STATE OF IDAHO DEPARTMENT OF WATER RESOURCES BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 65-22709 **Exam Date:** 08/26/2019

1. Current Owner:

EAGLE VIEW ESTATES HOA 4965 EAGLEVIEW CT FRUITLAND ID 83619-5001

2. Accompanied by:

Phone No: 208-452-6078

Address: 4965 Eagle View Court, Fruitland, ID 83619 Relationship to permit Holder: President of HOA

3. **SOURCE:** GROUND WATER

Method of Determination: site visit

B. OVERLAP REVIEW

1. Other water rights with the same place of use:

YES Overlap

Water Right No.	Source	Purpose of Use	Basis	

Comments: There are four surface water rights on the property that have the owner listed as Black Canyon Irrigation District or the United States of America. The source of the water for the four rights are: Wilson Slough (63-2322), Elijah Drain (63-2878), Payette River (65-2433), Tunnel No. 2 Drain (65-2900). The subdivision holds fourteen shares in Black Canyon Irrigation District that provide irrigation and stockwater to Lots 10-19.

11-18 (PER MARRATINE AND THEORETICAL HORSEPOWER EQUATION WOLFHEET)

2. Other water rights with the same point-of-diversion:

NO Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: (none)

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER NE1/4 NW1/4, Sec. 22, Twp 07N, Rge 05W, B.M. PAYETTE County

Method of Determination: Site visit.

PLACE OF USE: IRRIGATION

Twp Rng		Sec	NE			NW			SW			SE			Totals				
TVVP	Twp Kilg Sec	360	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
07N	05W	22					9.3												9.3

Total Acres: 9.3

PLACE OF USE: STOCKWATER

Twp Rng Sec	NE	NW	SW	SE	Totals

			NE	NW	SW	SE													
07N	05W	22					Х									27			

Method of Determination: Site visit and 2009 aerial photography. (The proof of beneficial use was submitted in 2007.)

3.	Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
	Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
	Aerial Photo Attached (required for irrigation of 10+ acres).
	Photo of Diversion and System Attached

Well or Diversion ID No.*	Motor Make	Нр	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0042667		5		Goulds 55GS50	B0602431

D. FLOW MEASUREMENTS (none taken, as the pump delivers to lots on demand)

Measurement Equipment	Туре	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements:

E. FLOW CALCULATIONS

3 Additional Computation Sheets Attached

Measured Method:

Theoretical (see attached sheet) = 0.08 cfs (assumptions 5 hp pump with an elevation of 280 feet—drawdown at 200 gpm) Theoretical (see attached sheet) = 0.13 cfs (assumptions 5 hp pump with an elevation of 140 feet—drawdown at 30 gpm)

Theoretical (see attached sheet) = 0.15 cfs (assumptions 5 hp pump with an elevation of 118 feet—static water level)

The discharge pipe out of the well is a 1.5" to 2.0" galvanized pipe (based on picture).

A theoretical discharge capacity for such pipes are (see attached table):

1.5" diameter: 32 gpm = 0.07 cfs, V = 5.04 ft/s, friction loss = 9.0 ft/100ft (rule of thumb is 5 ft/s max. design capacity)

2" diameter: Q = 50 gpm = 0.11 cfs, V = 4.78 ft/s, friction loss = 6.1 ft/100ft (rule of thumb is 5 ft/s max. design capacity)

The total number of acres developed under the right are 4.2 acres irrigated solely by groundwater with 5.1 additional acres that can utilize groundwater when surface water is unavailable.

Permit allows: 0.99 cfs or 0.02 cfs/acre

4.2 acres * 0.02 = 0.08 cfs (land irrigated solely by groundwater)

9.3 acres * 0.02 cfs = 0.19 cfs (supplemental irrigation added to land irrigated solely by groundwater)

I recommend that the diversion rate be 0.11 cfs limited to the discharge capacity of a 2" galvanized pipe flowing at a velocity of 5 ft/s. This would allow 0.09 cfs for irrigation plus 0.02 cfs for stockwater use.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

V IR = (Acres Irrigated) x (Irrigation Requirement) = 9.3 acres * 4.5 ac-ft/acre = 41.9 ac-ft

V DR = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = 0.08 cfs * 260 days * 1.9835 ac-ft/day = 41.3 ac-ft

V = Smaller of V IR and V DR = 41.3 ac-ft

HI . 9 AC-FT

2. Volume Calculations for Other Uses:

Stockwater for 10 horses or cattle = 0.02 cfs or 0.2 ac-ft per Administrative Memo #3.

