE: ID ZIP: 83342
PHONE NUMBER: 208-638-5526

OWNER CODE: C

LAST: WARD FIRST: BEVERLY
ADDRESS: HC 61 1335
CITY: ELBA STATE: ID ZIP: 83342
PHONE NUMBER: 208-638-5526

OWNER CODE: C

FIELD EXAM REQUIRED? FIELD
VERIFICATION REQUIRED DUE TO REMARKS? DATABASE EXAMINER
N
NO REMARKS IN CLAIM

FIELD EXAMINATION INFORMATION

CONTACT PERSON: Paul Ward PHONE NUMBER: () -
DATE OF FIELD EXAM: 9/7/94 APPOINTMENT MADE: Y() N() TIME: : A() P()
ACCOMPANIED BY: no one in field PHONE NUMBER: () -
RELATIONSHIP TO CLAIMANT: _____

DIRECTIONS TO PROPERTY / NOTES:

A. AJ CLAIM: # A43-11147 PRIORITY DATE: 10-19-1928 STAGE: J

B. WR RECORD: NO WATER RIGHT RECORD TO MATCH THIS AJ CLAIM

C. CAN THE PRIORITY DATE CLAIMED BE CONFIRMED BY A DECREE OR LICENSE? Y() N()

D. HAS THERE BEEN A LATER COURT DECREE OF THE WATER RIGHT(S) FROM THIS WATER SOURCE? Y() N()

E. IS THERE ANY INDICATION THAT THERE HAS BEEN A FIVE YEAR PERIOD OF CONTINUOUS NONUSE?
(IF YES, DESCRIBE BELOW) Y() N()

F. IF THIS CLAIM IS BASED ON A PERMIT, WHERE IS THE PERMIT IN THE LICENSING PROCESS?

PROOF OF BENEFICIAL USE SUBMITTED N/A() Y() N()

FIELD EXAM COMPLETED N/A() Y() N()

FIELD EXAM SENT TO STATE OFFICE N/A() Y() N()

LICENSE ISSUED N/A() Y() N()

* IF THE PERMIT WILL NOT BE LICENSED PRIOR TO THE DIRECTOR'S REPORT,
USE CONDITION CODE A01 AND RECOMMEND AS PERMITTED.

G. IF THIS CLAIM IS BASED ON BENEFICIAL USE, IS ADDITIONAL EVIDENCE
OF THE PRIORITY DATE REQUIRED? N/A() Y() N()

* FOR CLAIMS BASED ON BENEFICIAL USE, DESCRIBE THE EVIDENCE OF PRIORITY SUBMITTED,
INCLUDING THE ANALYSIS OF THE EVIDENCE.

H. IS THE STAGE OF THE CLAIM CODED CORRECTLY? Y() N()

NOTES: The Priority date represents one day after the Jobe Adams decree date. Art Ward (Pauls father) indicated that these springs were diverted prior to the decree. As the P/U is within a P/U joined in the Jobe Adams decree (see 43-00241) and this use was not recommended in the decree I cannot recognize a priority date earlier than the decree date. Based upon the info provided to me I accept that the use occurred at some date prior to the Jobe Adams decree and I therefore accept the claimed priority date as valid.

RECOMMENDED PRIORITY DATE:

10 - 19 - 1928

REVIEWED BY KKC

DATE 1-3-90

A. AJ CLAIM POINT OF DIVERSION AND SOURCE:

RIGHT	TWP. RGE.	SEC.	1/4			LOT	POD	COUNTY	DIVERSION NAME	DIVERSION NUMBER
			1/4	1/4	1/4		FLAG			
A43-11147	13S 24E	25	NE	SE	NW			CASSIA		
A43-11147	13S 24E	25	NW	SE	NW			CASSIA		

OTHER AJ CLAIMS WITH SAME AJ POD

WR RECORDS IN SAME 40 ACRE TRACT

A PREFIX

R PREFIX

NONE

NONE

NONE

SOURCE: SPRINGS

TRIB: SINKS

B. WR POINT OF DIVERSION AND SOURCE:

THERE IS NO WATER RIGHT RECORD WITH THE SAME CLAIM NUMBER

SOURCE: NO SOURCE FOR RECORD

TRIB: NO TRIBUTARY FOR RECORD

C. IS THE CLAIMED POD WITHIN THE SAME 40 ACRE TRACT THAT IS DESCRIBED IN THE WATER RIGHT FILE? N/A(☒) Y(☐) N(☐)

* IF NO, AND IF THE CHANGE IS VERIFIED AS AN ACCOMPLISHED CHANGE IN POD, DESCRIBE THE INJURY ANALYSIS PERFORMED AND ENTER FLAG "C" WITH THE APPROPRIATE EXPLANATORY CODE.

D. CAN THE CLAIMED POD BE VERIFIED USING THE WATER RIGHT FILE OR GPS DATA? N/A(☐) Y(☐) N(☒)

E. SHOULD THE CLAIMED POD BE VERIFIED BY FIELD EXAM? Y(☒) N(☐)

F. IS THE CLAIMED SOURCE THE SAME AS DESCRIBED IN THE WATER RIGHT FILE? N/A(☒) Y(☐) N(☐)

* IF NO, AND IF THE CHANGE IS VERIFIED AS AN ACCOMPLISHED CHANGE IN SOURCE, DESCRIBE THE INJURY ANALYSIS PERFORMED AND ENTER FLAG "C" WITH THE APPROPRIATE EXPLANATORY CODE.

G. CAN THE CLAIMED SOURCE BE VERIFIED USING THE WATER RIGHT FILE? Y(☐) N(☒)

H. SHOULD THE CLAIMED SOURCE BE VERIFIED BY FIELD EXAM? Y(☒) N(☐)

I. HOW WAS THE POD AND SOURCE VERIFIED? *field exam on 9-7-94* *on 9-23-99*

LICENSING FIELD EXAM (DATE OF FIELD EXAM) Y(☐) N(☐)

AJ FIELD EXAM (DATE OF FIELD EXAM) NAME OF EXAMINER KKC Y(☐) N(☐)

OTHER (DESCRIBE IN NOTES BELOW)

NOTES: _____

RECOMMENDED POINT(S) OF DIVERSION AND SOURCE: CHECK HERE IF RECOMMENDED AS CLAIMED (___)

TWP.	RGE.	SEC.	1/4	1/4	1/4	LOT	POD	FLAG	COUNTY	DIVERSION NAME	DIVERSION NBR
13S	24E	25	NE	SE	NW				CASSIA		
13S	24E	25	NW	SE	NW				CASSIA		

found as claimed. all within HES-104

SOURCE: Springs TRIB: sinks

REVIEWED BY: KKC DATE: 1-3-00

SYSTEM DESCRIPTION: DESCRIBED BELOW (___), SEE LICENSE FILE (___), OR SEE ATTACHMENT (___)

there are two ditches coming from the springs and running on grade for food irrigation. there are two ditches coming off the West spring, with one running west for aprox. 500 feet and one running east to the second spring channel. ~~the ditch~~ that point is considered the P/D for the east spring channel. the Ditch continues easterly to Southeasterly for aprox 1100 feet. One could argue that the sources should be unnamed streams but as the whole general area around the recommended P/Ds is a separate I am recommending Springs as the source.

A. ROOT WATER RIGHT NUMBERS: A43-11147

B. POU LISTING

TWP	RNG	SEC	1/4	1/4	LOT	NAME	AJ #/ACRES	WR #/ACRES	LANDSAT DATA	FIELD EXAM.	RECOMM. ACRES
13S	24E	25	SW	NE		WARD, PAUL A	A43-11147 / 5.0	- /			
			SW	NE		WARD, PAUL A	R43-00241 / 25.0	43-00241 /			
			SW	NE		WARD, PAUL A	A43-00241 / 25.0	- /			
			SW	NE		CASSIA CREEK IRRIGATION CO.		43-00015 /			
13S	24E	25	SE	NW		WARD, PAUL A	A43-11147 / 10.0	- /			
			SE	NW		WARD, PAUL A	R43-00241 / 37.0	43-00241 /			
			SE	NW		WARD, PAUL A	A43-00241 / 37.0	- /			
			SE	NW		CASSIA CREEK IRRIGATION CO.		43-00015 /			

*see GIS
land list
dated 1-3-00*

ADDITIONAL POU FOUND

TOTAL ACRES A43-11147 15.00

POU COUNTY: CASSIA

C. IS WATER USAGE FOUND IN TRACTS OTHER THAN THOSE CLAIMED?

Y(X) N()

* IF YES, ARE THESE TRACTS LISTED ABOVE (), OR ARE THEY LISTED ON AN ATTACHED SHEET ()

LIST OF ALL RIGHTS WITH A SAME POU AND IRRIGATION USAGE

CLAIM NO.	SOURCE	NAME	DIV. RATE	DIV. RATE/ACRE	DIV. VOL.	DIV. VOL./ACRE
A43-11147	SPRINGS	WARD, PAUL A	0.300	0.020		
R43-00241	CASSIA CREEK	WARD, PAUL A	0.600	0.003		
A43-00241	COTTONWOOD CREEK	WARD, PAUL A	0.600	0.003		

NO RIGHTS WITH SAME POU BUT NOT USED FOR IRRIGATION

D. ARE OTHER WATER RIGHTS USED FOR THE SAME PURPOSE?

Y(X) N()

* IF YES, COMPLETE OVERLAP REVIEW:

OTHER RIGHTS LISTED IN CLAIM:

E. IS THE CLAIMED POU THE SAME AS DESCRIBED IN THE WATER RIGHT FILE?

N/A(☒) Y(☐) N(☒)

* IF NO, AND IF THE CHANGE IS VERIFIED AS AN ACCOMPLISHED CHANGE IN POU, DESCRIBE THE INJURY ANALYSIS PERFORMED AND ENTER FLAG "C" WITH THE APPROPRIATE EXPLANATORY CODE.

F. CAN THE CLAIMED POU BE VERIFIED USING THE WATER RIGHT FILE AND AVAILABLE AERIAL PHOTOS?

N/A(☒) Y(☐) N(☐)

G. SHOULD THE CLAIMED POU BE VERIFIED BY FIELD EXAM?

Y(☒) N(☐)

H. IS THERE ANY INDICATION THAT THERE HAS BEEN A FIVE YEAR PERIOD OF CONTINUOUS NONUSE OF THIS RIGHT, OR ANY PORTION OF THIS RIGHT?

Y(☐) N(☒)

() NAPP, IDWR NO. GIS LAYOUT; () ASCS PHOTO; () OTHER _____
as napp.

NOTES:

We have

TOTAL ACRES: 15 within PPU N/A()

DATE: 1-4-99

A. AJ CLAIMED USES:

PURPOSE OF USE	PERIOD OF USE (MONTH/DAY)	DIV. RATE FOR EACH USE	DIV. VOL. FOR EACH USE
A43-11147 IRRIGATION	FROM 04-01 TO 10-31	0.300 CFS	
TOTAL DIVERSION RATE/VOLUME		0.300 CFS	

B. WR RECORDED USES:

PURPOSE OF USE	PERIOD OF USE (MONTH/DAY)	DIV. RATE FOR EACH USE	DIV. VOL. FOR EACH USE
----------------	---------------------------	------------------------	------------------------

C. DOES THE CLAIMED PURPOSE OF USE CORRECTLY DESCRIBE THE WATER USE?

Y(X) N()

D. IS THE CLAIMED PURPOSE OF USE THE SAME AS DESCRIBED IN THE WATER RIGHT FILE?

N/A(X) Y() N()

* IF NO, AND IF THE ACTUAL WATER USE IS VERIFIED AS AN ACCOMPLISHED CHANGE IN PURPOSE OF USE, DESCRIBE THE INJURY ANALYSIS PERFORMED AND ENTER FLAG "C" WITH THE APPROPRIATE EXPLANATORY CODE.

