

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 37-21622

Exam Date: May 10, 2012

1. Current Owner: SALIGAO LLC
PO BOX 6551
KETCHUM ID 83340
(208) 726-4421
2. Accompanied by: Morley Golden and Jim Speck (also Ton the home keeper)
Phone No: 720-0956 (Morley) and 721-8416 (Ton) and 726-2626 (house #)
Address: mgolden@mgolden.com and jim@speckandaanestad.com
Relationship to Permit Holder: management and attorney

3. **SOURCE**

GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 37-8465
2. Other water rights with the same point of diversion: none

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NW1/4SE1/4 Sec. 1, Twp 04N, Rge 17E, B.M. BLAINE County

Method of Determination: GPS

2.

PLACE OF USE: AESTHETIC (domestic use has not been developed)

Twp	Rge	Sec	NE				NW				SW				SE				
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>Totals</u>
04N	17E	1														X			

Method of Determination: aerial image/field inspection

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

4.

<u>Well or Diversion</u> <u>ID No.</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge</u> <u>Size</u>
D0043552	SubDrive Quick PAK	1	NA	Franklin	SDQP 25-215

(the right holder provided the hp to me via email since the pump was submersed)

D. FLOW MEASUREMENTS

1.

<u>Measurement</u> <u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
5 gallon bucket and stopwatch with 25 foot-5/8 hose						
20 gallon bucket and stopwatch with 25 foot-5/8 hose (I didn't have a lot of confidence in the measurement taken with the 5 gallon bucket; the flow was under a lot of pressure, I brought in a 20 gallon bucket to verify the measurement but note that using a 5/8 hose restricted the diversion rate—see my head loss calculations, etc.)						

2. Measurements:

Time to fill 5 gallon bucket:	16.25 seconds	Time to fill 20 gallon bucket:	55.69 seconds
	11.03 seconds		64.31 seconds
	9.0 seconds		63.03 seconds
	<u>11.65 seconds</u>		<u>183.03/61.01 average</u>
	47.93 seconds total/11.98 average		

E. FLOW CALCULATIONS

___N___ Additional Computation Sheets Attached

Measured Method: A measurement was taken at the frost free hydrant. The opening was too big to capture flow but a hose bib was installed at the end of the hydrant. This was the only way a physical measurement could be taken.

1. 11.98 average to fill a 5 gallon bucket = $5 \times 60/11.98 = 25$ gpm or **0.06 cfs**
 61.01 average to fill a 20 gallon bucket = $20 \times 60/61.01 = 19.7$ gpm or **0.04 cfs**

These measurements were problematic. The friction losses and the size of the hose caused the measurements to come out much smaller than what the system could do (see worksheet #1).

2. hp equation

$$\text{TDH} = 58.3'$$

$$\text{Depth to water} = \text{estimated at } 20'$$

$$\text{Friction losses} = 15.2' \text{ (see worksheet \#2 for calculations)}$$

$$\text{psi} = 10 \text{ psi of back pressure}$$

$$\text{hp} = 1$$

$$8.8 \times 0.7 \times 1/58.3 = 0.105 \text{ cfs} \quad \text{or rounded to } 0.11 \text{ cfs}$$

3. The pump curve (attached) depicts the following: 58.3 head = 42.5 gpm or **0.09 cfs - 0.10 cfs**

4. Pipe flows, when properly designed at 5 ft/second, can be determined using the following equation:

$$Q = 5 \pi r^2$$

$$r = (\text{diameter}/12)/2 \text{ (r in feet)}$$

$$\pi = 3.1416$$

$$1.5'' \text{ pipe is designed to accommodate} = 0.06 \text{ cfs}$$

The theoretical estimates of flow range from 0.06 cfs to 0.11 cfs. However, I believe that the system can do 0.11 cfs as indicated in the hp equation.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: NA
2. Volume Calculations for Other Uses: Aesthetic use

The pond level is maintained by the neighbor (37-8465) up until the end of June. If Saligao doesn't supplement the pond from the groundwater from his well, there is nothing but the groundwater in the pond that is intercepted from the water table. In a typical year, this right is used from July and is off by October. A volume will not be assigned to this right, rather the volume will be addressed in the conditions since this is supplemental.

