

Ralph

2. That the parties hereto are the successors in interest of the water rights and the lands to which said rights were appurtenant under the Decree, to wit:

PARTY	PREDECESSOR	SHARE OF WATER	REAL PROPERTY	
11 Carl R. Evans <i>STEPHANS</i>	Charles R. Evans	(u) 1/9 40	SW1/4NE1/4, Section 19, Township 12 South, Range 37 E.B.M.	* 210
.16.6 (Geraldine McNee)	Thomas Barnes	L 1/6	W1/2SW1/4, Section 8, Township 12 South, Range 37 E.B.M.	60AC
16.6 Randy Jones (<i>LISH</i>)	Joseph Bloxham	(u) 1/6	SE1/4, Section 18, Township 12 South, Range 37 E.B.M.	44AC
11 Dunford Weston <i>NIELSEN</i>	Charles R. Evans	(u) 1/9 40	SE1/4SE1/4, Section 20, Township 12 S., Range 37 E.B.M.	200AC
11 Jan B. Evans <i>PAULSON</i>	Charles R. Evans	(u) 1/9 160	Tract in NE1/4, Section 19 and Tract in Section 20, both in Township 12 South, Range 37 E.B.M.	145AC
16.6 Von G. Bloxham	Isaac Bloxham	L 1/6	E1/2NW1/4, Section 18, Township 12 South, Range 37 E.B.M.	60AC
8 Robert Baxter <i>VAUGHN</i>	Ralph Douglass	L 1/12	NE1/4NE1/4, Section 8, Township 12 South, Range 37 E.B.M.	190AC
8 (Carl Barnes)	John Barnes	L 1/12	SW1/4SW1/4, Section 4 and SE1/4SE1/4 of Section 5, Township 12 South, Range 37 E.B.M.	NONE 40AC
98.8				

3. The parties represent and state that they and their predecessors have used their share of all the waters of Cherry Creek continuously during each irrigation season upon the lands owned by them, as above described in paragraph 2.

4. The parties represent and state that the entire flow of Cherry Creek is not adequate to satisfy all the irrigation needs of the respective parties and that there is no water in Cherry Creek available for further appropriation.

*11/20/01
1954
Page 17, Outgiment
239*

STATE	Idaho	PROJECT	Cherry Creek Irrigation Group		
BY	R.E.D.	DATE	5-24-77	CHECKED BY	PJN
				DATE	6-22-77
SUBJECT	Gravity Sprinkler System				JOB NO. Eng Class I 744m units
					SHEET 1 OF 5

Date:

Shareholder	Groups with Irrigated Ac.	Photo MEASURED Acres	GPM @ 60 psi/acre
D. Weston	60	110	381.6
C. EVANS	60	86	381.6
C. Mock	60	90	381.6
V. Jones	80	80	508.8
V. Bloxham	80	52	508.8
R. Stewart	40	40	254.4
Everett McNie	80	80	508.8
	460	538	2127.6 gpm

Acresage was based on 2800 gpm

$$= \frac{6.36 \text{ gpm}}{\text{acre}}$$

Id-40 = 2927 gpm required for 460 acres

Design for land to receive this metered water

Nozzle requirement: Peak daily use c. 212"

SEE ID-40

$$S_m = 40' \quad S_L = 40' \quad 23 \text{ hrs} = 4.0 \text{ "Net} = 0.174'$$

Ref Sps 15
Chpt 11 SCS
WEHD

$$\text{Gpm} = \frac{(40') (40') (0.174' \text{ hr})}{24.3 (\text{c.m. hr})} = 6.67 \text{ gpm}$$

Because of some irregular fields nozzle capacity will vary somewhat to utilize the proposed metered flow

Engr Job class II
4 members - 240 Acres

Idaho Cherry Creek Upper Group
Eric Olsen 5/80 DWS 5-1-80 1980 ACP # 11
Request & Background 1 11

Through their agent, Dunford Weston, in a pooling agreement with ASCS, the group has requested technical assistance in installing 5100 ft of pipe. This is part of a ~~larger~~ gravity sprinkler system the group is installing in stages. The request is for the initial section from about 250 ft downstream of their diversion structure to the top of Dunford Weston's farm. (refer to layout sketch - the request for 5100 ft was based on previous drawings - this appears to be in error - my estimate is 5400 ft).

The present ditch was made about 1920 with a horse pulled plow. According to Carl Evans, his grandfather helped in construction. They started at the present diversion site & followed the water to follow them to make sure the water would flow. After about 4000' they made it to the ridge top & stayed on the ridge the rest of the distance - about 8500 ft. The average grade of the ditch is about 1.7 ft per 100 ft - too steep & the group has had erosion & distribution problems since.

In 1968 Dunford Weston installed a pump & pipeline system on his property with about 1600 ft of 8" & 1000 ft of 6" steel mainline. His system is still in good condition & he wants to continue to use it in conjunction with the gravity pipeline.

Sam Evans showed initial interest in a gravity system in 1975, but he couldn't get all members interested. Preliminary estimates by the SCAS indicated the project was feasible.