E. SHOULD THE CLAIMED PURPOSE OF USE BE VERIFIED BY FIELD EXAM?

Y() N()

F. DOES THE CLAIMED PERIOD OF USE CONFORM TO IDWR STANDARDS?

Y(X) N()

G. SHOULD THE PERIOD OF USE BE RECOMMENDED TO IDWR STANDARDS?

Y(X) N()

* IF THE RECOMMENDED PERIOD OF USE IS DIFFERENT THAN IDWR STANDARDS, EXPLAIN IN NOTES BELOW.

H. IS THE CLAIMED DIVERSION RATE FOR EACH USE THE SAME AS DESCRIBED IN THE WATER RIGHT FILE?

N/A(X) Y() N()

* IF NO, DESCRIBE IN NOTES BELOW HOW THE RECOMMENDED DIVERSION RATE FOR EACH USE WAS DETERMINED.

I. SHOULD THE CLAIMED DIVERSION RATE FOR EACH USE BE VERIFIED BY FIELD EXAM?

N/A() Y(X) N()

J. IS THE CLAIMED DIVERSION VOLUME FOR EACH USE THE SAME AS DESCRIBED IN THE WATER RIGHT FILE?

N/A(X) Y() N()

* IF NO, DESCRIBE IN NOTES BELOW HOW THE RECOMMENDED DIVERSION VOLUME FOR EACH USE WAS DETERMINED.

K. SHOULD THE CLAIMED DIVERSION VOLUME FOR EACH USE BE VERIFIED BY FIELD EXAM?

N/A(X) Y() N()

NOTES: Claim is a beneficial use claim. Recon Dept Standard season.

2 Mannings Evaluation measurements made. One on each stream segment ditch.

Estimated flow (see Summary Sheet for Cindy Bird)	
Paul Ward West Ditch -	.15 cfs
" " East ditch	.67 cfs
	<u>.82 cfs</u>

The system capacity exceeds the claimed rate, therefore the claimed rate is the limiting factor.

The recommendation represents 1" / acre.

AJ CLAIM TOTAL DIVERSION RATE: 0.300 CFS

WR ROOT RIGHT TOTAL DIVERSION RATE: CFS

A. IS THE CLAIMED TOTAL DIVERSION RATE THE SAME AS DESCRIBED IN THE WATER RIGHT FILE? N/A(☒) Y(☐) N(☐)

B. CAN THE CLAIMED TOTAL DIVERSION RATE BE VERIFIED USING THE WATER RIGHT FILE? N/A(☒) Y(☐) N(☐)

* ALL CLAIMS BASED ON BENEFICIAL USE (INCLUDING POSTED NOTICES AND STATUTORY CLAIMS) REQUIRE A FLOW MEASUREMENT.

C. IS THERE ANY INDICATION THAT THERE HAS BEEN A FIVE YEAR PERIOD OF CONTINUOUS NONUSE OF THIS RIGHT, OR ANY PORTION OF THE DIVERSION RATE? Y(☐) N(☒)

* IF AN AMOUNT SMALLER THAN THE ORIGINAL DIVERSION RATE IS CLAIMED AND A FIELD EXAM IS NOT REQUIRED, EXPLAIN IN NOTES.

D. SHOULD THE CLAIMED DIVERSION RATE BE VERIFIED BY FIELD EXAM? Y(☒) N(☐)

E. FLOW MEASUREMENT

MEASUREMENT METHOD Manning's evaluation by Cindy Bird SEE ATTACHED CALCULATIONS

F. RATE/VOLUME CALCULATIONS: (IRRIGATION)

1a. IRRIGATION RATE

ACRES 15 x 0.02 CFS/ACRE = .30 CFS
(Taken from pou review)

1b. CALCULATIONS

IS A DIVERSION RATE PER ACRE GREATER THAN 0.02 CFS/ACRE CLAIMED? Y(☐) N(☒)

IF YES, IS AN ADDITIONAL WATER USE FORM FILED AND ATTACHED? Y(☐) N(☐)

2. IRRIGATION DIVERSION VOLUME

CLAIMED DIVERSION VOLUME = AF/A

ACRES _____ x DIVERSION VOL. AF/A FOR AREA _____ =

TOTAL DIVERSION VOLUME _____ AF/A

3. IRRIGATION CONSUMPTIVE USE

CLAIMED CONSUMPTIVE USE = AF/A

ACRES _____ x CONSUMPTIVE VOL. AF/A FOR AREA _____ =

TOTAL CONSUMPTIVE USE _____ AF/A

4. CALCULATIONS FOR USES OTHER THAN IRRIGATION: SEE BELOW () OR SEE ATTACHMENT ()

NOTES:

See Mannings analysis dated 11-29-99
prepared by Cindy Bird.

RECOMMENDATIONS: CHECK HERE IF RECOMMENDED AS CLAIMED (___)

REC. PURPOSE OF USE	REC. PERIOD FROM TO	REC. DIV RATE CFS	REC. DIV VOL. AF/A	REC. CONS. USE
		DATABASE EXAMINER	DATABASE EXAMINER	DATABASE EXAMINER
IRRIGATION	04-01 10-31	0.300		0.0
<u>OK</u>	<u>OK</u>	<u>.30</u>		
TOTAL FOR THIS RIGHT		0.300 <u>.30</u>		0.0

NON-IRRIGATION USES CLAIMED:

NON-IRRIGATION USES RECOMMENDED: CHECK HERE IF RECOMMENDED AS CLAIMED (___)

REVIEWED BY: KKC DATE: 1-4-99

FLAG: _____

STANDARD CONDITIONS (CODE):

STANDARD REMARKS (CODE):

POU 1

Limit to 15 Ac within P/4.
When Combined 43-00241 & 11/47
are limited to 100.8 ac.

EXPLANATORY CONDITIONS (CODE):

EXPLANATORY REMARKS (CODE):

A. CHECK ONLY THE FOLLOWING THAT APPLY:

	ACCEPTED AS CLAIMED	NEEDS REVIEW
OWNERSHIP _____	(☒)	()
FORFEIT/ABANDON _____	()	()
ADDITIONAL DIV. AMOUNT _____	()	()

B. SPLIT WATER RIGHT REVIEW

ROOT WATER RIGHT NUMBER: 43-11147

DATABASE

N/A

EXAMINER

TOTAL DIVERSION RATE OF WR SPLITS

CFS

SPLITS:

OLD RIGHT NUMBERS	CURRENT CLAIM NUMBERS	DIVERSION RATE	CURRENT "R" CLAIM NUM.	"R" DIV. RATE	WR RIGHT NUMBERS	DIVERSION RATE
-	A43-11147	0.300	-	-	-	-
TOTAL CFS		0.300				

DIVERSION RATE REVIEW

DO THE SUM CFS RATE OF THE SPLITS EQUAL THE ROOT RIGHT CFS RATE? (Y/N)
IF NO, IS THE WRITTEN REVIEW DESCRIBED BELOW () OR SEE ATTACHMENT ()?

DATABASE	FIELD EXAMINER
N	Y() N()

NOTES:

AUTHENTICATION:

SIGNATURE: Kelly K. Christensen DATE: 1-4-00

NAME OF FIELD EXAMINER: KELLY K. CHRISTENSEN TITLE: Sr Water Resource Agent.

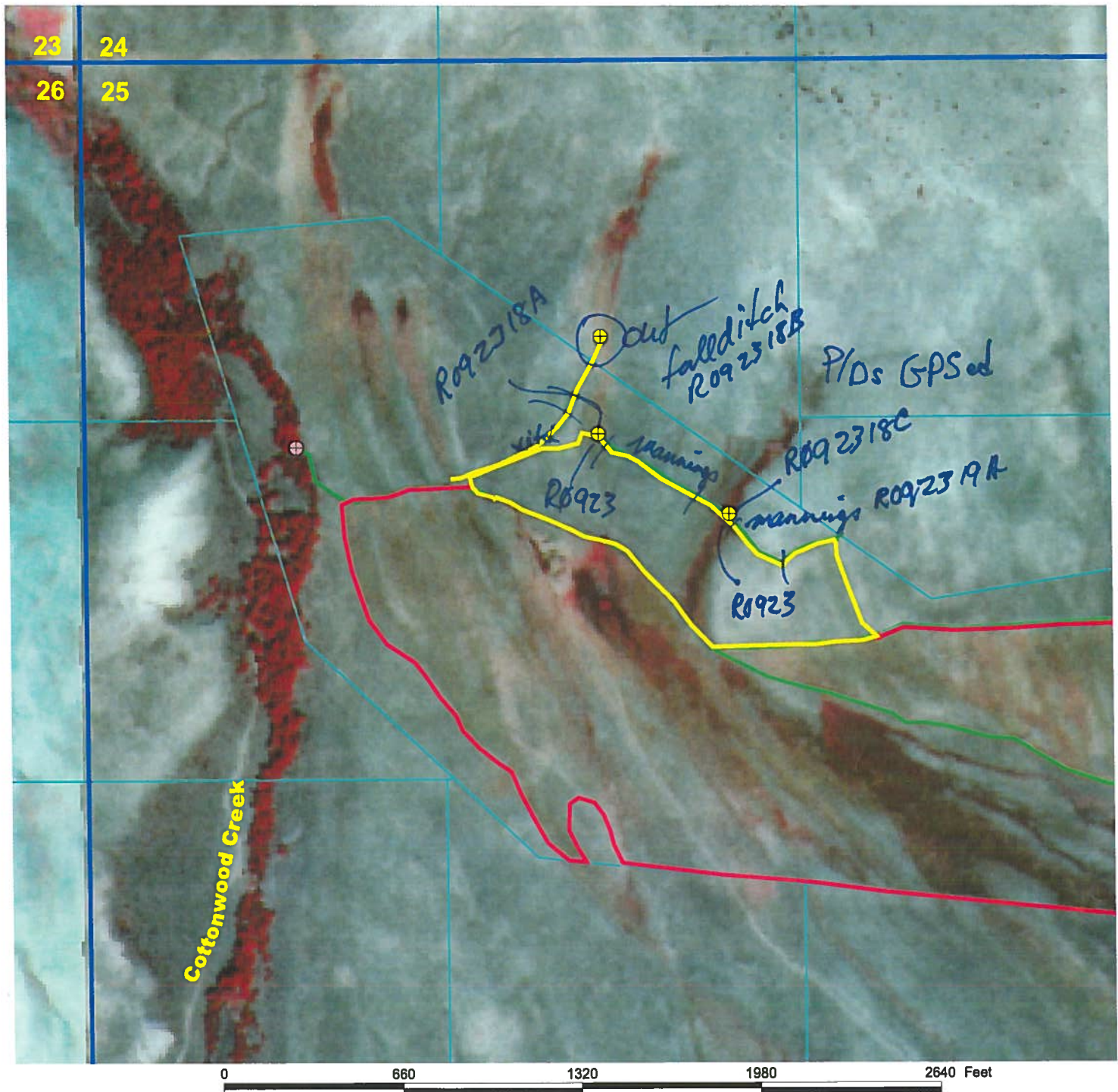
MAPS AND AERIAL PHOTOGRAPHS USED TO REVIEW THIS NOTICE OF CLAIM TO A WATER RIGHT

TYPE OF MAP OR PHOTOGRAPH (CHECK IF USED)	IF USED, SUPPLY APPROPRIATE DATE AND OTHER INFORMATION	COPY INCLUDED IN FILE?
() ORTHOPHOTOQUAD	DATE OF PHOTO _____ IDWR ID NO. _____	Y() N()
() TOPOGRAPHIC	DATE FIELD CHECKED _____ IDWR ID NO. _____	Y() N()
() NAPP	DATE OF PHOTO ~~in 1980~~ INGIS IDWR ID NO. 1987-1988	Y() N() ✓
☒ ASCS AERIAL PHOTO	DATE OF PHOTO 1978 (in 43-00241)	Y() N()
() ASCS COLOR SLIDE	DATE OF PHOTO _____	Y() N()
() BLM OR USFS AERIAL PHOTO	DATE OF PHOTO _____	Y() N()
() TOWNSHIP SURVEY (GOVERNMENT PLAT)	DATE OF SURVEY _____	Y() N()
() SCS SOIL SURVEY MAP	DATE ISSUED _____	Y() N()
() SUBDIVISION PLAT MAP	DATE OF MAP _____	Y() N()
() OTHER _____	DATE _____	Y() N()
() OTHER _____	DATE _____	Y() N()
() OTHER _____	DATE _____	Y() N()