G. NARRATIVE/REMARKS/COMMENTS

At the time of the field examination, no pipe was extended from the well to the house. Domestic use will not be authorized under this right.

System description: there is a 1 ½ line to the valve where the water is conveyed into the pond by a rigid plastic pipe that is placed in the pond.

All of the conditions of the permit have been met. Specifically, conditions #s 9 and 12 of the permit have been met for the following reasons:

#9. The right holder shall limit the diversion of ground water under right 37-21622 for aesthetic use to those time when the aesthetic water supply provided by right 37-8465 is not available.

This condition will carry to the license. Saligao has no control of when the right holder of 37-8465 turns off his water to the pond. Saligao will use this right as needed when the pond is only maintained by ground water of the water table.

#12. Water diverted for aesthetic use under this right shall be conveyed to the pond in a closed conduit and no additional water feature shall be constructed.

I have confirmed that this condition has been met. Please see the system diagram for further details.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
AESTHETIC	03/15 to 11/15	0.11 CFS	NA
<u>Totals:</u>		0.11 CFS	

2. Recommended Amendments

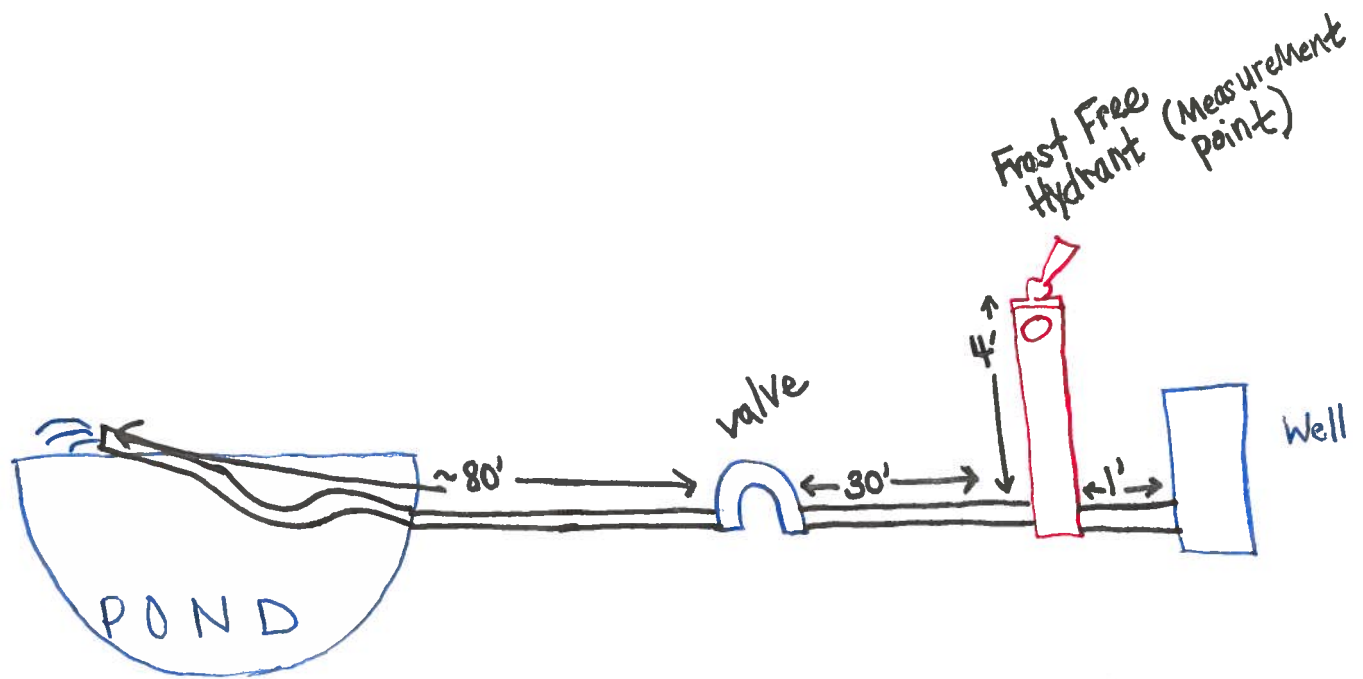
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