(continued)

Idaho Cherry Creek Upper Group
Eric Olson 5/80 DWS 5-1-80 1980 ACP #11
Background (continued) 2 11

The drought year of 1977 sparked renewed interest in a gravity system. Members of both the upper & lower groups - seven members in all - made an application for drought funds through ASCS to do the system. Evidently financial constraints on some members prevented the project from being started.

In the spring of 1979 Randy Jones went ahead - on his own - & installed about 3800 ft of 6"-PIP-100 psi pipe, from Carl Evans's pond into his own field 1300'.

Later in the autumn of '79 I was first introduced to the group. Carl Evans called & said he wanted to install some 10"-PIP-100 psi pipe through Dunford Weston's property. He asked me if it would work OK as part of the group's pipeline. After meeting with him, his son Jan, Dunford Weston and contractor Cordell Williams, on alternatives for a possible group system, I agreed the 10" would be alright, but would limit the number of acres that could be irrigated. The group said this was OK as Cherry Creek flow was so low later in the year. At his own expense Carl installed the 10" thru Weston's & 600 ft into his own property. Cordell Williams was contractor on this - as well as Randy Jones' installation earlier.

This spring the group - Dunford Weston, Carl Evans, Jan Evans, & Randy Jones - applied for & was approved ACP cost-sharing for installing 12" pipe from Weston's to the top. This leaves a section of 8" through Carl's & Jan's with no definite plans for being installed.

Idaho Cherry Creek Upper Group
 Eric Olson 5/80 DWS 5-1-80 1950 ACP #11
 Inventory of resources 3 11

Water rights : Cherry creek divided in half at division between upper & lower groups. Upper group split has changed since previous designs due to land & water right trades. Split is now one-quarter to each of the four members. This will be done by using flow control nozzles. Best division appears to be 4 gpm per nozzle at Weston's and 6 gpm per nozzle at each of the others. To attain equal split Weston will run 50% more nozzles.

Because decision has been made by members on pipeline sizes — use 5 fps velocity limitation for maximum flow condition & number of acres to be irrigated:

<u>Pipe diam.</u>	<u>Flow at 5 fps</u>	<u>Members</u>	<u>GPM/member</u>
12"	1660	4	415
10"	1150	3	383
8"	740	2	370
6"	410	1	420

Most limiting is 8" at 740 gpm, this will supply 2 members, so use 370 gpm per individual.

Sheet 4 indicates a 6.35 gpm per acre requirement

$$\frac{370 \text{ gpm}}{6.35 \text{ gpm/acre}} = 58 \text{ Acres/member}$$

Each member has well over 58 irrigable acres.

Present ditch will be retained to utilize early run-off by surface irrigation.

ID-ENG-40

Rev. 3

11/77

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SPRINKLER SYSTEM DESIGN DATA

NAME Cherry Creek Irr. Co. DATE 4/80 PREPARED BY Eric Olson
SCD Porter COUNTY Bannock ENGN. JOB CLASS II
Reviewed by DWS 5/1/80

I. INVENTORY Elevation: 5000 → 5150 ; Northern aspect.

Total Acres _____ Crop Acres _____ Climatic Area III
Water Source creek Amt. Available 1/2 of Seasonal Variation yes
Energy Source _____ (Creek Flow) X
(Electric) (Int. Comb - Fuel) (Gravity)

II. SOILS DATA

USDA Soils Class Majority	Total Available WHC (in/ft.)					Depth To		Maximum Intake Rate in/hr.
	0-1	1-2	2-3	3-4	4-5	Inhibiting Layer (ft)	Water Table	
<u>Rexburg sil</u>	<u>2.2</u>	<u>2.2</u>	<u>2.2</u>	<u>2.2</u>	<u>2.2</u>	<u>none</u>	<u>none</u>	<u>2.8</u>

III. DETERMINATION OF WEIGHTED CONSUMPTIVE USE

Crop	Acres (A)	June	July	August
<u>Alfalfa - grass</u>	<u>1/2</u>			
<u>Grain</u>	<u>1/2</u>			

IV. WATER MANAGEMENT INFORMATION

Crop	Root Zone Depth (ft)	Total WHC (Inches)	Stress Point (%TWHC)	Max. Net Replacement (Inches)	Peak Daily C.U.	Max. Freq. @ Peak C.U. @ Max. Net.
<u>Alfalfa</u>	<u>5'</u>	<u>11.0</u>	<u>50</u>	<u>5.5</u>	<u>0.23</u>	<u>24</u>
<u>Grain</u>	<u>4'</u>	<u>8.8</u>	<u>50</u>	<u>4.4</u>	<u>0.19</u>	<u>23</u>

V. DESIGN DATA -

Based on weighted consumptive use, 65% Eff., 5/10 MPH winds, 0.6 Wind Factor

	Application		Peak Daily C.U. * (Weighted)	Frequency (F) (Days)	System Requirements	
	Net (D)	Gross			(Total gpm) (Q)	gpm/ac
Maximum	<u>4.4</u>	<u>6.8</u>	<u>0.21</u>	<u>21</u>		<u>6.35</u>

$Q = \frac{453 A D}{F H \text{ Eff.}}$
 $(21)(23)(65\%)$
H = Total operating hours/day
Use 23 hours

* Use controlling weighted monthly consumptive use and determine peak daily consumptive use from Table XIV in Idaho Irrigation Guide.