LIST OF ATTACHMENTS (CHECK IF ATTACHED)	IF ATTACHED, SUPPLY APPROPRIATE INFORMATION	NO. OF PAGES	NOTES
() LICENSING FIELD EXAM	DATE OF FIELD EXAM _____	_____	_____
() WATER RIGHT LICENSE	DATE LICENSE SIGNED _____	_____	_____
() IDWR APPROVED TRANSFER	DATE TRANSFER APPROVED _____	_____	_____
☒ SYSTEM DESCRIPTION	DATE DRAWN narrative on GIS Landlist sheet	_____	_____
() PHOTOGRAPHS	DATE(S) PHOTOS TAKEN _____	_____	_____
() SPLIT RIGHT REVIEW	DATE REVIEW COMPLETED _____	_____	_____
() HUBBLE ANALYSIS	DATE ANALYSIS COMPLETED _____	_____	_____
() CONVEYANCE LOSS ANALYSIS	DATE ANALYSIS COMPLETED _____	_____	_____
☒ FLOW MEASUREMENT CALCULATIONS	DATE SYSTEM MEASURED 9-23-99	31 pgs	includes Photo pages
() OTHER _____	DATE 2 measurements	_____	_____
() OTHER _____	DATE _____	_____	_____

IDAHO DEPARTMENT OF WATER RESOURCES

43-11147
PLACE OF USE LAYOUT



TWP 13S; RNG 24E;

FIELD EXAM DATE AGENT

9-23-99 KKC

JPEG LAYOUT CREATED 4-19-99

GIS PLACE OF USE PRESENTATION
1987 AND/OR 1988 NAPP PHOTOGRAPHY
DATA ENTRY BY KELLY K CHRISTENSEN

- ELBA AREA STREAMS
- ELBA AREA DITCH SYSTEM
- OUTSIDE CLAIMED P/U
- CLAIMED POINT OF DIVERSION
- CLAIMED PLACE OF USE
- SECTION LINES
- QUARTER QUARTER LINES



CASSIA



Summary Sheet

File Name:

Water Right No.

Owner:

Source/Trib.

Diversion Name:

Location:

Document Description:

ward_cottonwood.xls

A43-11147

Paul and Beverly Ward

Springs/Sinks

Paul Ward Ditch

Cassia County, 13S 24E 25 SENW

Channel cross-section surveys, 9/23/1999 by Kelly Christensen, Cindy Bird

Prepared by:

Date:

Cindy Bird

11/29/99

Paul Ward West Ditch

Measured Flow:

Estimated Flow:

Estimated Velocity:

Slope:

Average Manning's n:

Ditch Maintenance:

None cfs

0.15 cfs

0.06 fps

0.94 %

0.06

No ditch maintance:

None cfs

0.11 cfs

0.04 fps

0.94 %

0.08

Paul Ward East Ditch

Measured Flow:

Estimated Flow:

Estimated Velocity:

Slope:

Average Manning's n:

Ditch Maintenance:

None cfs

0.67 cfs

1.30 fps

2.58 %

0.06

No ditch maintance:

None cfs

0.51 cfs

0.90 fps

2.58 %

0.08

MANNING EQUATION - DATA COLLECTION

Claim Number(s): A43-11147

Name of Claimant(s): Paul Ward

Name of Ditch, Canal, or Stream: East Springs / Cottonwood

Date of Measurement: 9/23/99 Data Collected By: CB, KC

Measurement Location: 1/4 1/4 Section T R

Cross Section Data

Basis: high water mark() maximum capacity(☒)

Note: minimum of five depth or rod readings; first and last must be equal or zero

depth or rod reading	distance from initial point	depth or rod reading	distance from initial point
1. <u> </u>	<u> </u>	7. <u> </u>	<u> </u>
2. <u> </u>	<u> </u>	8. <u> </u>	<u> </u>
3. <u> </u>	<u> </u>	9. <u> </u>	<u> </u>
4. <u> </u>	<u> </u>	10. <u> </u>	<u> </u>
5. <u> </u>	<u> </u>	11. <u> </u>	<u> </u>
6. <u> </u>	<u> </u>	12. <u> </u>	<u> </u>

Slope Data

Basis: high water mark() channel bottom(☒) land surface()

Level Readings: upstream downstream

upper stadia 5.37 9.44

center 5.09 8.97

lower stadia 4.80 8.49

channel
length

stadia difference (.57 + .95) x 100 = 152'

Note: for elevations, the downstream rod reading must be higher than the upstream rod reading

Comments

Are maps and/or photos attached? yes (☒)

MANNING'S "n" (roughness coefficient)

BASIC "n" CHANNEL MATERIAL				CHANNEL OBSTRUCTIONS			
earth	.020		(1)	negligible	.000		(1)
rock	.025		(2)	minor	.010		(2)
fine gravel	.024		(3)		.015		(3)
coarse gravel	.028		(4)	appreciable	.020		(4)
					.030		(5)
				severe	.040		(6)
					.050		(7)
					.060		(8)
SURFACE IRREGULARITY				VEGETATION			
smooth	.000		(1)	low	.005		(1)
minor	.005		(2)		.010		(2)
moderate	.010		(3)	medium	.015		(3)
severe	.020		(4)		.020		(4)
					.025		(5)
				high	.030		(6)
					.040		(7)
					.050		(8)
				very high	.060		(9)
					.075		(10)
					.100		(11)
VARIATIONS IN SIZE AND SHAPE OF CROSS-SECTION				DEGREE OF MEANDERING			
gradual	.000		(1)	minor	1.00		(1)
occasional	.005		(2)	appreciable	1.15		(2)
frequent	.010		(3)	severe	1.30		(3)
	.015		(4)				

$n = .08$

$n = 0.06$ maintenance

page 3

π Cindy Bird ☉ Kelly Christianson sunny, warm
 Paul Ward Cottonwood 9-23-99 7840
 East spring

* R092319A - East ditch survey.

(A)

	0	4.53
LHW	1.9	4.82
	2.4	4.94
thalweg	3.0	T 5.37
		C 5.09
		B 4.8
	3.3	5.02
RHW	3.6	4.67
	3.9	4.67
	4.1	4.97

H.I. 4.35

Photo 4.5 & 4.6

(C)

	0	6.09
LHW	2.1	6.22
	2.3	6.49
thalweg	2.8	T 6.89
		C 6.67
		B 6.47
	3.2	6.71
	3.5	6.09
	3.9	5.99
	5.	6.32

Rd 4.42

B

	0	5.41
LHW	2.1	5.56
thalweg	2.3	T 6.1
		C 6.02
		B 5.94
	2.9	5.91
RHW	3.2	5.67
	4	5.7
	5	5.57
	6'	5.68
	7	5.73

(D)

Rd 4.7

	0	8.21
LHW	2.8	8.38
	3.0	8.89
thalweg	3.6	T 8.44
		C 8.97
		B 8.49
	4.2	8.66
RHW	4.4	8.53
	4.9	8.32
	5.5	8.15
	6.0	8.27
	6.5	8.3

Photo 4.8 is looking West from
 station D.



PAUL WARD
A43-11147
EAST SPRINGS - Looking West
STATION A
SEPT. 23, 1999 CB.



PAUL WARD
A43-11147
EAST SPRINGS - Looking East
STATION B
SEPT. 23, 1999 CB.



PAUL WARD
A43-11147
EAST SPRINGS
STATION C
SEPT. 23, 1999

CB



PAUL WARD
A43-11147
EAST SPRINGS
STATION D
SEPT. 23, 1999

CB



PAUL WARD
A43-11147
LOOKING WEST FROM STATION D
SEPT. 23, 1999 CB



looking
Northeasterly



PAUL WARD
EAST SPRINGS
SEPT. 23, 1999



PAUL WARD- A43-11147
LOOKING NORTHEASTERLY
SEPT. 23, 1999

CB

File Name: ward_cottonwood.xls
Wtr Rt No: A43-11147

Owner: Paul & Beverly Ward

Source/Trib: Springs/sinks

Diversion Name: Paul Ward east ditch

Location: Cassia County, 13S 24E 25

Document Description: Channel cross-section surveys, 9/23/1999 by Kelly Christensen, Cindy Bird

Prepared By: Cindy Bird

Date: 11/24/99

Arbitrary Datum: 1000 ft

HI: 4.36 ft

HI Elevation: 995.65 ft

Important Equations:

Mannings: $U = 1.49 * R^{1/2/3} * S^{1/0.5} / n$
Froude No: $U / \text{sqrt}(g * D)$

Abbreviation Legend:

LTB / RTB: Left/Right Top Bank
LHW / RHW: Left/Right High Water Mark
LEW / REW: Left/Right Edge of Water
Thalweg: Bottom of channel
average slope 0.0258 2.58%
g=gravitational const 32.2 ft/s

Constants:

U=velocity
R=hydraulic radius (AP)
A=area
P=wetted perimeter
S=Slope
Q=flow
D=hydraulic depth=A/T
T=top width
g=gravitational const 32.2 ft/s

Cross-Section Station (ft) Rod (cntr-ft) Rod (top-ft) Rod (btm-ft) Distance (ft) Elevation (ft) Description

A	0.0	4.53			995.47	Arbitrary
A'	1.4	4.74			995.26	
A	1.9	4.82			995.18	LHW
A	2.4	4.94			995.06	
A'	2.8	5.05			994.95	
A	3.0	5.09	5.37	4.80	994.91	Thalweg
A'	3.2	5.05			994.95	
A	3.3	5.02			994.98	
A	3.6	4.67			995.33	RHW
A	3.8	4.65			995.35	
A'	3.9	4.67			995.33	
A	4.1	4.97			995.03	

HW Surface (est)
Station (ft) WSE (ft)

1.42 995.26
3.55 995.26

0.00	0.105	0.514
0.08	0.415	
0.20	0.156	0.204
0.30	0.198	0.204
0.35	0.155	0.104 Thalweg
0.30	0.122	0.461
0.27	0.110	
-0.08		
-0.10		
-0.08		
0.23		
sum	0.847	2.409

est. n: 0.08
Hyd Rad: 0.351 ft
Est Flow: 1.26 cfs
Froude no: 0.4
Velocity: 1.5 ft/sec

B	0.0	5.41			994.59	
B	2.1	5.56			994.44	LHW
B	2.3	6.02			993.58	Thalweg
B	2.9	5.91	6.1	5.94	994.09	
B	3.2	5.67			994.33	RHW
B	4.0	5.70			994.05	
B	5.0	5.57			994.43	
B	6.0	5.68			993.10	
B	7.0	5.73			994.30	

HW Surface (est)		
Station (ft) WSE (ft)		
2.13 994.30	0.21	0.0945
3.15 994.30	-0.03	-0.0165
	0.25	0.2250
	-0.13	0.384
	1.20	
	0.00	

sum: 0.5910 2.902
est. n: 0.08
Hyd Rad: 0.204 ft
Est Flow: 0.61 cfs
Froude no: 0.2
Velocity: 1.0 ft/sec

ross-Section	Station (ft)	Rod (cntr-ft)	Rod (top-ft)	Rod (btm-ft)	Distance (ft)	Elevation (ft)	Description
C	0.0	6.09				993.91	Arbitrary
C	1.1	6.15				993.85	
C	2.1	6.22				993.78	LHW
C	2.3	6.49				993.51	
C	2.8	6.67	7.39			993.33	Thalweg
C	3.2	6.71		6.97	42.00	993.29	
C	3.3	6.65				993.35	
C	3.5	6.09				993.91	RHW
C	3.9	5.99				994.01	
C	5.0	6.32				993.68	