G. NARRATIVE/REMARKS/COMMENTS

Brent Vaughn of Eagle Valley Construction Inc. developed the Eagle Valley Estates Subdivision on the south side of Glenway Avenue just to the west of Highway 95 in Payette County. He received a permit on November 21st, 2002 to irrigate 36 acres, provide domestic water to 19 homes, and stockwater to up to 50 head of livestock (either cattle or horses). In 2007 Brent provided notice of beneficial use. Based on a site visit and aerial photos from 2009, it appears that a maximum of 9 lots were developed at the time the proof of beneficial use was filed. None of the houses utilize the subdivision's groundwater supply for domestic purposes.

The subdivision has 14 shares of surface water with Black Canyon Irrigation District. These 14 shares have the capacity to irrigate lots 11-18. A connection is available at each of the lots to link to the surface water system. During the field exam Brent explained that Lots 1-10 and lot 19 are developed to be irrigated with groundwater. A valve located between lots 10 and 11 allows groundwater to provide a supplemental irrigation supply to the lots irrigated primarily by surface water in case surface water is unavailable through Black Canyon Irrigation District. However for all practical purposes the surface water and groundwater irrigation systems are operated as two separate systems.

A sticker on the pump control box indicates that the groundwater pump located on Lot 5 has a 5 hp Goulds pump. A five horsepower pump should be capable of delivering (see theoretical calculations) adequate water to irrigate the four lots developed prior to 2009 with some extra water for stock. While Brent envisioned the subdivision as an equestrian subdivision when he started development, few homes been developed with stock capacity. Brent felt that the current capacity of the subdivision is less than 10 stock. Per Administrative Memo #3, 0-10 stock require a diversion rate of 0.02 cfs and an annual capacity of 0.2 ac-ft.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use	Rate of Diversion	Annual Volume
IRRIGATION	03/01 to 11/15	0.09 CFS	41.3 AG-FT -W
STOCKWATER	01/01 to 12/31	0.02 CFS	0.2 AC-FT
	Totals:	0.11 CFS	41.5 AC-FT

2.	Recommended Amendments		
	Change P.D. as reflected above	Add P.D. as reflected above	None
	Change P ₂ U. as reflected above	Add P.U. as reflected above	None

I.	AUTHENTICATION	David Hoekema - Hydrologist, Technical			
	Field Examiner's Name	Sand Hochers	_ Date	1/22/2020	_
	Reviewer		_ Date		_

State of Idaho **Department of Water Resources**

Delivery System Diagram 65-22709

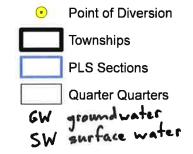
This map depicts the IRRIGATION delivery system as describe by Brent Vaughn at the time of the beneficial use exam. Locations are approximate and are solely for illustrative purposes.