Idaho Cherry Creek Upper Group
 Eric Olson 5/80 DWS 5-1-80
 Mainline Hydraulics

Stations	Length in Feet	Pipe Size & Type	Flow in GPM	Velocity in ft/sec	Fric. Loss in ft/1000 ft	Sec't. Loss ft	Σ Fric. Loss ft	Ground Elevation ft	Dynamic Pressure ft	Static Pressure ft
0+00		(All PIP) 12" dia. SDR 41						5240		0
54+00	5400	12" dia. SDR 41	1488 (3.3 CFS)	4.5	4.7	25.4	25.4	5160	54.6 (24.5 psi)	80
81+00	2700	10" dia. SDR 41	1116 (2.5 CFS)	4.8	6.8	18.4	43.8	5095	101.2 (44 psi)	145
87+00	600	10" dia. SDR 41	1056 (2.35 CFS)	4.5	6.0	3.6	47.4	5085	107.6 (47 psi)	155
94+00	900	8" dia. SDR 41	744 (1.66 CFS)	5.0	9.4	8.5	55.9	5075	109.1 (47 psi)	165
104+00	800	8" dia. SDR 41	744 (1.66 CFS)	5.0	9.4	7.5	63.4	5060	116.6 (50 psi)	180
110+00	600	8" dia. SDR 41	744 (1.66 CFS)	5.0	9.4	5.6	69.0	5050	121.0 (52 psi)	190
117+00	700	6" dia. SDR 41	558 (1.24 CFS)	3.9	5.8	4.1	73.1	5035	131.9 (57 psi)	205
127+00	1000	6" dia. SDR 41	372 (0.83 CFS)	4.4	10.2	10.2	83.3	5020	136.7 (59 psi)	220
133+00	600	6" dia. SDR 41	372 (0.83 CFS)	4.4	10.2	6.1	89.4	5010	140.6 (61 psi)	230
140+00	700	6" dia. SDR 41	180 (0.4 CFS)	2.0	2.7	1.9	91.3	5000	148.7 (64 psi)	240

Elevations from USGS Quad's: Malad Summit & Downey west
 Friction losses from chart 4-C Idaho Irrigation Guide

No quick closing valves to be installed in system -
 Operating pressure maximum = 64 psi, no velocities -
 over 5 fps, so 100 psi pipe OK. Static pressure = pressure rating
 of pipe.

Idaho
Eric Olson

5/80

Cherry Creek Upper Group

1980 ACP #11
Revised 11
6

Pipeline Thrust blocks Designs

Std
130 DD
p. 283

$$A = \frac{98 H D^2}{B} \left(\sin \frac{a}{2} \right) K C$$

Where: A = Thrust block bearing area req'd
H = Max. working pressure in ft.
D = Inside diam. of pipe in ft.
B = Allowable bearing pressure of soil in lb/ft² - Use 2000 as silt loam similar to med. clay which can be spaded..
a = deflection angle of pipe bend
K = 1.6 for installation depth of 2.5 ft.
C = 0.7 for dead ends & tees - using a = 90°, otherwise = 1

Station

51+00 - 12"-10" tee, H = 55 ft

$$A = \frac{(98)(55)(1.0^2)}{2000} \sin \frac{90^\circ}{2} (1.6)(0.7) = 2.1 \text{ ft}^2$$

use 24" x 24" x 8" around
10" tee

87+00 10"-8" reducer (after 8" installed)
10" dead end (before " ")

$$A = \frac{(98)(108)(0.83^2)}{2000} \sin \frac{90^\circ}{2} (1.6)(0.7)$$

= 2.9 ft² use 24" x 24" x 8" around
10"

Other blocks to be installed after 8" pipe is put in.

use same design 24" x 24" x 8"
at stations 117+00, 127+00, 140+00

Idaho Cherry Creek Upper Group
 Eric Olson 5/80 DWS 5-1-80 1980 ACP #11
 Pipe Inlet Struct. Design 8 11