HW	HW	Wetted
Depth	Area	Perimeter
HW Surface (est)		
Station (ft)	WSE (ft)	
1.10	993.85	
3.46	993.85	
0.07	0.0228	1.002
0.34	0.1508	0.336
0.51	0.1287	0.531
0.56	0.0833	0.402
0.50	0.1485	0.117 Thalweg
-0.06		0.595
-0.16		

sum: 0.5340 2.983
est. n: 0.08
Hyd Rad: 0.179 ft
Est Flow: 0.51 cfs
Froude no: 0.4
Velocity: 0.9 ft/sec

D	0.0	8.21	991.79	
D	2.3	8.35	991.65	
D	2.8	8.38	991.62	LHW
D	3.0	8.89	991.11	
D	3.3	9.00	991.00	
D	3.6	8.97	991.03	Thalweg
D	4.2	8.66	991.34	
D	4.4	8.53	991.47	
D	4.9	8.32	991.68	RHW
D	5.5	8.15	991.85	
D	6.0	8.27	991.73	
D	6.5	8.73	991.27	

HW Surface (est)	
Station (ft)	WSE (ft)
2.30	991.65
4.85	991.65
0.62	0.2480
0.31	0.1085
0.18	0.0990
-0.03	
-0.20	
-0.08	

sum: 0.9175 3.126
est. n: 0.08
Hyd Rad: 0.294 ft
Est Flow: 1.21 cfs
Froude no: 0.4
Velocity: 1.3 ft/sec

FROM	TO	D Elev (ft)	Dist (ft)	SLOPE	Dist (ft)	SLOPE	Inst Dist from ditch	Segment Slope
A	B	1.33	41.00	3.2%	43.6	3.0%	0	0.032
B	C	0.25	58.00	0.4%	53.3	0.5%	10	0.030
C	D	2.30	53.00	4.3%	53.7	4.3%	15	0.027
D	E						25	0.006
A	D	3.88	152.00	2.55%	150.6	2.58%		0.043
Instrument	A	57.00						0.043
Instrument	B	16.00						0.043
Instrument	C	42.00						0.043
Instrument	D	95.00						0.042
Instrument	E							

to produce
this table-->>>
for determining
most likely slope.

max slope = 2.61% if inst 15 ft from ditch
min slope = 2.55% if inst 0 ft from ditch
likely slope = 2.58% if inst 10 ft from ditch
Most likely instrument distance from ditch selected to be 10 feet
based on above analysis and personal recollection of survey procedure.

File Name: ward_cottonwood.xls
Wtr Rt No: A43-11147

Owner: Paul & Beverly Ward

Source/Trib: Springs/sinks

Diverson Name: Paul Ward east ditch

Location: Cassia County, 13S 24E 2S

Document Description: Channel cross-section surveys, 9/23/1999 by Kelly Christensen, Cindy Bird

Prepared By: Cindy Bird

Date: 12/2/99

Arbitrary Datum:

1000 ft

HI:

4.35 ft

HI Elevation:

995.65 ft

ESTIMATED FLOWS IF THE DITCH IS MAINTAINED YEARLY

Important Equations:

Manning's: $U = 1.49 \cdot R^{2/3} \cdot S^{1/2}$ / n

Froude No $U / \sqrt{g \cdot D}$

Abbreviation Legend:

LTB / RTB: Left/Right Top Bank

LHW / RHW Left/Right High Water Mark

LEW / REW Left/Right Edge of Water

Thalweg: Bottom of channel

Constants:

U=velocity

R=hydraulic radius (A/P

A=area

P=wetted perimeter

S=Slope

Q=flow

D=hydraulic depth=A/T

T=top width

g=gravitational const 32.2 ft/s

average sk 0.0258 2.58%

HW	HW
Depth	Area
	Perimeter

Cross-Section	Station (ft)	Rod (cnt-ft)	Rod (top-ft)	Rod (btm-ft)	Distance (ft)	Elevation (ft)	Description
---------------	--------------	--------------	--------------	--------------	---------------	----------------	-------------

A	0.0	4.53				995.47	
A	1.4	4.74				995.26	
A	1.9	4.82				995.18	LHW
A	2.4	4.94				995.06	
A	2.8	5.05				994.95	
A	3.0	5.09	5.37		57.00	994.91	Thalweg
A	3.2	5.05		4.80		994.95	
A	3.3	5.02				994.98	
A	3.6	4.67				995.33	RHW
A	3.8	4.65				995.35	
A	3.9	4.67				995.33	
A	4.1	4.97				995.03	

sum	0.847	2.409					
est. n:	0.06						
Hyd Rad:	0.351 ft						
Est Flow:	1.68 cfs						
Froude no:	0.6						
Velocity:	2.0 ft/sec						

B	0.0	5.41				994.59	
B	2.1	5.56				994.44	LHW
B	2.3	6.02				993.58	Thalweg
B	2.9	5.91				994.09	
B	3.2	5.67	6.1			994.33	RHW
B	4.0	5.70		5.94	16.00	994.05	
B	5.0	5.57				994.43	
B	6.0	5.68				993.10	
B	7.0	5.73				994.30	

HW	HW	Wetted
Depth	Area	Perimeter
-0.29		
-0.14		
0.72	0.2880	0.863 Thalweg
0.21	0.0945	
-0.03	-0.0765	0.787
0.25	0.2250	0.364
-0.13		0.848
1.20		
0.00		

sum:	0.5910	2.902
est. n:	0.06	
Hyd Rad:	0.204 ft	
Est Flow:	0.81 cfs	
Froude no:	0.3	
Velocity:	1.4 ft/sec	

Cross-Section	Station (ft)	Rod (cntr-ft)	Rod (top-ft)	Rod (btm-ft)	Distance (ft)	Arbitrary Elevation (ft)		Description	HW Surface (est)			HW Depth	HW Area	Wetted Perimeter
									Station (ft)	WSE (ft)				
C	0.0	6.09				993.91								
C	1.1	6.15				993.85								
C	2.1	6.22				993.78		LHW	1.10	993.85	0.07	0.0228	0.336	1.002
C	2.3	6.49				993.51			3.46	993.85	0.34	0.1508	0.531	0.402
C	2.8	6.67	7.39			993.33		Thalweg			0.56	0.0833	0.595	0.117 Thalweg
C	3.2	6.71		6.97	42.00	993.29					0.50	0.1485		
C	3.3	6.65				993.35					-0.06			
C	3.5	6.09				993.91		RHW						
C	3.9	5.99				994.01								
C	5.0	6.32				993.68								

sum: 0.5340 2.983
est. n: 0.06
Hyd Rad: 0.179 ft
Est Flow: 0.67 cfs
Froude no: 0.5
Velocity: 1.3 ft/sec

D	0.0	8.21				991.79								
D	2.3	8.35				991.65								
D	2.8	8.38				991.62		LHW			-0.14	0.0075	0.501	0.548
D	3.0	8.89				991.11					0.03	0.1620	0.320	0.301
D	3.3	9.00				991.00					0.54	0.2925	0.675	0.675
D	3.6	8.97				991.03		Thalweg	2.30	991.65	0.65	0.2480	0.239 Thalweg	0.542
D	4.2	8.66	9.44	8.49	95.00	991.34			4.85	991.65	0.31	0.1085		
D	4.4	8.53				991.47					0.18	0.0990		
D	4.9	8.32				991.68		RHW			-0.03			
D	5.5	8.15				991.85					-0.20			
D	6.0	8.27				991.73					-0.08			
D	6.5	8.73				991.27								

sum: 0.9175 3.126
est. n: 0.06
Hyd Rad: 0.294 ft
Est Flow: 1.61 cfs
Froude no: 0.5
Velocity: 1.8 ft/sec

FROM	TO	D Elev (ft)	If inst. 0 ft from ditch		If instrument :		Inst Dist from ditch	Segment Slope			
			Dist (ft)	SLOPE	Dist (ft)	SLOPE		ab	bc	cd	
A	B	1.33	41.00	3.2%	43.6	3.0%	0	0.032	0.004	0.043	
B	C	0.25	58.00	0.4%	53.3	0.5%	10	0.030	0.005	0.043	
C	D	2.30	53.00	4.3%	53.7	4.3%	15	0.027	0.006	0.042	
D	E						25				
							to produce this table-- for determining most likely slope.				
A	D	3.88	152.00	2.55%	150.6	2.58%					
Instrument	A	57.00									
Instrument	B	16.00									
Instrument	C	42.00									
Instrument	D	95.00									
Instrument	E										

max slope = 2.61% if inst 15 ft from ditch

min slope = 2.55% if inst 0 ft from ditch

likely slope = 2.58% if inst 10 ft from ditch

Most likely instrument distance from ditch selected to be 10 feet

based on above analysis and personal recollection of survey procedure.

max slope = 2.61% if inst 15 ft from ditch
min slope = 2.55% if inst 0 ft from ditch
likely slope = 2.58% if inst 10 ft from ditch
Most likely instrument distance from ditch selected to be 10 feet
based on above analysis and personal recollection of survey procedure.

BASIC "n" - CHANNEL MATERIAL

choose the material type that best represents the channel being analyzed.

SURFACE IRREGULARITY

- smooth - for surfaces comparable to the best obtainable for the materials involved
- minor - good dredged channels; slightly eroded or scoured side slopes of canals or drainage channels
- moderate - fair to poor dredged channels; moderately sloughed or eroded side slopes of canals or drainage channels
- severe - badly sloughed banks of natural channels; badly eroded or sloughed sides of canals or drainage channels; unshaped, jagged and irregular surfaces of channels excavated in rock

VARIATIONS IN SIZE AND SHAPE OF CROSS-SECTION

- gradual - changes in size or shape occurring gradually
- occasional - large and small sections alternating occasionally or shape changes causing occasional shifting of main flow from side to side
- frequent - large and small sections alternating frequently or shape changes causing frequent shifting of main flow from side to side

CHANNEL OBSTRUCTIONS

In judging the relative effect of obstructions, consider: the degree to which the obstructions occupy or reduce the average cross sectional area at various stages; the character of obstructions, (sharp-edged or angular objects induce greater turbulence than curved, smooth-surfaced objects); the position and spacing of obstructions transversely and longitudinally in the reach under consideration.