05W



0.0325

0.065

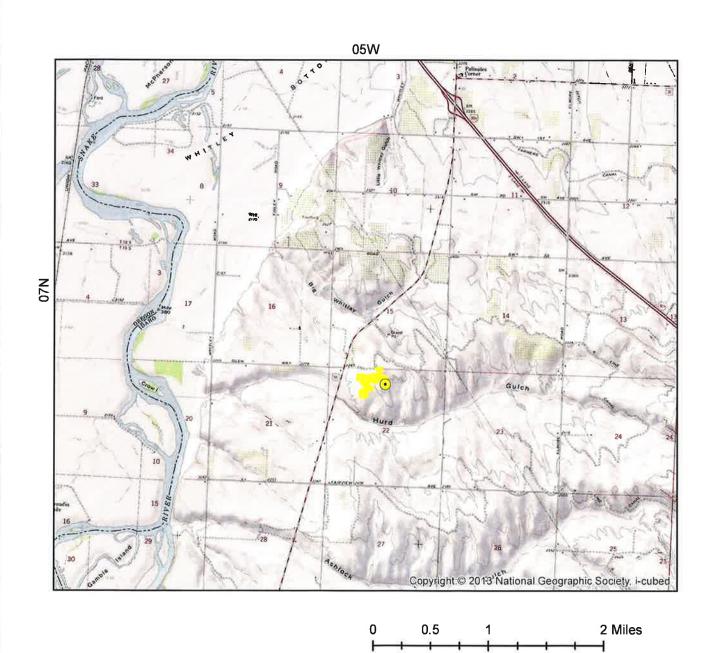


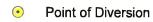


0.13 Miles

State of Idaho Department of Water Resources

Location Map 65-22709





Place Of Use Boundary

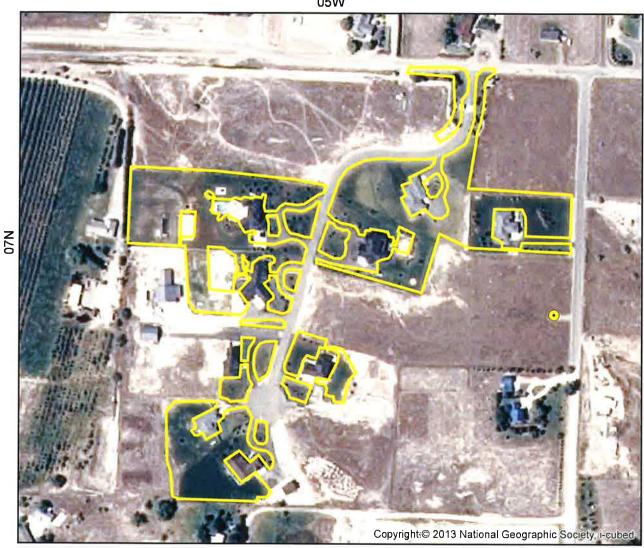


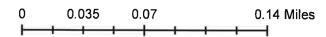
State of Idaho Department of Water Resources

Aerial Photo from 2009

65-22709

05W

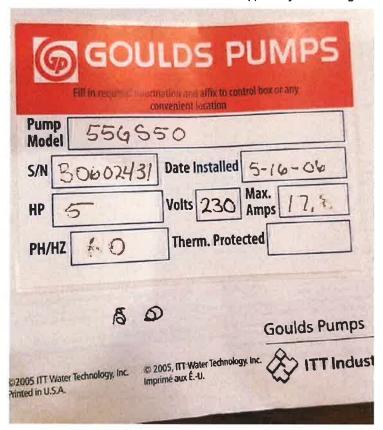




- Point of Diversion
- Place Of Use Boundary



J. PHOTOGRAPHS from the Field Exam and Supplied by Brent Vaughn



Brent Vaughn sent this photo of the pump specs in the electrical control box near the well.



Groundwater well and electrical control box for Eagle View Estates.

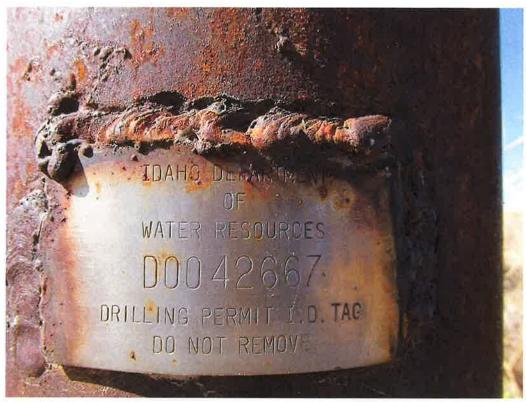
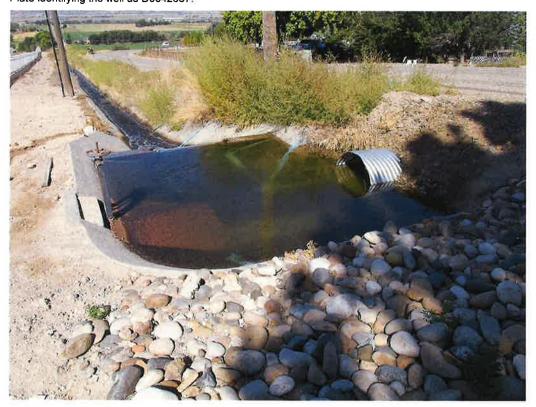


Plate identifying the well as D0042667.



Surface water delivered from Black Canyon Irrigation District. The headgate to the subdivision is at the left side of the pool almost directly across from the culvert.



Surface water control box with two headgates. The closest headgate (with staff gage) sends water to the circular tank in the left corner from which the surface water is pumped and delivered to the subdivision via a 7.5 hp pump. The far headgate (which also has a staff gage) delivers water to a downstream (or down gradient) neighbor.



7.5 hp pump used to pressurize the surface water irrigation system.

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.:

65-22709

Reviewer:

David Hoekema

Date of Review:

5/22/2018

D/	\neg	M	^	
~		IN	O	

PUMP HORSEPOWER BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs) RATE OF FLOW (gpm)

D0042667*] [
	1 1
5	1 1
0	1 1
	1 1
280	1 1
	1 1
40	1 1
	1 1
0.08] [
37	1 [

D	0042667***
	5
	0
	118
	40
	0.15
	66

The above calculates the formula =

Q =

8.8 * (Efficiency) * hp

depth to water + 2,31*(psi)+friction

Assumptions:

%70 efficiency.