EFM 14
 App #4
 EFM
 Ex 3-8

Data : Max. flow = 1500 gpm = 3.3 cfs
 Pipe - 12" DIP SDR #1
 Area = 0.739 ft²

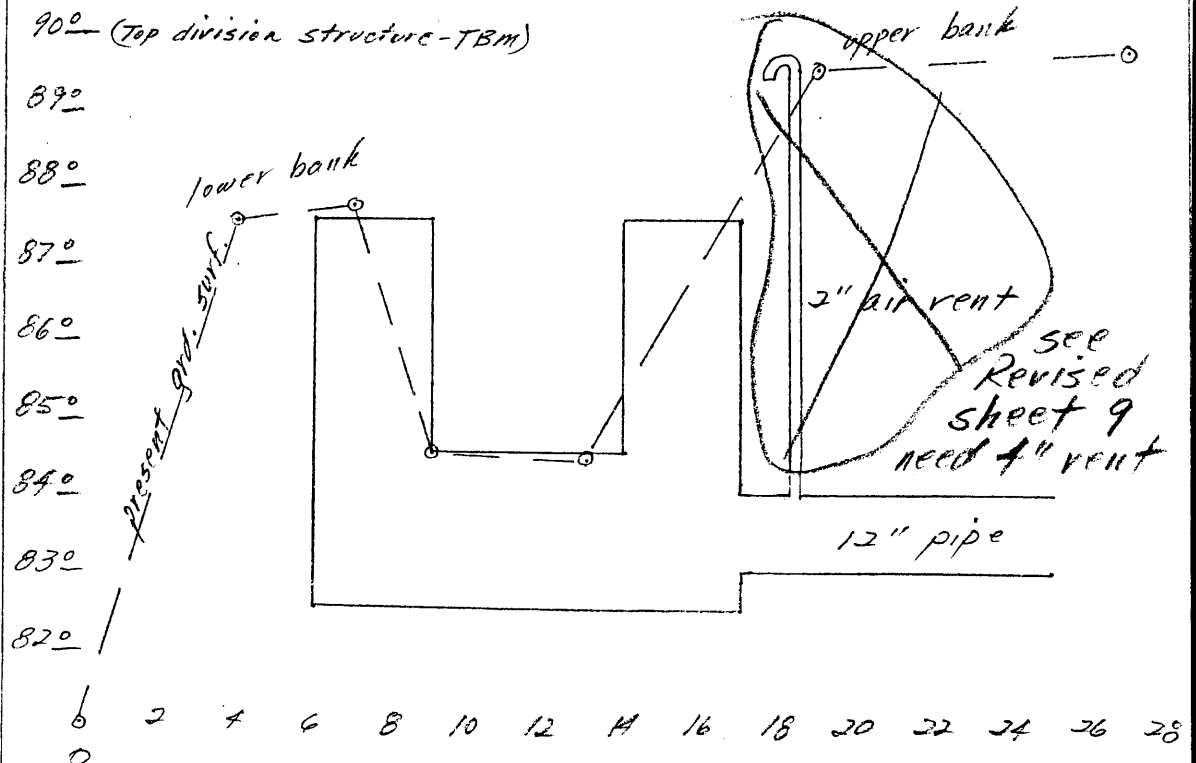
Entrance $K_c = 0.5$ for flush,
 sharp corner inlet

$$\begin{aligned} \text{Entrance head loss} &= (K_c + K_v) \left[\frac{(Q/A)^2}{2g} \right] \\ &= 1.5 \left(\frac{4.47^2}{64.4} \right) \\ &= 0.31 \text{ ft use } 6'' \end{aligned}$$

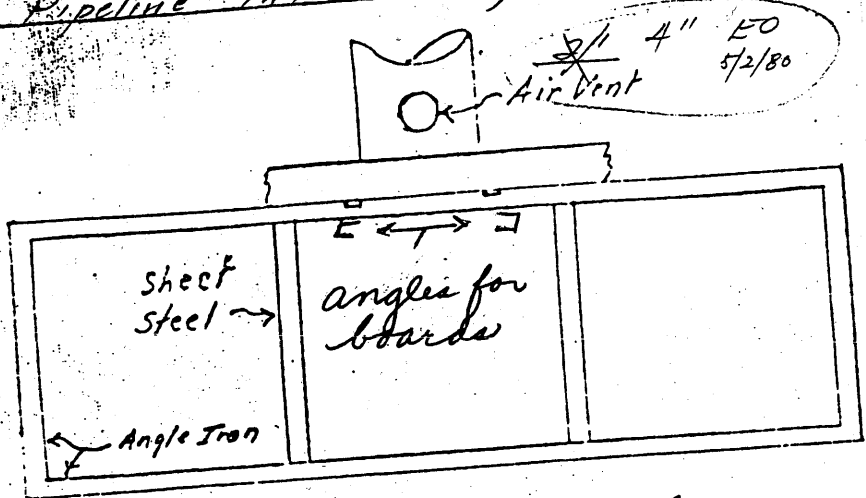
Screen Area Reqd

Assume 0.5 fpm thru screen &
 50% clogged - $A = Q/v (2) = 3.3 (4) = 13.2 \text{ ft}^2$
 40 # provided - OK

Inlet Layout (Cross Section Sketch)