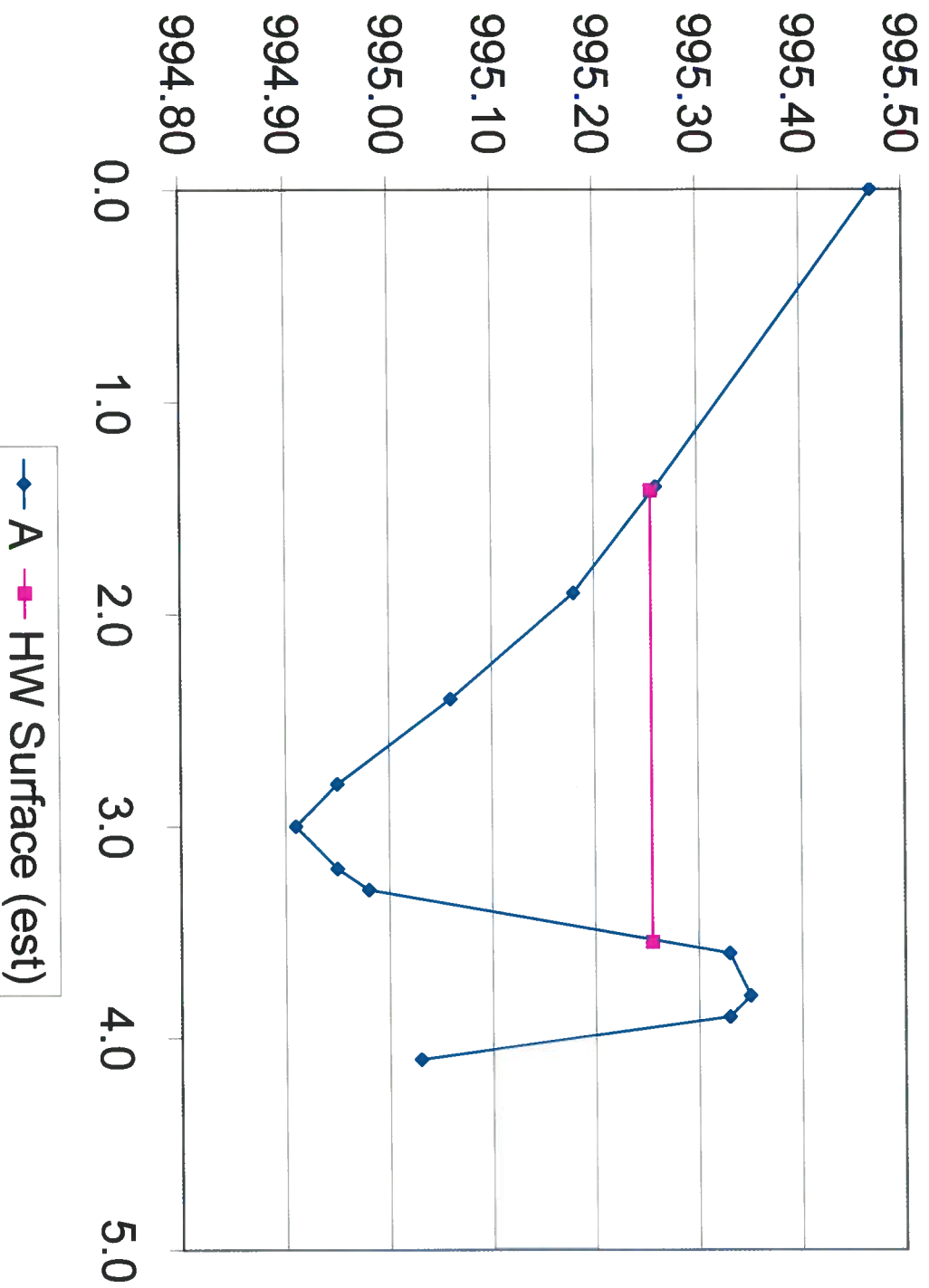
VEGETATION

- low
- dense growths of flexible turf grasses or weeds, of which Bermuda and blue grasses are examples, where the average depth of flow is 2 to 3 times the height of vegetation
 - supple seedling tree switches such as willow, cottonwood or salt cedar where the average depth of flow is 3 to 4 times the height of the vegetation
- medium
- turf grasses where the average depth of flow is 1 to 2 times the height of vegetation
 - stemmy grasses, weeds or tree seedlings with moderate cover where the average depth of flow is 2 to 3 times the height of vegetation
 - brushy growths, moderately dense, similar to willows 1 to 2 years old, dormant season, along side slopes of channel with no significant vegetation along the channel bottom, where the hydraulic radius is greater than 2 feet
- high
- turf grasses where the average depth of flow is about equal to the height of vegetation
 - dormant season, willow or cottonwood trees 8 to 10 years old, intergrown with some weeds and brush, none of the vegetation in foliage, where the hydraulic radius is greater than 2 feet
 - growing season, bushy willows about 1 year old intergrown with some weeds in full foliage along side slopes, no significant vegetation along channel bottom, where hydraulic radius is greater than 2 feet
- very high
- turf grasses where the average depth of flow is less than one half the height of vegetation
 - growing season, bushy willows about 1 year old, intergrown with weeds in full foliage along side slopes; dense growth of cattails along channel bottom; any value of hydraulic radius up to 10 or 15 feet
 - growing season; trees intergrown with weeds and brush, all in full foliage; any value of hydraulic radius up to 10 or 15 feet

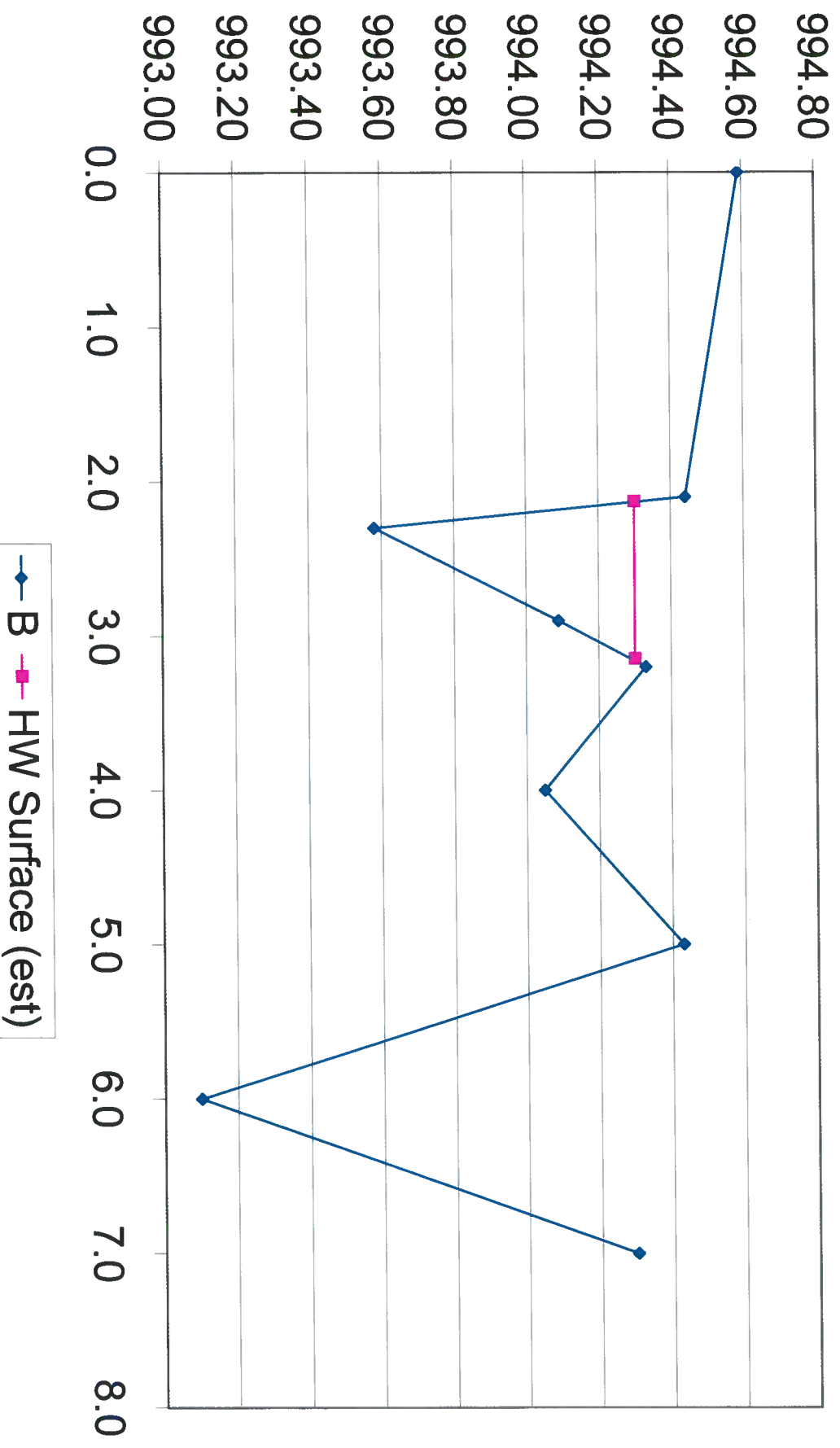
DEGREE OF MEANDERING

- minor
- where the ratio of the meander length to the straight length is 1.0 to 1.2
- appreciable
- where the ratio of the meander length to the straight length is 1.2 to 1.5
- severe
- where the ratio of the meander length to the straight length is 1.5 and greater