No Friction

Examiners Notes:

The Eagle View Estates is served by both surface and groundwater according to Brent Vaughn the president of the Home Owners' Association and developer of the subdivision. During the field exam Brent indicated that lots 11-18 are supplied irrigation water by 14 shares from the Black Canyon Irrigation District, while lots 1-10 and lot 19 are supplied irrigation water from groundwater pumped from a communel well on Lot 5. This groundwater pump has a five horsepower motor. The first well driller's report records drawndown under two conditions. When pumped at a rate of 150 gpm for 2 hours the drawdown was 300 feet, but when pumped at a rate of 30 gpm for 4 hours the drawdown was 140 feet. The second well driller's report records that the well was limited in capacity to 60 gpm with fine sands. After perforated casing and screens were placed in the well its capacity increased and yielded 200 gpm for 3 hours with a drawdown of 280 feet. The maximum rate allowed on the permit is 0.02 cfs per acre. There are 4.2 acres of land within the subdivision at the time of submittal for beneficial use that were irrigated solely by groundwater. If just those acres are counted, the maximum diversion rate would be 0.08 cfs. If the surface water irrigated land is included (which can utilize supplemental groundwater) the total acres at the time of submittal of beneficial use were 9.3 acres or 0.19 cfs. Based on the theoretical calculation above the pump capacity lies somewhere between 0.08 cfs and 0.15 cfs. The discharge pipe on the pump is estimated at 1.5" to 2.0" in diameter based on a picture of the well. The pipe diameter limits the flow to $0.11\,\mathrm{cfs}$ to maintian a flow under 5 ft/s given a diameter of 2". This seems like a reasonable maximum value of diversion for the numn given the size of the discharge nine

D0042667**

0

140

40

0.13

59

120						riction Los		7.00				
C New Galvanized Steel Pipe, Sch 40 IPS Size												
1-1/4" 1-1/2" 2"												
O.D.= 1.660 Wall= 0.140 I.D.= 1.380				O.D.= 1.900 Wall= 0.145 I.D.= 1.610				O.D.= 2.375 Wall= 0.154 I.D.= 2.067				
	Velocity Friction				Velocity Friction				Velocity Frict			
	Velocity	Head	Loss		Velocity	Head	Loss		Velocity	Head	Loss	
GPM	(ft/s)	(ft)	(ft/100')	GPM	(ft/s)	(ft)	(ft/100')	GPM	(ft/s)	(ft)	(ft/100')	
4.0	0.86	0.01	0.4	6	0.95	0.01	0.4	10	0.96	0.01	0.3	
5.0	1.07	0.02	0.6	8	1.26	0.02	0.7	12	1.15	0.02	0.4	
6.0	1.29	0.03	0.9	10	1.58	0.04	1.0	14	1.34	0.03	0.6	
7.0	1.50	0.04	1.1	12	1.89	0.06	1.5	16	1.53	0.04	0.7	
8.0	1.72	0.05	1.5	14	2.21	0.08	1.9	18	1.72	0.05	0.9	
10.0	2.15	0.07	2.2	16	2.52	0.10	2.5	20	1.91	0.06	1.1	
12.0	2.57	0.10	3.1	18	2.84	0.13	3.1	22	2.10	0.07	1.3	
14.0	3.00	0.14	4.1	20	3.15	0.15	3.8	24	2.30	0.08	1.6	
16.0	3.43	0.18	5.3	22	3.47	0.19	4.5	26	2.49	0.10	1.8	
18.0	3.86	0.23	6.6	24	3.78	0.22	5.3	28	2.68	0.11	2.1	
20.0	4.29	0.29	8.0	26	4.10	0.26	6.1	30	2.87	0.13	2.4	
25.0	5.36	0.45	12.0	28	4.41	0.30	7.0	35	3.35	0.17	3.1	
30.0	6.44	0.65	16.9	30	4.73	0.35	8.0	40	3.83	0.23	4.0	
35.0	7.51	0.88	22.5	32	5.04	0.40	9.0	45	4.30	0.29	5.0	
40.0	8.58	1.15	28.8	34	5.36	0.45	10.1	50	4.78	0.36	6.1	
50.0	10.7	1.79	43.5	36	5.67	0.50	11.2	55	5.26	0.43	7.3	
60.0	12.9	2.58	60.9	38	5.99	0.56	12.3	60	5.74	0.51	8.5	
70.0	15.0	3.51	81.0	40	6.31	0.62	13.6	65	6.22	0.60	9.9	
80.0	17.2	4.59	103.8	42	6.62	0.68	14.9	70	6.69	0.70	11.4	
90.0	19.3	5.81	129.1	44	6.94	0.75	16.2	75	7.17	0.80	12.9	
				46	7.25	0.82	17.6	80	7.65	0.91	14.5	
				48	7.57	0.89	19.0	85	8.13	1.03	16.3	
				50	7.88	0.97	20.5	90	8.61	1.15	18.1	
				55	8.67	1.17	24.5	95	9.09	1.29	20.0	
				60	9.46	1.39	28.8	100	9.56	1.42	22.0	
				65	10.2	1.64	33.4	110	10.5	1.72	26.2	
				70	11.0	1.90	38.3	120	11.5	2.05	30.8	
				75	11.8	2.18	43.5	130	12.4	2.41	35.7	
				80	12.6	2.48	49.0	140	13.4	2.79	41.0	
				85	13.4	2.80	54.9	150	14.3	3.21	46.6	
				90	14.2	3.14	61.0					