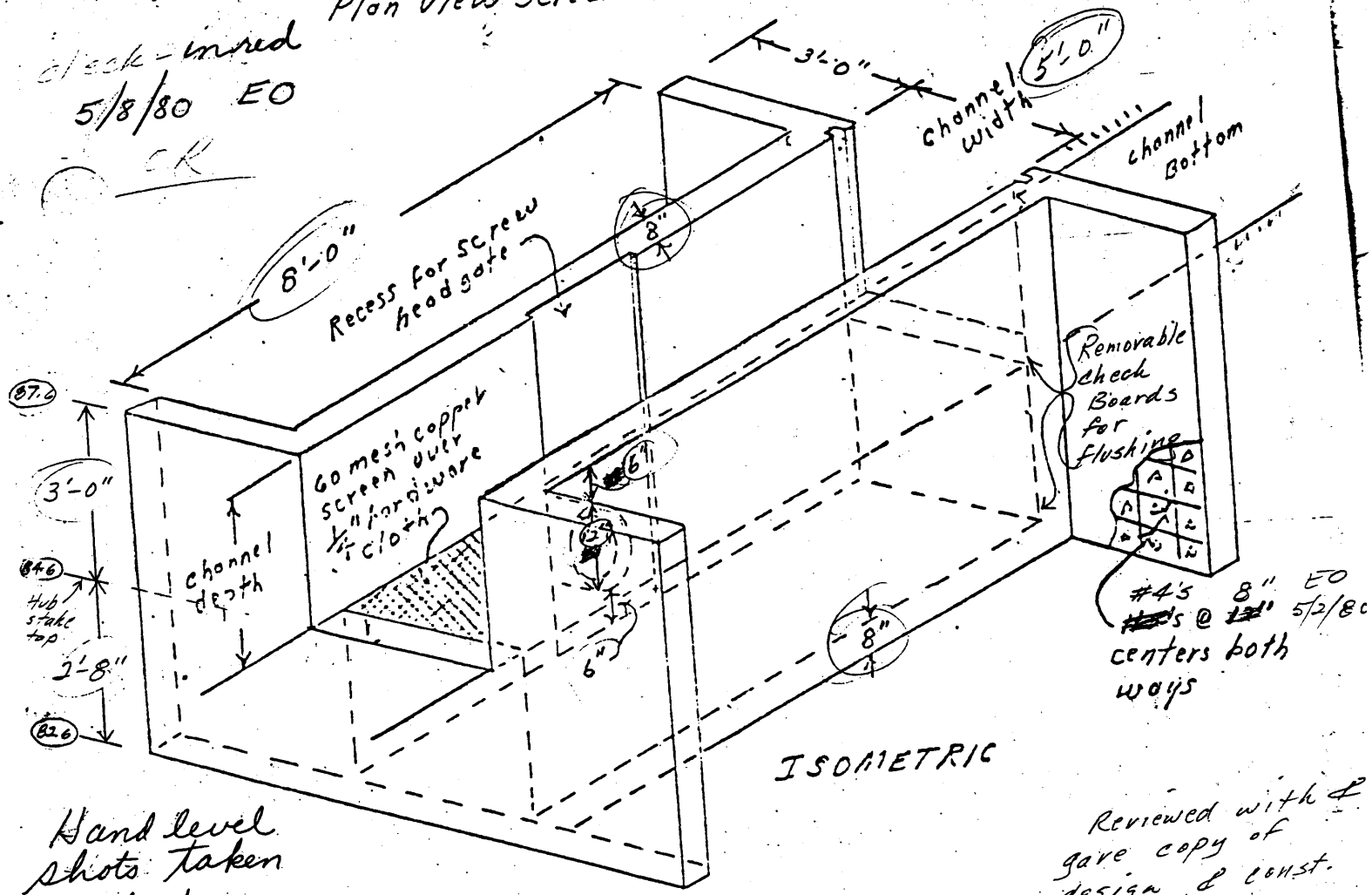
Notes: Distance from top of pipe to bottom of screen = $\frac{V^2}{2g} (1.5) + 0.5'$



Supports for screen frame can be steel dowels or bolts imbedded into conc. walls. 18" center to center maximum

Plan View Screen Frame

Check - in red
 5/8/80 EO
 CK



ISOMETRIC

Hand level
 shots taken
 to check
 elev. OK

Flow Thru Intake Structure For
 Gravity Flow Sprinkler Systems

Reviewed with & gave copy of design & const. spec 587 to contractor - he understands design. OK. EO 5/2/80

Idaho Cherry Creek Upper Group
 Eric Olson 5/80 DWS 5-1-80 1980 ACP #11
 Dunford Weston-on farm system design 10 11

Refer to sheet A for design data.

Nozzle spacing $S_L = 40 \text{ ft}$, $S_M = 30 \text{ ft}$
 Min. wetted diam. = $30 / 0.6 = 50 \text{ ft}$

Spr. Head - Rainbird 20 L TNT
 or equivalent - $1/64"$,
 4 gpm flow control, 25 psi
 wetted diam. = 55 ft.

Application rate = $\frac{96.3 (4)}{30 (40)} = 0.321 \text{ in/hr}$

Application time = 23 hrs/set

Net application = $(0.321)(23)(0.65) = 4.80 \text{ in}$

Max. Irr. Cycle = $\frac{2.5}{0.321} = 32 \text{ days}$

Actual frequency = 17 days

Laterals minimum = $\frac{87 \text{ sets}}{32 \text{ days}} = 3.9 (3 \frac{1}{2} \text{ in.})$

System capacity: 93 nozzles @ 4 gpm
 = 372 gpm

Friction loss in main (steel, $\pi = 0.012$)

Irr Guide Chart 4-b

0+00 - 6+00	- 372 gpm	- 8"	- 4.5 ft/1000'	= 2.7 ft loss
6+00 - 11+00	- 272	- ↓	- 2.5	1.2
11+00 - 16+00	- 192	- ↓	- 1.3	0.6
16+00 - 21+00	- 124	- 6"	- 2.4	1.2
21+00 - 26+00	- 76 gpm	- ↓	- 1.0	0.5
				$\Sigma = 6.2 \text{ ft Loss}$

60 ft elev diff. - OK

Idaho
Eric Olson

5/80

DWS

5-1-80

1980 ACP #11

C. Evans, J. Evans, R. Jones systems design

11

11

Refer to Sheet 4 for design data

Nozzle spacing: $5l = 40 \text{ ft}$, $5m = 60 \text{ ft}$.