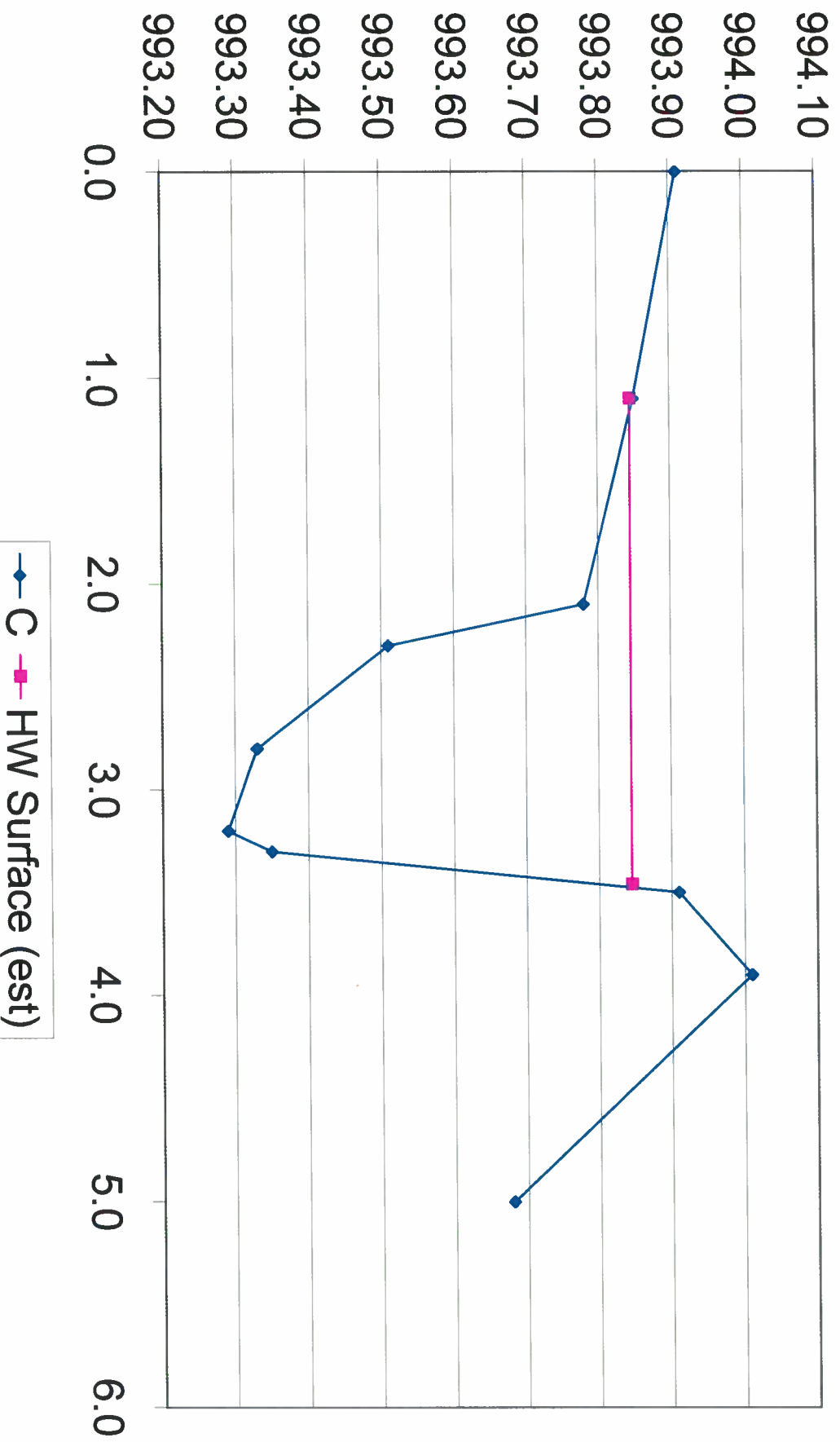
Paul Ward East Ditch A43-11147



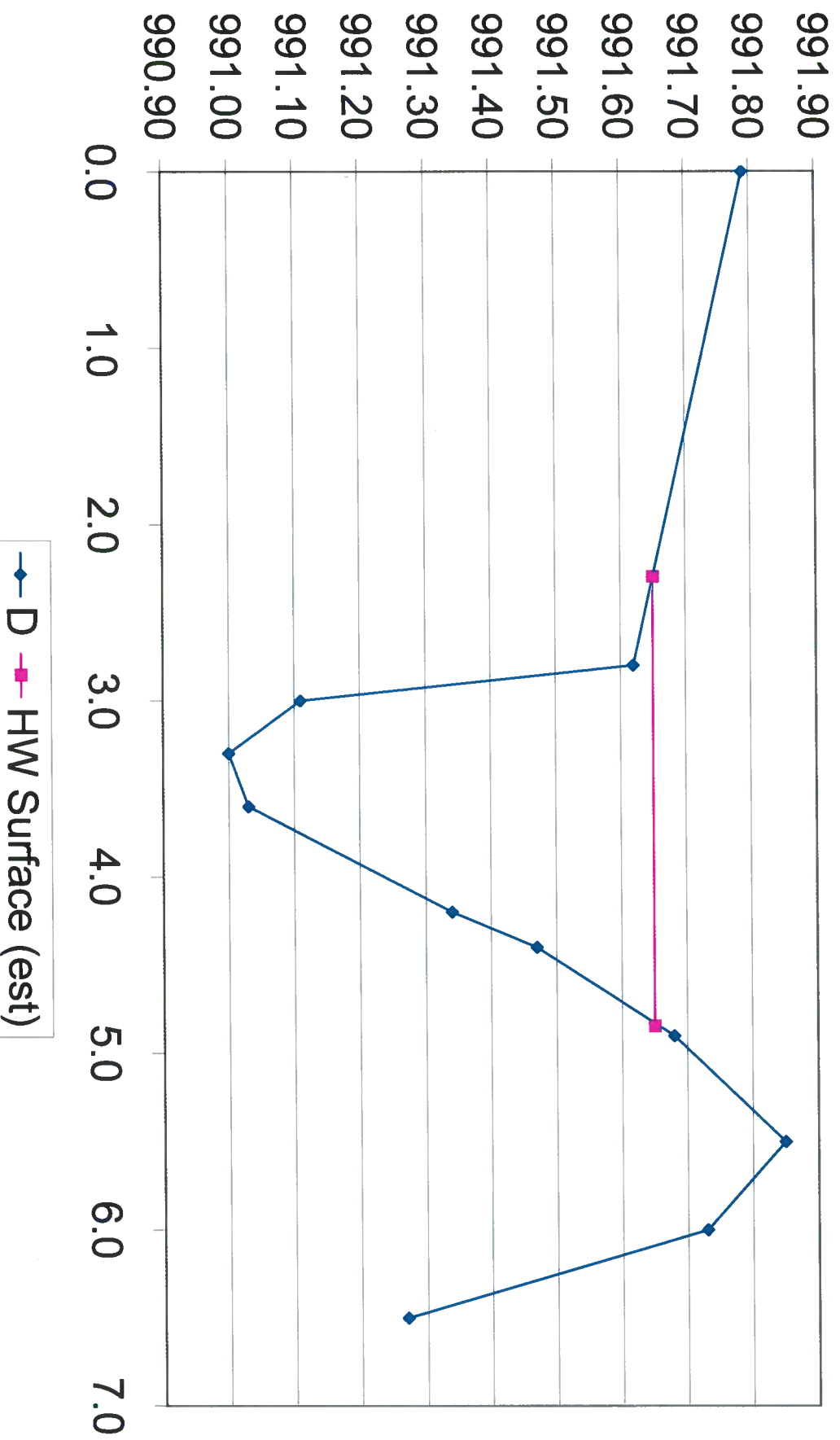
Paul Ward East Ditch A43-11147



Paul Ward East Ditch A43-11147



Paul Ward East Ditch A43-11147



File Name: ward_cottonwood.xls
Wtr Rt No: A43-11147

Owner: Paul & Beverly Ward

Source/Trib: Springs/sinks

Diversion Name: Paul Ward ditch, Cottonwood

Location: Cassia County, 13S 24E 25

Document Description: Channel cross-section surveys, 9/23/1999 by Kelly Christensen, Cindy Bird

Prepared By: Cindy Bird

Date: 11/24/99

Arbitrary Datum: 1000 ft

HI: 4.43 ft

HI Elevation: 995.57 ft

Important Equations:

Manning's: $U = 1.49 \cdot R^{2/3} \cdot S^{1/2}$
Froude No: $U / \sqrt{g \cdot D}$

Abbreviation Legend:

LTB / RTB: Left/Right Top Bank
LHW / RHW: Left/Right High Water Mark
LEW / REW: Left/Right Edge of Water
Thalweg: Bottom of channel

average slope: 0.0094 0.94%

Constants:

U=velocity
R=hydraulic radius (A/P)
A=area
P=wetted perimeter
S=slope
Q=flow
D=hydraulic depth=A/T
T=top width
g=gravitational const 32.2 ft/s

Cross-Section	Station (ft)	Rod (cntr-ft)	Rod (top-ft)	Rod (btm-ft)	Distance (ft)	Elevation (ft)	Description
A	0.0	4.65				995.35	
A	1.6	5.03				994.97	
A	2.3	5.40				994.60	
A	2.7	5.12				994.44	
A	2.9	5.51				993.65	
A	3.1	6.45				993.55	
A	3.5	6.43				993.57	
A	3.6	5.58	5.90	5.27	63.00	993.60	Thalweg
A	4.6	5.41				994.59	
A	5.1	5.25				994.75	
A	6.0	5.11				994.89	
A	7.2	5.09				994.44	
A	8.6	5.35				994.65	

B	0.0	5.30				994.70	
B	2.1	5.84				994.16	LHW
B	2.4	6.22				993.58	
B	2.7	6.23	6.36	6.11	25.00	993.77	Thalweg
B	3.5	6.02				993.98	
B	3.9	5.95				994.05	
B	4.1	5.93				994.07	RHW
B	5.6	5.80				993.10	
B	7.0	5.99				994.05	

HW Surface (est)	Station (ft)	WSE (ft)
	2.37	994.60
	4.60	994.60

HW	HW	Wetted
Depth	Area	Perimeter
0.00	0.000	0.429
0.15	0.046	0.815
0.95	0.189	0.224
1.05	0.314	0.400
1.02	0.256	0.104
1.00	0.547	1.407
0.00		Thalweg

sum 1.353 1.912
est. n: 0.08
Hyd Rad: 0.707 ft
Est Flow: 1.93 cfs
Froude no: 0.3
Velocity: 1.4 ft/sec

HW Surface (est)	Station (ft)	WSE (ft)	HW	Wetted
Depth			Area	Perimeter
-0.65				
-0.11				
0.47			0.1410	0.653
0.28			0.1540	Thalweg
0.07			0.0420	0.355
0.00			0.0000	0.827
-0.02				0.406
0.95				
0.00				

sum: 0.3370 2.241
est. n: 0.08
Hyd Rad: 0.150 ft
Est Flow: 0.17 cfs
Froude no: 0.2
Velocity: 0.5 ft/sec

Cross-Section	Station (ft)	Rod (ctr-ft)	Rod (top-ft)	Rod (btm-ft)	Distance (ft)	Elevation (ft)	Description
C	0.0	6.28				993.72	
C	1.8	6.48				993.52	
C	2.2	6.84				993.16	LHW
C	2.5	7.11				992.89	
C	2.7	7.18	7.39		42.00	992.82	Thalweg
C	3.2	7.13				992.87	
C	3.5	7.01				992.99	RHW
C	4.5	6.80				993.20	
C	6.0	6.82				993.18	
C	8.0	7.21				992.79	

HW Surface (est)	Station (ft)	WSE (ft)	HW Depth	HW Area	Wetted Perimeter
	2.13	993.08	-0.44	0.0463	0.404
	3.45	993.08	-0.08	0.19	0.212
			0.25	0.0892	0.502 Thalweg
			0.21	0.0820	0.323
			0.09	0.0553	
			-0.13		

sum: 0.2728 1.441
 est. n: 0.08
 Hyd Rad: 0.189 ft
 Est Flow: 0.16 cfs
 Froude no: 0.2
 Velocity: 0.6 ft/sec

HW Surface (est)	Station (ft)	WSE (ft)	HW Depth	HW Area	Wetted Perimeter
	2.15	992.16	-0.06	0.0000	0.359
	4.10	992.16	0.08	0.0340	0.517
			0.21	0.1155	0.600 Thalweg
			0.21	0.0840	0.250
			0.06	0.0150	0.306
			0.00	0.0000	
			-0.04		
			-1.01		

sum: 0.2485 2.032
 est. n: 0.08
 Hyd Rad: 0.122 ft
 Est Flow: 0.11 cfs
 Froude no: 0.2
 Velocity: 0.4 ft/sec

D	0.0	7.32				992.68	
D	1.9	7.78				992.22	LHW
D	2.2	7.84				992.16	
D	2.5	7.92				992.08	
D	3.0	8.05	8.62		114.00	991.95	Thalweg
D	3.6	8.05		7.48		991.95	
D	3.8	7.90				992.10	RHW
D	4.1	7.84				992.16	
D	4.4	7.80				992.20	
D	5.7	7.50				993.17	
D	7.0	7.76				992.24	
D	8.0	8.02				991.98	

FROM	TO	If inst. 0 ft from ditch			If instrument:			Inst Dist from ditch	Segment Slope			
		D Elev (ft)	Dist (ft)	SLOPE	Dist (ft)	SLOPE	10 ft from ditch		ab	bc	cd	
A	B	-0.17	38.00	-0.4%	39.3	-0.4%	Instrument distance varied to produce this table-->>> for determining most likely slope.	0	-0.004	0.014	0.012	
B	C	0.95	67.00	1.4%	63.7	1.5%		10	-0.004	0.015	0.012	
C	D	0.87	72.00	1.2%	72.8	1.2%		20	-0.004	0.018	0.012	
D	E							25	-0.003	0.028	0.011	
A	D	1.65	177.00	0.93%	175.8	0.94%						
Instrument	A	63.00					max slope = 0.98% if inst 25 ft from ditch					
Instrument	B	25.00					min slope = 0.93% if inst 0 ft from ditch					
Instrument	C	42.00					likely slope = 0.94% if inst 10 ft from ditch					
Instrument	D	114.00					Most likely instrument distance from ditch selected to be 10 feet					
Instrument	E						based on above analysis and personal recollection of survey procedure.					

ESTIMATED FLOWS IF THE DITCH IS MAINTAINED YEARLY

File Name: ward_cottonwood.xls
Wtr Rt No: A43-11147

Owner: Paul & Beverly Ward

Source/Trib: Springs/sinks

Inversion Name: Paul Ward ditch, Cottonwood

Location: Cassia County, 13S 24E 25

Int Description: Channel cross-section surveys, 9/23/1999 by Kelly Christensen, Cindy Bird

Prepared By: Cindy Bird

Date: 11/24/99

Arbitrary Datum:

1000 ft

HI:

4.43 ft

HI Elevation:

995.57 ft

Important Equations:

Manning's: $U = 1.49 \cdot R^{2/3} \cdot S^{1/2}$ / n

Froude No: $U / \sqrt{g \cdot D}$

Abbreviation Legend:

LTB / RTB: Left/Right Top Bank

LHW / RHW: Left/Right High Water Mark

LEW / REW: Left/Right Edge of Water

Thalweg: Bottom of channel

average slope: 0.0094 0.94%

Constants:

U=velocity

R=hydraulic radius (A/P

A=area

P=wetted perimeter

S=Slope

Q=flow

D=hydraulic depth=A/T

T=top width

g=gravitational const 32.2 ft/s

Cross-Section	Station (ft)	Rod (cntr-ft)	Rod (top-ft)	Rod (btm-ft)	Distance (ft)	Elevation (ft)	Description	Station (ft)	WSE (ft)	est. n:	Hyd Rad:	Est Flow:	Froude no:	Velocity:
A	0.0	4.65				995.35		2.37	994.60	0.15	0.046	0.224		
A	1.6	5.03				994.97		4.60	994.60	0.95	0.189	0.400		
A	2.3	5.40				994.60				1.05	0.314	0.104		
A	2.7	5.12				994.44	LHW			1.02	0.256	1.407		
A	2.9	5.51				993.65				1.00	0.547			
A	3.1	6.45				993.55						Thalweg		
A	3.5	6.43				993.57								
A	3.6	5.58	5.90	5.27	63.00	993.60	Thalweg			sum	1.353	1.912		
A	4.6	5.41				994.59				est. n:	0.06	0.707 ft		
A	5.1	5.25				994.75	RHW			Hyd Rad:	0.707 ft	2.58 cfs		
A	6.0	5.11				994.89				Est Flow:	0.4			
A	7.2	5.09				994.91				Froude no:	1.9 ft/sec			
A	8.6	5.35				994.65				Velocity:				