120		FOR THE				riction Los		W.C.	12 E 15		100	
С	New Galvanized Steel Pipe, Sch 40											
	IPS Size											
	2-1/2"				3"				4"			
	O.D.= 2.875			O.D.= 3.500				O.D.= 4.5				
1	Wall=	0.203		l	Wall=	0.216			Wall=	0.237		
	I.D.=	2.469			I.D.≃	3.068			I.D.=	4.026		
		Velocity	Friction			Velocity	Friction			Velocity	Friction	
	Velocity	Head	Loss		Velocity	Head	Loss		Velocity	Head	Loss	
GPM	(ft/s)	(ft)	(ft/100')	GPM	(ft/s)	(ft)	(ft/100')	GPM	(ft/s)	(ft)	(ft/100')	
20	1.34	0.03	0.5	30	1.30	0.03	0.35	60	1.51	0.04	0.3	
25	1.68	0.04	0.7	35	1.52	0.04	0.46	80	2.02	0.06	0.6	
30	2.01	0.06	1.0	40	1.74	0.05	0.59	100	2.52	0.10	0.9	
35	2.35	0.09	1.3	45	1.95	0.06	0.73	120	3.03	0.14	1.2	
40	2.68	0.11	1.7	50	2.17	0.07	0.89	140	3.53	0.19	1.6	
45	3.02	0.14	2.1	60	2.60	0.11	1.25	160	4.03	0.25	2.0	
50	3.35	0.17	2.6	70	3.04	0.14	1.66	180	4.54	0.32	2.5	
55	3.69	0.21	3.1	80	3.47	0.19	2.13	200	5.04	0.40	3.1	
60	4.02	0.25	3.6	90	3.91	0.24	2.65	220	5.55	0.48	3.7	
65	4.36	0.30	4.2	100	4.34	0.29	3.22	240	6.05	0.57	4.3	
70	4.69	0.34	4.8	120	5.21	0.42	4.51	260	6.55	0.67	5.0	
75	5.03	0.39	5.4	140	6.08	0.58	6.00	280	7.06	0.78	5.8	
80	5.36	0.45	6.1	160	6.95	0.75	7.7	300	7.56	0.89	6.6	
85	5.70	0.51	6.8	180	7.81	0.95	9.6	320	8.07	1.01	7.4	
90	6.03	0.57	7.6	200	8.68	1.17	11.6	340	8.57	1.14	8.3	
95	6.4	0.63	8.4	220	9.55	1.42	13.9	360	9.08	1.28	9.2	
100	6.7	0.70	9.3	240	10.42	1.69	16.3	380	9.58	1.43	10.2	
110	7.4	0.85	11.0	260	11.29	1.98	18.9	400	10.1	1.58	11.2	
120	8.0	1.01	13.0	280	12.15	2.30	21.7	420	10.6	1.75	12.2	
130	8.7	1.18	15.0	300	13.02	2.64	24.6	460	11.6	2.09	14.5	
140	9.4	1.37	17.3	320	13.89	3.01	27.7	500	12.6	2.47	16.9	
160	10.7	1.79	22.1	340	14.76	3.39	31.0	550	13.9	2.99	20.2	
180	12.1	2.27	27.5	360	15.63	3.80	34.5	600	15.1	3.56	23.7	
200	13.4	2.80	33.4	380	16.50	4.24	38.1	650	16.4	4.18	27.5	
220	14.7	3.39	39.9	400	17.36	4.70	41.9	700	17.6	4.85	31.5	
240	16.1	4.03	46.8	420	18.2	5.18	45.9	750	18.9	5.57	35.8	