

ASSOCIATED EARTH SCIENCES Inc.
BIOLOGY - GEOLOGY - ENGINEERING - SOIL SURVEYS - SOIL & WATER QUALITY
RESOURCE PLANNING - SITE INVESTIGATION

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Scott King
Idaho Dept. of Water Resources
301 N. Orchard St.
Boise, ID 83706

At the request of Dana Hofstetter, I have completed a Hubble analysis for water rights 65-07461 and 65-11261 for the George Colwell, Birding Island Ranch. Because 07461 is scattered in several pieces, I made a calculation on each segment as individual fields. Segments 1, 2, 3, 5, 6, 7, 9 & 10 are summarized on the sheet with the "Water Right 65-07461" heading. Segments 4 (12.0 acres) and 8 (4.5 acres) are overlap areas and these acreages were covered in my previous Hubble evaluation of rights 65-03617 and 65-08627 and were excluded from this evaluation.

A small 10-acre area, right number 65-11261 was calculated individually and is displayed on a separate summary sheet.

A map showing all segments of 65-07461 as well as the area of 65-11261 is attached. With each summary sheet are FURROW results with efficiency values for each parcel and FIR spreadsheets for each right. Of the 9 parcels, all but segments 1 and 2 are part of fields for which I made field visits and calculations on the previous Hubble evaluations. On those two parcels I utilized soils information from the Payette Area Soil Survey and from field information gathered from Mr. Colwell in a phone interview..

The final field requirement values for my calculations are:

Water Right 65-07461 6.63 CFS 0.047 CFS per acre 2.33 miners inch

Water Right 65-11261 0.62 CFS 0.062 CFS per acre 3.10 miners inch

The conveyance loss for these parcels is calculated based on the Tuthill loss rate of 29.3% of the field headgate requirement. The resulting total value is as follows:

Right 65-07461 Field headgate requirement of 6.63 X 0.293 = 1.94 CFS

Right 65-11261 Field headgate requirement of 0.62 X 0.293 = 018 CFS

I hope this is clear and covers all the remaining areas of cropland. If you have any questions call me at 850-4926 or FAX at 939-8602.



HARLEY R. NOE
Professional Soil Scientist

attachments

CC w/ attachments: Dana Hofstetter, George Colwell

Birding Island Ranch

Scale = 1:19000

2

4

3

5

6

7

Segments 1, 2, 3, 5, 6, 7, 9 & 10
are in right 65-07461

9

10

Segments 4 & 8 of right
65-07461 are overlap
and were included in right
65-03617 & 65-08627 Hubble
evaluations

65-11261



Water Right 65-07461

On Farm Requirement Summary

Segment Number	Adj. Acres	Run Length	Set Time (hours)	Intake Family	Rep. Soil Series	MAD Value	Efficiency (%)	Total Field Req. (CFS)
1	13.0	185	12	0.55	Moulton	2.3	37	0.44
2	69.0	635	12	0.70	Notus	1.4	22	4.06
3	5.6	300	12	0.70	Notus	1.4	24	0.30
4	covered in right 65-03617							
5	4.2	210	12	0.70	Notus	1.4	25	0.22
6	2.2	650	12	0.70	Notus	1.4	21	0.14
7	13.0	390	12	0.55	Notus	1.4	32	0.53
8	covered in right 65-08627							
9	18.0	630	12	0.55	Moulton	2.3	46	0.49
10	17.0	540	12	0.55	Chance	2.3	48	0.45

TOTAL	142.0	6.63
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Total on-farm requirement for water right 65-07461 in miner's inches.	2.33
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Total requirement in CFS per acre	0.047
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Run length of 635 feet used on Segment 2 from 1270 foot field length. FURROW would not run at full field length.