	Station (ft)	WSE (ft)	est. n:	Hyd Rad:	Est Flow:	Froude no:	Velocity:
B	0.0	5.30	0.47	0.1410	0.653 Thalweg		
B	2.1	5.84	0.28	0.1540	0.355		
B	2.4	6.22	0.07	0.0420	0.827		
B	2.7	6.23	0.00	0.0000	0.406		
B	3.5	6.02					
B	3.9	5.95					
B	4.1	5.93					
B	5.6	5.80					
B	7.0	5.99					

sum: 0.3370 2.241

est. n: 0.06

Hyd Rad: 0.150 ft

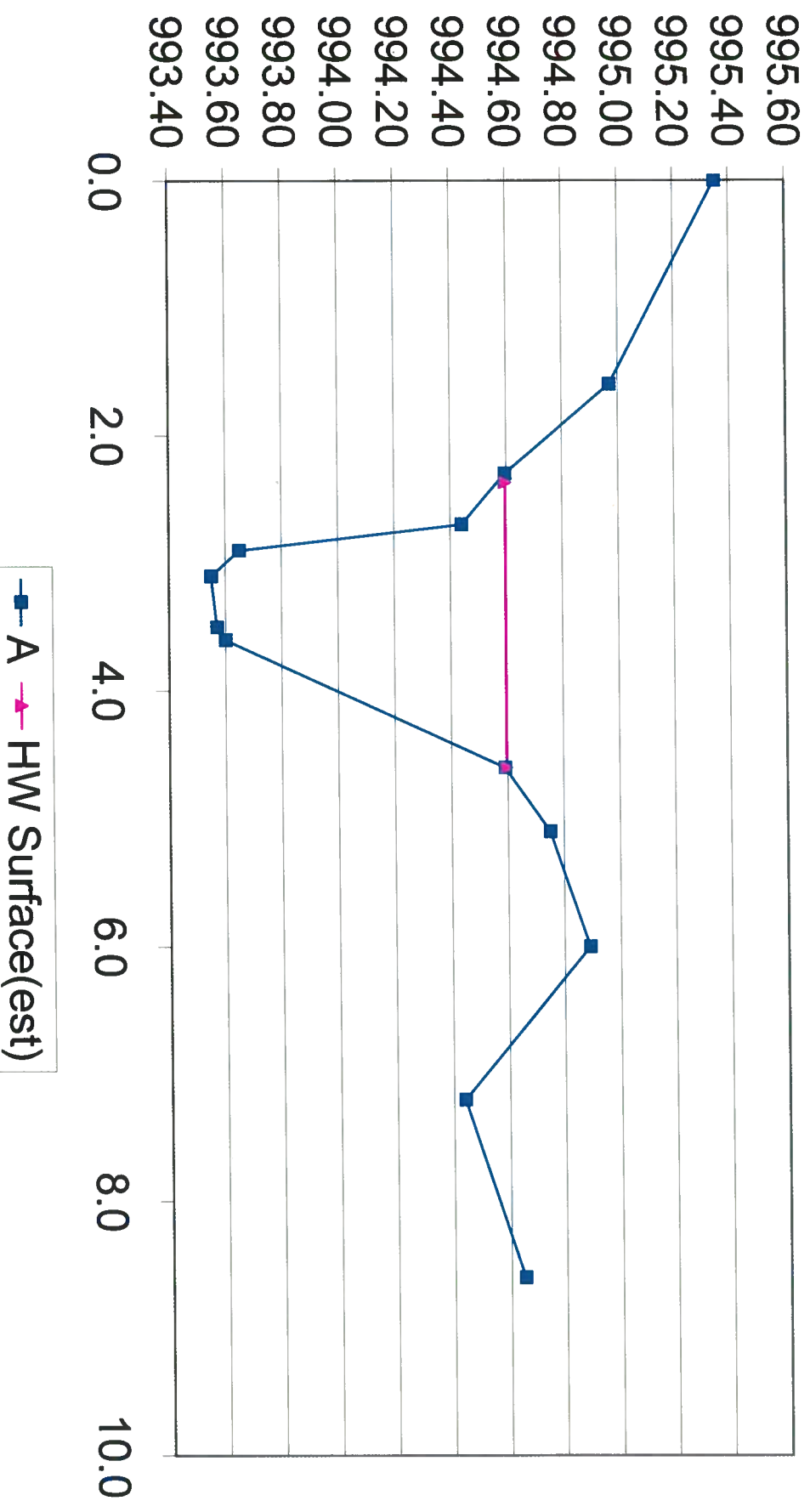
Est Flow: 0.23 cfs

Froude no: 0.3

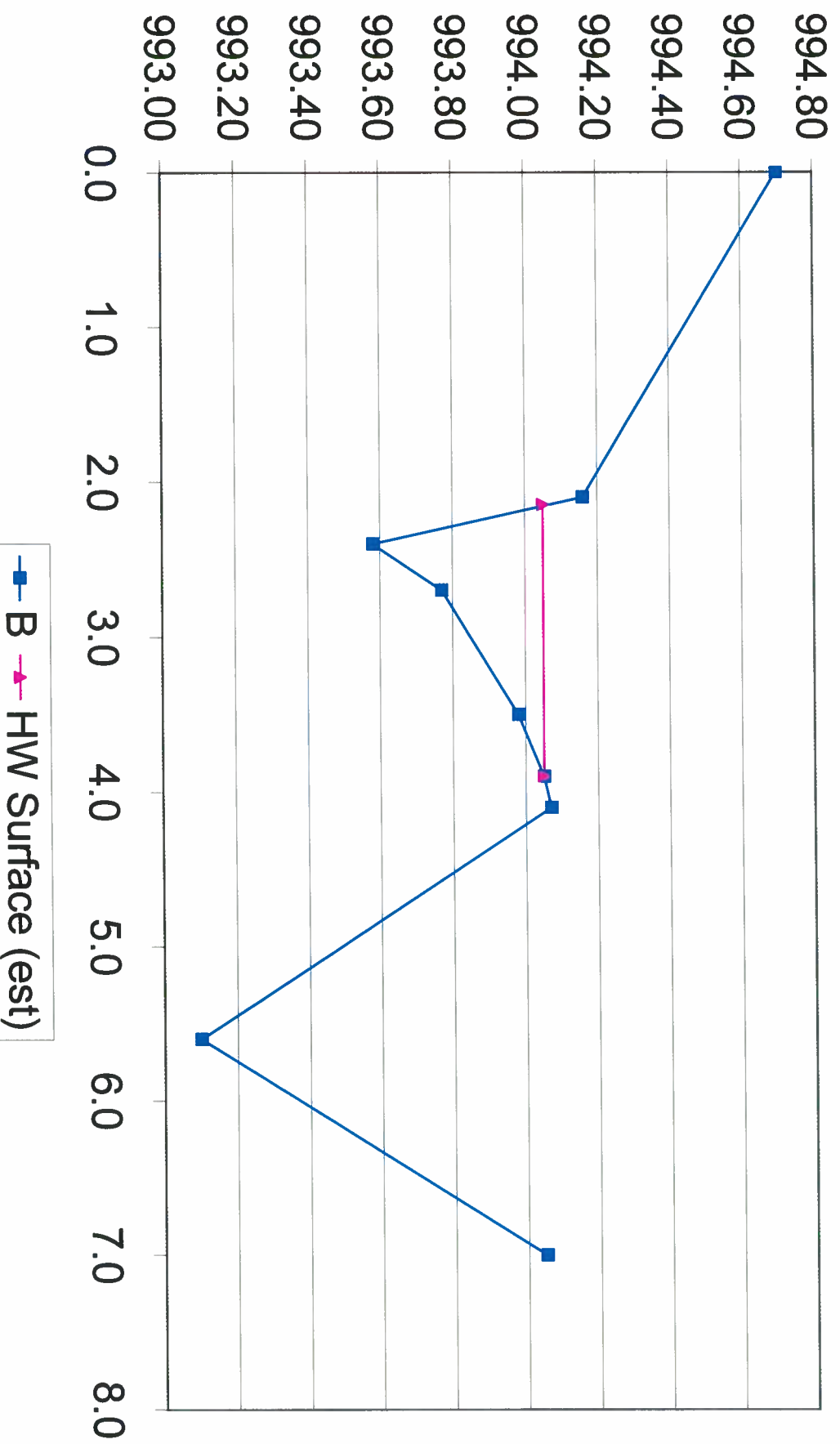
Velocity: 0.7 ft/sec

Paul Ward Unlinc Page 2										
							Arbitrary			
Cross-Section	Station (ft)	Rod (cntr-ft)	Rod (top-ft)	Rod (btm-ft)	Distance (ft)	Elevation (ft)	Description	HW Depth	HW Area	Wetted Perimeter
C	0.0	6.28				993.72				
C	1.8	6.48				993.52				
C	2.2	6.84				993.16	LHW			
C	2.5	7.11				992.89				
C	2.7	7.18	7.39		42.00	992.82	Thalweg			
C	3.2	7.13				992.87				
C	3.5	7.01				992.99	RHW			
C	4.5	6.80				993.20				
C	6.0	6.82				993.18				
C	8.0	7.21				992.79				
D	0.0	7.32				992.88				
D	1.9	7.78				992.22	LHW			
D	2.2	7.84				992.16				
D	2.5	7.92				992.08				
D	3.0	8.05	8.62		7.48	991.95	Thalweg			
D	3.6	8.05				991.95				
D	3.8	7.90				992.10	RHW			
D	4.1	7.84				992.16				
D	4.4	7.80				992.20				
D	5.7	7.50				992.50				
D	7.0	7.76				992.24				
D	8.0	8.02				991.98				
							HW Surface (est)			
							Station (ft)	WSE (ft)		
							2.13	993.08	-0.44	
							3.45	993.08	-0.08	
									0.19	0.0463
									0.25	0.0892
									0.21	0.0620
									0.09	0.0553
									-0.13	
sum:							0.2728	1.441		
est. ft:							0.06	0.06		
Hyd Rad:							0.189 ft	0.189 ft		
Est Flow:							0.22 cfs	0.22 cfs		
Froude no:							0.3	0.3		
Velocity:							0.8 ft/sec	0.8 ft/sec		
							HW Surface (est)			
							Station (ft)	WSE (ft)		
							2.15	992.16	0.00	0.0000
							4.10	992.16	0.08	0.0340
									0.21	0.1155
									0.21	0.0840
									0.06	0.0150
									0.00	0.0000
sum:							-0.34	0.2485		
est. ft:							2.032	2.032		
Hyd Rad:							0.122 ft	0.122 ft		
Est Flow:							0.15 cfs	0.15 cfs		
Froude no:							0.3	0.3		
Velocity:							0.6 ft/sec	0.6 ft/sec		