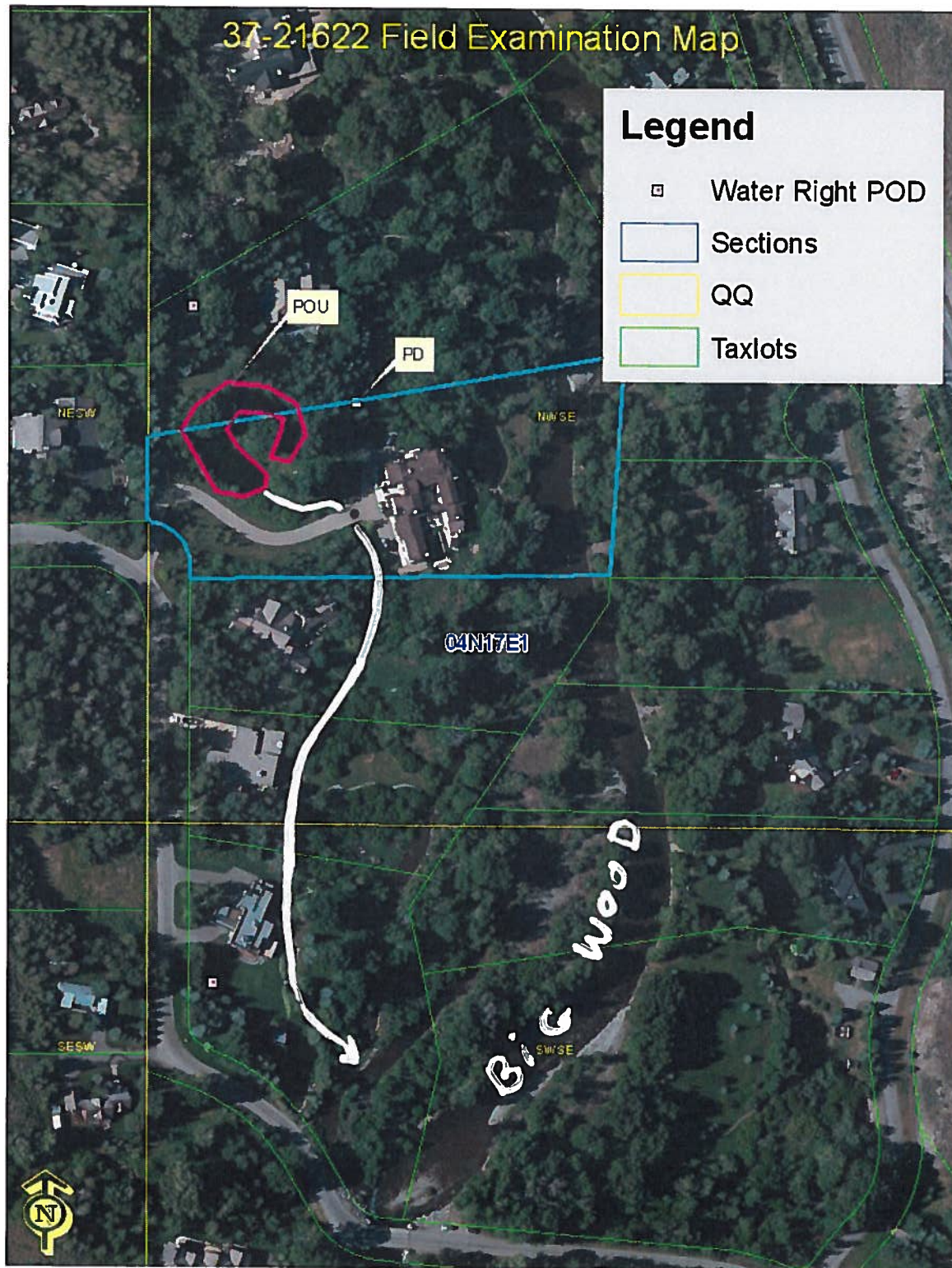
I. AUTHENTICATION

Field Examiner's Name David Palmer Date 5/22/12

Reviewer _____ Date _____

System DiagramSystem Notes:

- Pipe is 1 1/2" in size
- Well is not stubbed out to the house
- Valve is meant to split the drainage @ some point
- Pond is the same size as originally authorized under 37-8465.

Map



20 gallon bucket measurement



Pond, facing North



Pond, facing NE
toward the well



Hydrant before
hose bib is attached



valve



Pond, facing NW standing at the valve

Point of discharge into pond (pipe not visible)



Water from pond
on south side of
bridge in driveway

- Bridge is marked on
aerial photo

The water travels down
the channel and dis-