Segment 1

INTAKE FAMILY	DESIGN APPLIC. Inches	FURROW SLOPE Ft/Ft	FURROW SPACING Feet	FURROW LENGTH Feet	INFLOW RATE Gpm	APPROXIMATE INFLOW TIME Hours	ADVANCE TIME Minutes	GROSS IRRIGATION APPLICATION Inches	NET IRRIGATION APPLICATION Inches	RUNOFF Inches	DEEP PERC. In.	IRRIGATION EFFICIENCY %
0.55	2.30	.005	2.00	185	9.0	12	10.3	28.09	5.54	22.52	3.27	8.19
0.55	2.30	.005	2.00	185	8.0	12	10.8	24.97	5.40	19.54	3.13	9.21
0.55	2.30	.005	2.00	185	7.0	12	11.4	21.85	5.25	16.57	2.98	10.53
0.55	2.30	.005	2.00	185	6.0	12	12.4	18.73	5.08	13.61	2.82	12.28
0.55	2.30	.005	2.00	185	5.0	12	13.9	15.61	4.89	10.67	2.63	14.74
0.55	2.30	.005	2.00	185	4.0	12	16.5	12.49	4.68	7.76	2.43	18.42
0.55	2.30	.005	2.00	185	3.5	12	18.7	10.93	4.56	6.31	2.31	21.05
0.55	2.30	.005	2.00	185	3.0	12	22.0	9.36	4.42	4.88	2.19	24.56
0.55	2.30	.005	2.00	185	2.5	12	27.7	7.80	4.27	3.45	2.05	29.47
0.55	2.30	.005	2.00	185	2.0	12	39.0	6.24	4.07	2.06	1.89	36.84

37%

Segment 2

INTAKE FAMILY	DESIGN APPLIC. Inches	FURROW SLOPE Ft/Ft	FURROW SPACING Feet	FURROW LENGTH Feet	INFLOW RATE Gpm	APPROXIMATE INFLOW TIME Hours	ADVANCE TIME Minutes	GROSS	NET	DEEP	IRRIGATION			
								IRRIGATION	IRRIGATION			RUNOFF	PERC.	EFFICIENCY
								APPLICATION	APPLICATION					
0.70	1.40	.005	2.00	1270	10.0	12	752.8	4.55	0.00	0.00	0.00	0.00		
0.70	1.40	.005	2.00	635	10.0	12	93.5	9.09	6.40	2.22	5.47	15.39		
0.70	1.40	.005	2.00	635	9.0	12	109.2	8.18	6.14	1.50	5.29	17.11		
0.70	1.40	.005	2.00	635	8.0	12	132.5	7.28	5.82	0.80	5.08	19.24		
0.70	1.40	.005	2.00	635	7.0	12	169.9	6.37	5.39	0.12	4.84	21.99		
0.70	1.40	.005	2.00	635	6.0	12	236.6	5.46	5.39	0.12	4.84	21.99		
0.70	1.40	.005	2.00	635	6.5	12	197.9	5.91	5.39	0.12	4.84	21.99		
0.70	1.40	.005	2.00	635	7.0	12	169.9	6.37	5.39	0.12	4.84	21.99		
0.70	1.40	.005	2.00	635	6.5	12	197.9	5.91	5.39	0.12	4.84	21.99		

w/ split runs

22%

Segment 2

INTAKE	DESIGN	FURROW	FURROW	FURROW	INFLOW	APPROXIMATE	ADVANCE	GROSS	NET		DEEP	IRRIGATION
FAMILY	APPLIC.	SLOPE	SPACING	LENGTH	RATE	INFLOW TIME	TIME	IRRIGATION	IRRIGATION	RUNOFF	PERC.	EFFICIENCY
	Inches	Ft/Ft	Feet	Feet	Gpm	Hours	Minutes	Inches	Inches	Inches	In.	%
0.70	1.40	.005	2.00	300	10.0	12	21.2	19.25	6.94	12.21	5.64	7.27
0.70	1.40	.005	2.00	300	9.0	12	22.8	17.32	6.77	10.45	5.47	8.08
0.70	1.40	.005	2.00	300	7.0	12	28.1	13.47	6.38	6.97	5.10	10.39
0.70	1.40	.005	2.00	300	6.0	12	32.9	11.55	6.15	5.26	4.89	12.12
0.70	1.40	.005	2.00	300	5.0	12	40.9	9.62	5.89	3.57	4.66	14.55
0.70	1.40	.005	2.00	300	4.0	12	56.9	7.70	5.55	1.91	4.39	18.18
0.70	1.40	.005	2.00	300	3.5	12	71.9	6.74	5.32	1.11	4.23	20.78
0.70	1.40	.005	2.00	300	3.0	12	98.4	5.77	5.03	0.33	4.05	24.24
0.70	1.40	.005	2.00	300	2.5	12	152.5	4.81	5.03	0.33	4.05	24.24