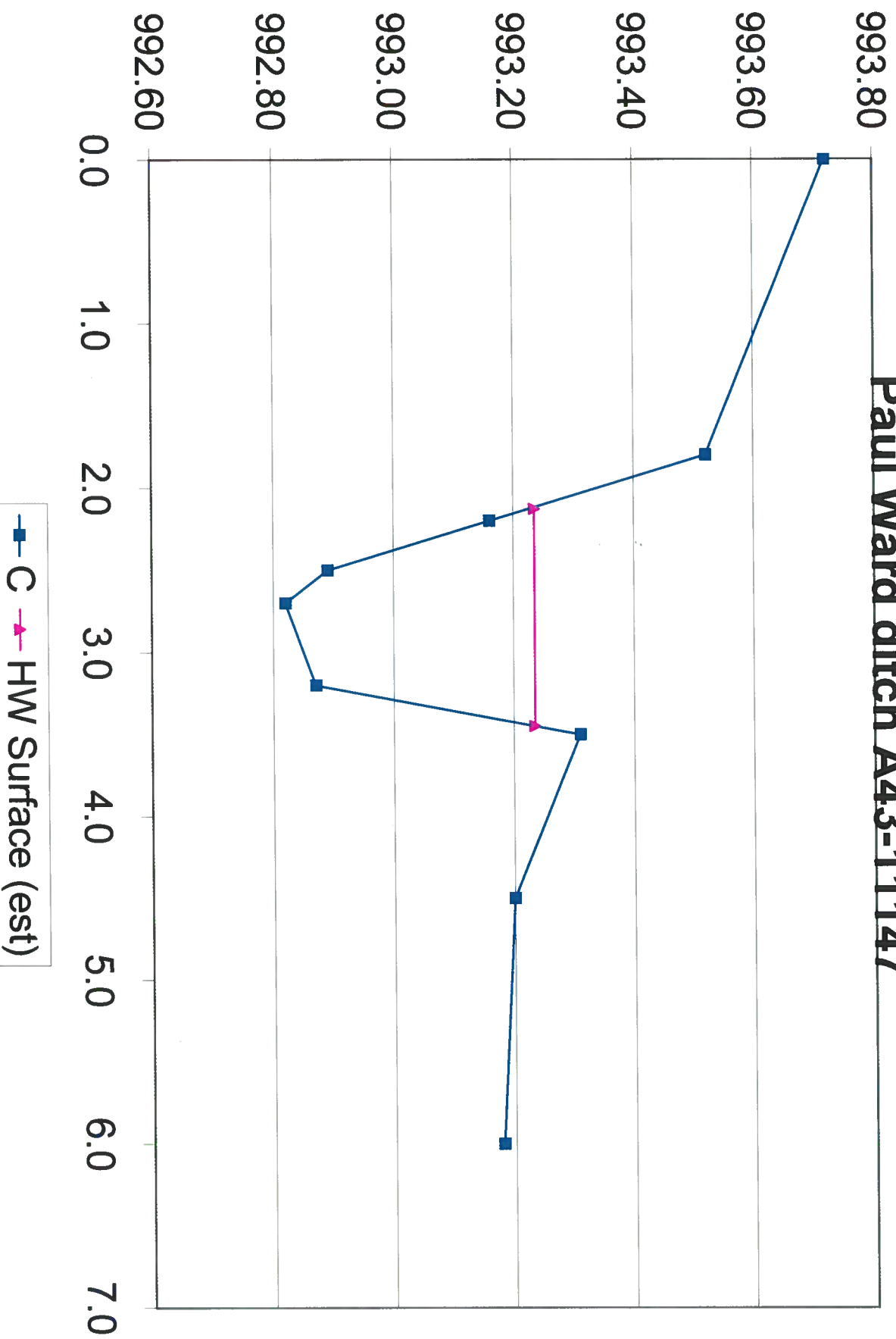
Pauli Ward ditch A43-11147



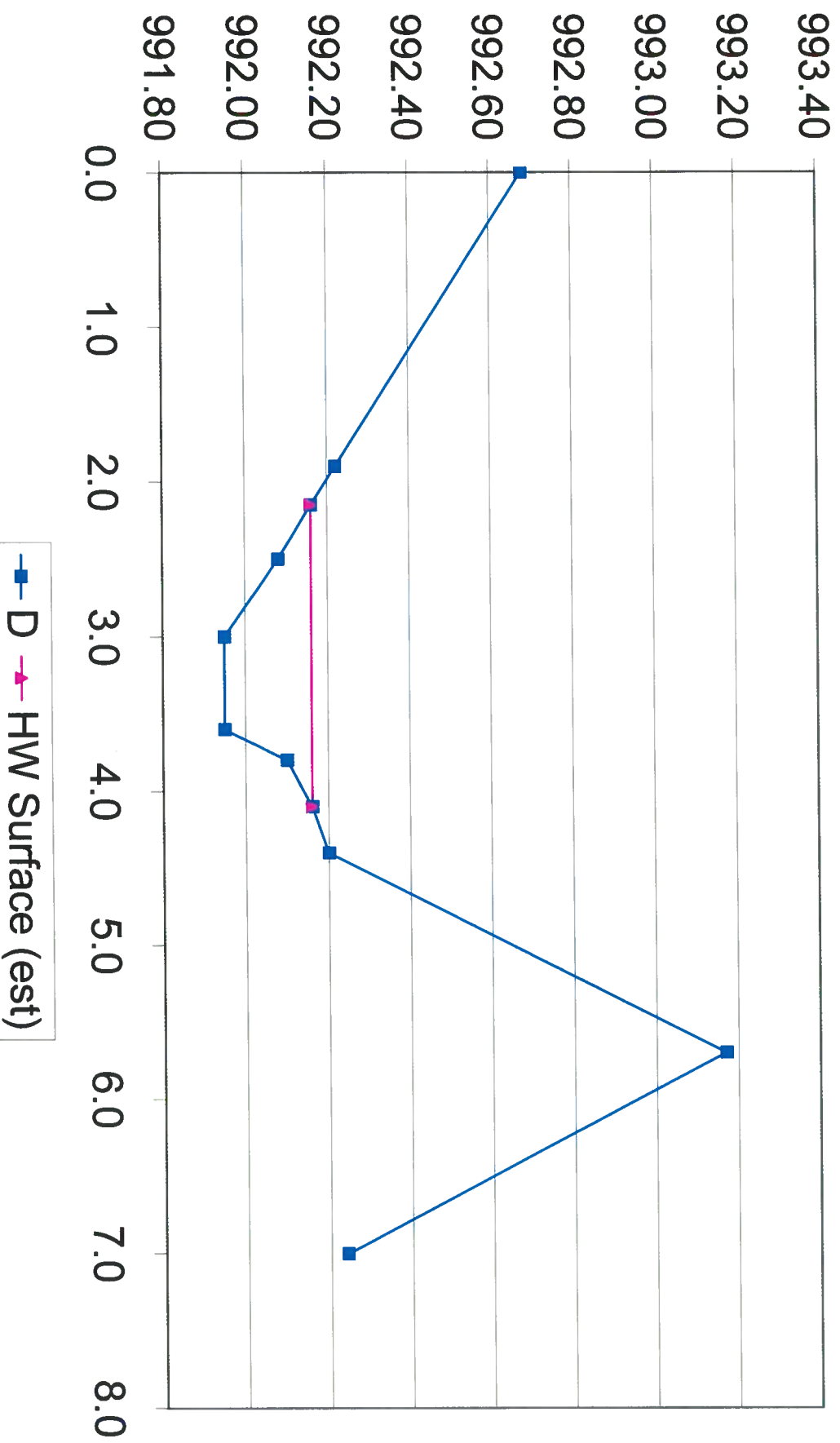
Paul Ward ditch A43-11147



Paul Ward ditch A43-11147



Paul Ward ditch A43-11147



MANN EQUATION - DATA COLLECTION

Claim Number(s): A43-11147Name of Claimant(s): Ward, PaulName of Ditch, Canal, or Stream: Paul Ward ditch off Cottonwood
crk.Date of Measurement: 9/23/99 Data Collected By: CB, KCMeasurement Location: 1/4 1/4 Section T R

Cross Section Data

Basis: high water mark() maximum capacity()

Note: minimum of five depth or rod readings; first and last must be equal or zero

	depth or rod reading	distance from initial point		depth or rod reading	distance from initial point
1.	<u> </u>	<u> </u>	7.	<u> </u>	<u> </u>
2.	<u> </u>	<u> </u>	8.	<u> </u>	<u> </u>
3.	<u> </u>	<u> </u>	9.	<u> </u>	<u> </u>
4.	<u> </u>	<u> </u>	10.	<u> </u>	<u> </u>
5.	<u> </u>	<u> </u>	11.	<u> </u>	<u> </u>
6.	<u> </u>	<u> </u>	12.	<u> </u>	<u> </u>

Slope Data

Basis: high water mark() channel bottom() land surface()

Level Readings:	upstream	downstream	
upper stadia	<u>5.90</u>	<u>8.62</u>	
center	<u>5.58</u>	<u>8.05</u>	
lower stadia	<u>5.27</u>	<u>7.48</u>	channel length
stadia difference	(<u>.63</u> + <u>1.14</u>) x 100 =		<u>177.00</u>

Note: for elevations, the downstream rod reading must be higher than the upstream rod reading

Comments

Are maps and/or photos attached? yes (X)

MANING'S "n" (roughness coefficient)

BASIC "n" CHANNEL MATERIAL				CHANNEL OBSTRUCTIONS			
earth	.020		(1)	negligible	.000		(1)
rock	.025		(2)	minor	.010		(2)
fine gravel	.024		(3)		.015		(3)
coarse gravel	.028		(4)	appreciable	.020		(4)
					.030		(5)
				severe	.040		(6)
					.050		(7)
					.060		(8)
SURFACE IRREGULARITY				VEGETATION			
smooth	.000		(1)	low	.005		(1)
minor	.005		(2)		.010		(2)
moderate	.010		(3)	medium	.015		(3)
severe	.020		(4)		.020		(4)
					.025		(5)
					high	.030	
				.040			(7)
				.050			(8)
				very high	.060		(9)
					.075		(10)
					.100		(11)
VARIATIONS IN SIZE AND SHAPE OF CROSS-SECTION				DEGREE OF MEANDERING			
gradual	.000		(1)	minor	1.00		(1)
occasional	.005		(2)	appreciable	1.15		(2)
frequent	.010		(3)	severe	1.30		(3)
	.015		(4)				

* Cattle are currently located in the area of the ditch, therefore, the ditch has been broken down from the cattle.

π Cindy Bird

φ Kelly Christiansen

pg 1

9/23/99

43-11147

Paul Ward ditch.

Cottonwood Creek

Roll #3.19

(A) 0 4.65
1.6 5.03
LHW 2.7 5.12
2.9 5.51
Thalweg 3.6 T 5.9
C 5.58
B 5.21
4.6 5.41
RHW 5.1 5.25
6 5.11
7.2 5.09
8.6 5.35

Roll #3.21

(C) 0 6.28
1.8 6.48
LHW 2.2 6.84
2.5 7.11
Thalweg 2.7 T 7.39
C 7.18
B 6.97
3.2 7.13
RHW 3.5 7.01
4.5 6.8
6' 6.82
8' 7.21

Roll #3.20 (B) 0 5.3

LHW 2.1 5.84
2.4 6.22
Thalweg 2.7 T 6.36
C 6.23
B 6.11
3.5 6.02
RHW 4.1 5.93
5.6 5.8
7 5.99

Roll #3.22

(D) 0 7.32
LHW 1.9 7.78
2.5 7.92
Thalweg 3 B 7.48 R 8.05 T 8.62
3.6 8.05
RHW 3.8 7.9
4.4 7.8
5.7 7.5
7 7.76
8 8.02

GPS Files

pg 2 Ward

R092318A - POD

R092318B - Surveyed ditch.

H.I. 4.43' Ctr of lan.

East Spring: Ward.

R092318C - East Spring P.O.D.

Roll 3

Photo 24 P.O.D. Looking West.

- ditch is broken down by cattle
- some vegetation in the ditch.
- some curves in the ditch.



Paul Ward
A43-11147

PAUL WARD
A43-11147
WEST DITCH
STATION A
SEPT. 23, 1999



PAUL WARD
A43-11147
WEST DITCH
STATION B
SEPT. 23, 1999

West Spring



PAUL WARD
A43-11147
WEST DITCH
STATION C
SEPT. 23, 1999



PAUL WARD
A43-11147
WEST DITCH
STATION D
SEPT. 23, 1999

CB