Min. wetted diam. $60 \text{ ft} / 0.6 = 100 \text{ ft}$.

Spr. Heads - Rain bird 30 EW TNT
or equivalent - $1\frac{1}{64}$ "

6 gpm flow control
50 psi, W.D. = 100 ft.

Application rate = $\frac{66.3 (6)}{40 (60)} = 0.241 \text{ in./hr}$

Time - 23 hrs. 15 min

Net application = $(0.241)(23)(0.65) = 3.6 \text{ "}$

Max. Irr. Cycle = $\frac{3.6}{0.21} = 17 \text{ days}$

Actual frequency: C. Evans = 17 days

J. Evans = 17 days

R. Jones = 16 days

Laterals minimum: C. Evans = $\frac{60 \text{ sets}}{17 \text{ days}} = 3.5 (4")$

(All laterals -

4" Alum hard)

J. Evans = $\frac{60 \text{ sets}}{17 \text{ days}} = 3.5 (4")$

R. Jones: $\frac{32 \text{ sets}}{17 \text{ days}} = 2.0 (4")$

System capacities (each)

62 nozzles @ 6 gpm = 372 gpm

All laterals run downhill -

Longest lateral with least drop will
be on San Evans:

38 nozz @ 6 gpm = 9 psi loss

$P_m = 50 \text{ psi} (20\%) = 10 \text{ psi}$ permissible
loss > 9 psi
OK

Rain Bird
slide.

CHERRY CREEK IRRIGATION GROUP

Funding Request

for

EMERGENCY IRRIGATION WATER FOR CROPLAND

PURPOSE:

As a result of a drought situation, the shareholders on the Cherry Creek drainage are requesting funding for a pipeline project which will consolidate source water into one system. The pipeline will eliminate $3\frac{1}{2}$ miles of gravel-bottom ditch and 3 miles of soil-bottom ditch.

APPLICABILITY:

During normal seasons, Cherry Creek provides water for two main ditches. By the end of April we were forced to use only one ditch and to alternate turns. The gravel-bottom ditch loses approximately 70% from the source to the first irrigated fields. The soil-bottom ditch loses approximately 40%.

The pipeline will also eliminate reliance on seven motorized pump stations and allow all farms to benefit from a gravity irrigation system.

All shareholders have sprinkling facilities to transport water from main pipeline to cropland.

IMPLEMENTATION OF PROJECT:

Surveys, specifications, costs, and technical data have been assembled by shareholder's group and immediate commencement has been assured by the pipeline contractor. Water resources available by July could be in use on cropland.

Summary of costs, specifications, and other data follow.

CHERRY CREEK GROUP

FROM: SPRINKLER SYSTEM DESIGN BY ERIC OLSON (1980)

Four members in group

372 gpm/member % Total $Q = 1488 \text{ GPM}$ (3.32 CFS)

WESTON SYSTEM: 93 Nozz. @ 4 gpm/Nozz.

$Sm = 30'$ 6 laterals (17n, 11n, 15n, 21n, 24n, 5n)

$Sm =$ riser spacing on mainline $n =$ Nozzles

CARL EVANS SYSTEM: 62 Nozz. @ 6 gpm/Nozz.

$Sm = 60'$ 3 laterals (15n, 8n, 39n)

JAN EVANS SYSTEM: 62 Nozz. @ 6 gpm/Nozz.

$Sm = 60'$ 2 laterals @ 31n each

RANDY JONES SYSTEM: 62 Nozz. @ 6 gpm/Nozz.

$Sm = 60'$ 2 laterals (30n & 32n)

Summary of Mainline:

0+00: Inlet structure

start 12" dia. PVC 100 psi SDR 41 PIP $L = 5400'$

Elev. 5240' $\rightarrow$ 5160' $Q = 1488 \text{ gpm}$

54+00: Tee ... 8" steel to Weston Farm

10" dia. PVC 100 psi SDR 41 PIP to Group $L = 2700'$

Elev. 5160' $\rightarrow$ 5140' $Q = 1116 \text{ gpm}$

81+00: start of Carl Evans' system

10" dia. PVC 100 psi SDR 41 PIP $L = 600'$

Elev. 5140' $\rightarrow$ 5085' $Q = 1116 \text{ gpm}$

87+00: Reducer 10" $\rightarrow$ 8"