24%

Segment 5

INTAKE FAMILY	DESIGN APPLIC. Inches	FURROW SLOPE Ft/Ft	FURROW SPACING Feet	FURROW LENGTH Feet	INFLOW RATE Gpm	APPROXIMATE INFLOW TIME Hours	ADVANCE TIME Minutes	GROSS	NET	RUNOFF Inches	DEEP PERC. In.	IRRIGATION EFFICIENCY %
								IRRIGATION APPLICATION Inches	IRRIGATION APPLICATION Inches			
0.70	1.40	.005	2.00	210	10.0	12	12.2	27.50	7.01	20.44	5.66	5.09
0.70	1.40	.005	2.00	210	8.0	12	13.7	22.00	6.67	15.28	5.32	6.36
0.70	1.40	.005	2.00	210	6.0	12	16.6	16.50	6.26	10.17	4.93	8.49
0.70	1.40	.005	2.00	210	5.0	12	19.3	13.75	6.02	7.65	4.70	10.18
0.70	1.40	.005	2.00	210	4.0	12	24.3	11.00	5.75	5.16	4.44	12.73
0.70	1.40	.005	2.00	210	3.5	12	28.6	9.62	5.59	3.93	4.30	14.55
0.70	1.40	.005	2.00	210	3.0	12	35.7	8.25	5.40	2.71	4.14	16.97
0.70	1.40	.005	2.00	210	2.5	12	48.5	6.87	5.16	1.52	3.96	20.36
0.70	1.40	.005	2.00	210	2.5	12	48.5	6.87	5.16	1.52	3.96	20.36
0.70	1.40	.005	2.00	210	2.0	12	76.8	5.50	4.83	0.36	3.74	25.46
0.70	1.40	.005	2.00	210	1.5	12	165.5	4.12	4.83	0.36	3.74	25.46

25%

Segment 506

INTAKE FAMILY	DESIGN APPLIC. Inches	FURROW SLOPE Ft/Ft	FURROW SPACING Feet	FURROW LENGTH Feet	INFLOW RATE Gpm	APPROXIMATE INFLOW TIME Hours	ADVANCE TIME Minutes	GROSS	NET	DEEP	IRRIGATION			
								IRRIGATION	IRRIGATION			RUNOFF	PERC.	EFFICIENCY
								APPLICATION	APPLICATION					
								Inches	Inches	Inches	In.	%		
0.70	1.40	.005	2.00	650	10.0	12	98.9	8.88	6.36	2.02	5.46	15.76		
0.70	1.40	.005	2.00	650	9.0	12	115.9	8.00	6.09	1.32	5.27	17.51		
0.70	1.40	.005	2.00	650	8.0	12	141.3	7.11	5.75	0.64	5.06	19.70		
0.70	1.40	.005	2.00	650	7.0	12	182.3	6.22	5.75	0.64	5.06	19.70		
0.70	1.40	.005	2.00	650	8.0	12	141.3	7.11	5.75	0.64	5.06	19.70		
0.70	1.40	.005	2.00	650	7.5	12	159.1	6.66	5.54	0.31	4.95	21.01		
0.70	1.40	.005	2.00	650	7.0	12	182.3	6.22	5.54	0.31	4.95	21.01		

21%

Segment 7

INTAKE FAMILY	DESIGN APPLIC. Inches	FURROW SLOPE Ft/Ft	FURROW SPACING Feet	FURROW LENGTH Feet	INFLOW RATE Gpm	APPROXIMATE INFLOW TIME Hours	ADVANCE TIME Minutes	GROSS IRRIGATION APPLICATION Inches	NET IRRIGATION APPLICATION Inches	RUNOFF Inches	DEEP PERC. In.	IRRIGATION EFFICIENCY %
0.55	1.40	.005	2.00	390	10.0	12	30.5	14.81	5.55	9.15	4.26	9.45
0.55	1.40	.005	2.00	390	9.0	12	33.0	13.33	5.41	7.80	4.13	10.51
0.55	1.40	.005	2.00	390	8.0	12	36.5	11.85	5.26	6.46	3.98	11.82
0.55	1.40	.005	2.00	390	7.0	12	41.5	10.36	5.08	5.14	3.83	13.51
0.55	1.40	.005	2.00	390	6.0	12	49.4	8.88	4.89	3.83	3.65	15.76
0.55	1.40	.005	2.00	390	5.0	12	62.8	7.40	4.65	2.54	3.46	18.91
0.55	1.40	.005	2.00	390	4.0	12	90.3	5.92	4.32	1.29	3.23	23.64
0.55	1.40	.005	2.00	390	3.5	12	117.0	5.18	4.09	0.69	3.09	27.01
0.55	1.40	.005	2.00	390	3.0	12	165.2	4.44	3.75	0.11	2.93	31.52
0.55	1.40	.005	2.00	390	2.5	12	267.7	3.70	3.75	0.11	2.93	31.52