8" dia. PVC 100 psi SDR 41 PIP $L = 700'$

Elev. 5085' $\rightarrow$ 5075' $Q = 1056 \text{ gpm}$

STATE	Idaho	PROJECT	Cherry Creek Irrigation Group		
BY	R.E.D.	DATE	5-24-77	CHECKED BY	P.J.N.
				DATE	6-22-77
SUBJECT	Gravity Sprinkler System				JOB NO. Eng Class I 744m units
					SHEET 1 OF 5

Date:	Groups water	Photo	GPM @ water right
Shareholder	Irrigated Ac.	MEASURED Acres	
D. Weston	60	110	381.6
C. Evans	60	86	381.6
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V. Bloxham	80	52	508.8
R. Stewart	40	40	254.4
Everett McNee	80	80	508.8
	460	538	2088.0

Acresage was based on 2800 gpm

$$= \frac{6.36 \text{ gpm}}{\text{acre}}$$

Id-40 = 2927 gpm required for 460 acres

Design for area to receive this amount
water

Nozzle requirement: Peak daily use c. 212"

See ID-40

$$S_m = 40' \quad S_L = 40' \quad 23 \text{ hrs} = 4.0 \text{ "Net} = 0.174'$$

Ref Sec 15
Chpt 11 Sec
MEHP

$$\text{Gpm} = \frac{(40') (40') (0.174' \text{ hr})}{24.3 (\text{conversion})} = 6.67 \text{ gpm}$$

Because of some irregular fields nozzle
capacity will vary somewhat to utilize
the proposed metered flow

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PROJECT <i>Cherry Creek Irrigation Group</i>		DATE <i>5-24-77</i>		CHECKED BY <i>PJN</i>		DATE <i>6-22-77</i>		JOB NO.	
SUBJECT <i>Gravity Sprinkler System</i>		SHEET <i>2</i>		OF		<i>5</i>			

Min. Water Dia = $60 \div 6 = 100'$
 Nozzle Selection: Use Rainbird Model 360 or 400
 30 EWTWT → D. Weston = 6.35 gpm use = 13/64 @ 27 psi
 30 W → C. Evans = 4.93 gpm " = 3/16" @ 46 psi 98'
 W.D. = 40' 2.29"/hr = 4.2" int
 30 W → C. Mock = 7.22 gpm " = 3/16" @ 51 psi
 W.D. = 100' 2.29"/hr = 4.3" int
 30 W → V. Jones = 7.79 gpm " = 3/16" @ 59 psi
 W.D. = 102'
 30 E → V. Bloxham = 6.69 gpm " = 11/64" @ 61 psi
 W.D. = 103'
 30 W → R. Stewart = 4.89 gpm " = 11/64 @ 67 psi
 W.D. = 104'
 30 W → E. Mc Nee = 7.79 gpm " = 3/16" @ 59 psi
 W.D. = 102'

3" laterals Weston P.m = 57 psi + 0.75 (73 psi) = 32.48 psi = 75.0 ft
 4" lateral C. Evans P.m = 46 psi + 0.75 (34 psi) = 48.5 psi = 112.2 ft
 " C. Mock P.m = 51 psi + 0.75 (50 psi) = 54.75 psi = 126.5 ft
 " V. Jones P.m = 59 psi + 0.75 (90 psi) = 65.75 psi = 151.9 ft
 own main 20' drop + 20' own main line loss = 171.9 ft
 " V. Bloxham = 61 psi + 0.75 (21 psi - 10 psi) = 69.25 psi = 160 ft
 " R. Stewart P.m = 67 psi + 0.75 (83 psi + 60 psi) = 77.73 psi = 179.6 ft
 + 10.0' own main loss = 189.6 ft
 " E. Mc Nee P.m = same as V Jones less than Stewart

All laterals meet 20% operating pressure
 Except R Stewart and it = 14.3 psi $\approx$ 13.5 psi ok
 Lateral losses from Rainbird calculator

page 2

Cherry Creek Irrigation Group
Funding Request

<u>Shareholders</u>	<u>Percentage of stock & Percentage of Water</u>	<u>Irrigated Acres *</u>	
C. Evans	11.11%	60 acres	104
V. Jones	16.67	80	160
E. McNee	16.67	80	80
C. Mock	11.11	60	160
D. Weston	11.11	60	90
R. Stewart	8.33	40	70
V. Eloxham	16.67	80	300
Totals	100.00	460	904 Ac

*Acresage based on source intake of 2,600 gallons/minute and 7 gallons/minute output per sprinkler head.

Materials:

- a. Pipe
- 7,920 feet of 15inch plastic pipe (50 lb.)
 - 1,485 feet of 12inch plastic pipe (60 lb.)
 - 2,640 feet of 10inch plastic pipe (80 lb.)
 - 2,640 feet of 8inch plastic pipe (100 lb.)

Total length of pipe 14,685 feet

- b. Flow Meters 7
- c. Settling Pond, cement intake and gravel duct
- d. Joints, valves, and air release valves

Costs:

Pipe	\$57,000
Flow Meters	7,000
Valves, etc.	1,000
Pond	2,000
Installation	13,000
Total	\$80,000

Cost per Acre \$80,000 ÷ 460 acres = \$173 (figures based on land currently under irrigation)

Survey of the ...
... ..

PLAN OF PLANNED ...