32%

Segment 9

INTAKE FAMILY	DESIGN APPLIC. Inches	FURROW SLOPE Ft/Ft	FURROW SPACING Feet	FURROW LENGTH Feet	INFLOW RATE Gpm	APPROXIMATE INFLOW TIME Hours	ADVANCE TIME Minutes	GROSS IRRIGATION APPLICATION	NET IRRIGATION APPLICATION	RUNOFF Inches	DEEP PERC. In.	IRRIGATION EFFICIENCY %
								Inches	Inches			
0.55	2.30	.005	2.00	630	10.0	12	76.8	9.17	5.28	3.59	3.27	25.09
0.55	2.30	.005	2.00	630	9.0	12	87.5	8.25	5.10	2.82	3.13	27.88
0.55	2.30	.005	2.00	630	8.0	12	102.9	7.33	4.88	2.06	2.97	31.36
0.55	2.30	.005	2.00	630	7.0	12	126.9	6.42	4.61	1.32	2.80	35.85
0.55	2.30	.005	2.00	630	6.5	12	144.3	5.96	4.45	0.96	2.70	38.60
0.55	2.30	.005	2.00	630	6.0	12	167.7	5.50	4.25	0.61	2.59	41.82
0.55	2.30	.005	2.00	630	5.5	12	200.2	5.04	4.00	0.27	2.47	45.62
0.55	2.30	.005	2.00	630	5.0	12	247.7	4.58	4.00	0.27	2.47	45.62

46%

Segment 10

INTAKE	DESIGN	FURROW	FURROW	FURROW	INFLOW	APPROXIMATE	ADVANCE	GROSS	NET		DEEP	IRRIGATION
FAMILY	APPLIC.	SLOPE	SPACING	LENGTH	RATE	INFLOW TIME	TIME	IRRIGATION	IRRIGATION	RUNOFF	PERC.	EFFICIENCY
	Inches	Ft/Ft	Feet	Feet	Gpm	Hours	Minutes	Inches	Inches	Inches	In.	%
0.55	2.30	.005	2.00	540	10.0	12	55.7	10.69	5.41	5.08	3.31	21.51
0.55	2.30	.005	2.00	540	9.0	12	62.3	9.62	5.24	4.15	3.17	23.90
0.55	2.30	.005	2.00	540	8.0	12	71.6	8.56	5.06	3.23	3.02	26.88
0.55	2.30	.005	2.00	540	7.0	12	85.6	7.49	4.84	2.33	2.86	30.72
0.55	2.30	.005	2.00	540	6.0	12	108.8	6.42	4.57	1.45	2.67	35.85
0.55	2.30	.005	2.00	540	5.0	12	151.9	5.35	4.18	0.60	2.45	43.01
0.55	2.30	.005	2.00	540	4.5	12	189.9	4.81	3.90	0.20	2.31	47.79
0.55	2.30	.005	2.00	540	4.0	12	250.9	4.28	3.90	0.20	2.31	47.79

48%

Segment Number	Adj. Acres	Run Length	Set Time (hours)	Intake Family	Rep. Soil Series	MAD Value	Efficiency (%)	Total Field Req. (CFS)
-	10.0	770	12	0.7	Notus	1.4	21	0.62

Total on-farm requirement for water right 65-11261 in miner's inches.	3.10
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Total requirement in CFS per acre	0.062
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Seymour

Right 65-11261

INTAKE FAMILY	DESIGN APPLIC. Inches	FURROW SLOPE Ft/Ft	FURROW SPACING Feet	FURROW LENGTH Feet	INFLOW RATE Gpm	APPROXIMATE INFLOW TIME Hours	ADVANCE TIME Minutes	GROSS IRRIGATION	NET IRRIGATION	RUNOFF Inches	DEEP PERC. In.	IRRIGATION EFFICIENCY %
								APPLICATION Inches	APPLICATION Inches			
0.70	1.40	.005	2.00	770	10.0	12	152.5	7.50	5.95	0.75	5.35	18.67
0.70	1.40	.005	2.00	770	9.0	12	184.0	6.75	5.58	0.20	5.15	20.74
0.70	1.40	.005	2.00	770	8.0	12	232.6	6.00	5.58	0.20	5.15	20.74
0.70	1.40	.005	2.00	770	9.0	12	184.0	6.75	5.58	0.20	5.15	20.74
0.70	1.40	.005	2.00	770	8.5	12	205.4	6.37	5.58	0.20	5.15	20.74

21%