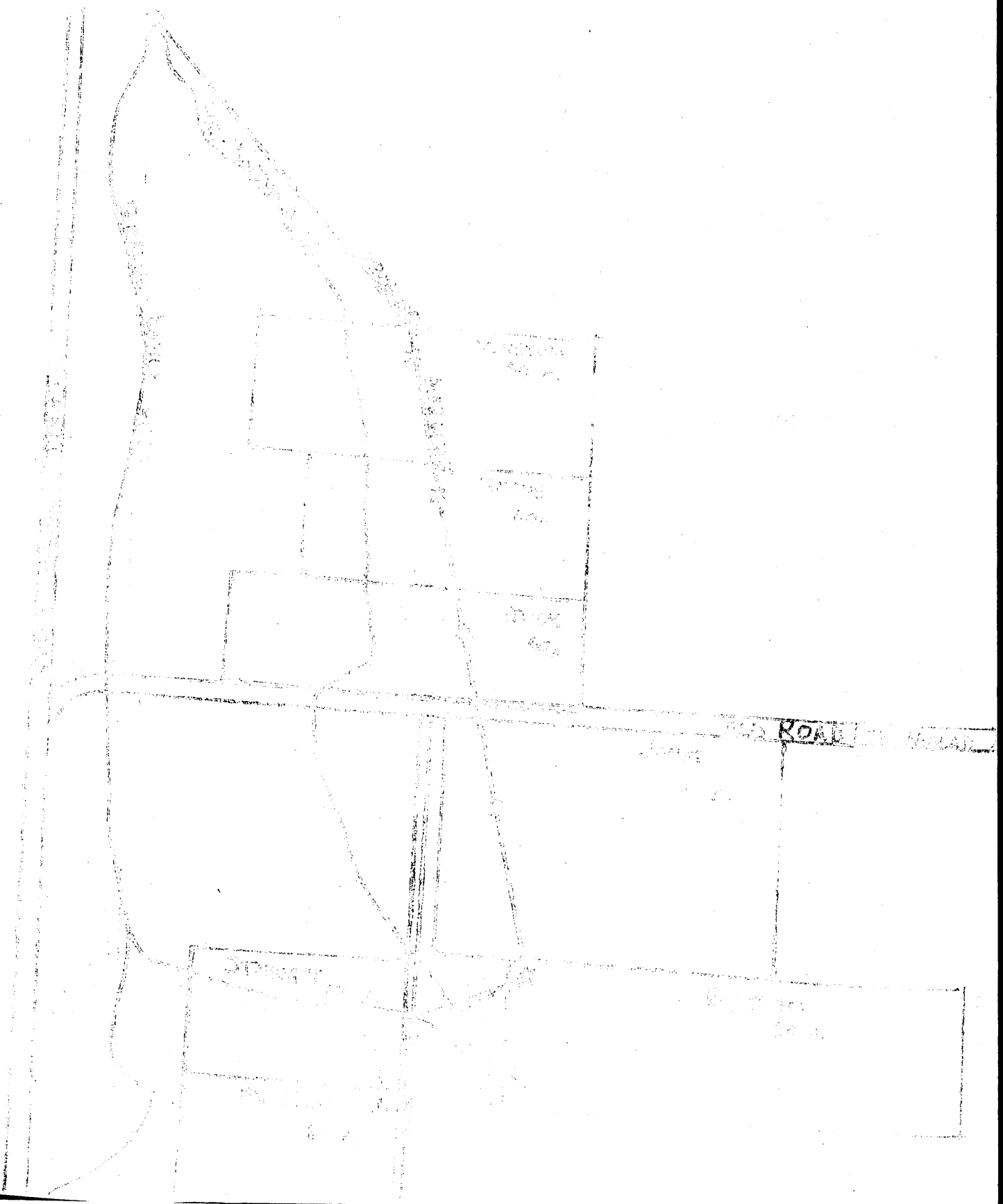


EXHIBIT C

10.14.40
 Cherry Creek Upper Group
 Eric Olson - 580 OW's 5-1-80 1150 ACP #11
 Inventory of resources 3 11

Water rights: Cherry creek divided in half at division between upper & lower groups. Upper group split has changed since previous designs due to land & water right trades. Split is now one-quarter to each of the four members. This will be done by using flow control nozzles. Best division appears to be 4 gpm per nozzle at Weston's and 6 gpm per nozzle at each of the others. To attain equal split Weston will run 50% more nozzles.

Because decision has been made by member on pipeline sizes - use 5 fps velocity limitation for maximum flow condition number of acres to be irrigated:

Pipe diam	Flow at 5 fps	members	GPM/member
12"	1660	4	415
10"	1150	3	383
8"	740	2	370
6"	420	1	420

Most limiting is 8" at 740 gpm, this will supply 2 members. so use 370 gpm per individual.

Sheet 4 indicates a 6.35 gpm per acre requirement

$$\frac{370 \text{ gpm}}{6.35 \text{ gpm/acre}} = 58 \text{ Acres/member}$$

Each member has well over 58 irrigable acres.

Present ditch will be retained to utilize any run-off by surface irrigation.