charges into the Big
Wood.

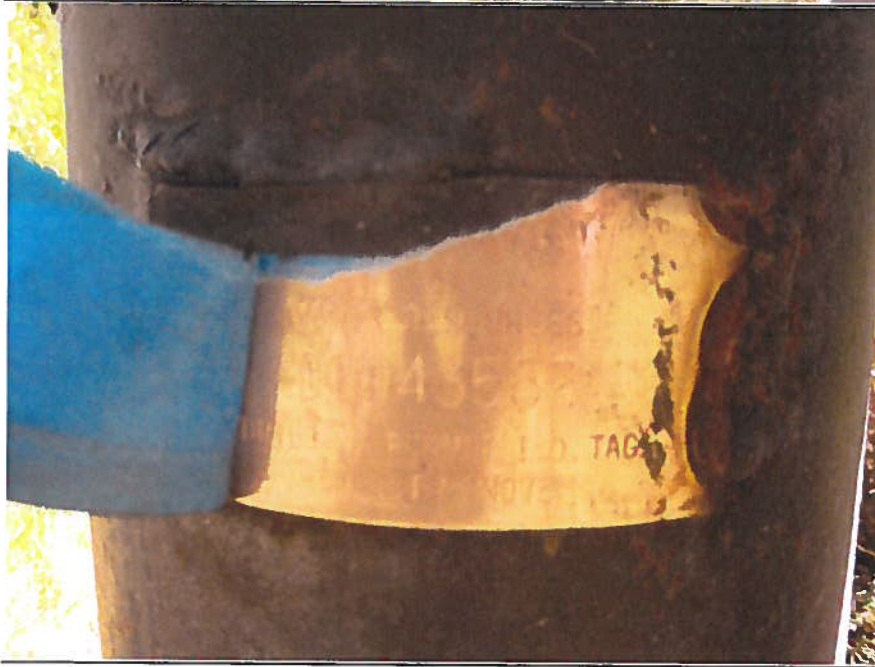


Standing @ the
bridge in driveway
looking N

Pond



Hydrant with hose
bib



Well ID
D0043552

Welded onto casing

Hazen-Williams Equation for Pressure Loss in Pipes

Worksheet #1

Imperial Units

Specified Data

l = length of pipe (ft)	25
c = Hazen-Williams roughness constant	150
q = volume flow (gal/min)	40
d_h = inside or hydraulic diameter (inches)	0.63

Calculated Pressure Loss

f = friction head loss in feet of water per 100 feet of pipe (ft H ₂ O per 100 ft pipe)	<u>896.87</u>
f = friction head loss in psi of water per 100 feet of pipe (psi per 100 ft pipe)	<u>385.65</u>

Head loss (ft H ₂ O)	<u>224.22</u>
Head loss (psi)	<u>96.41</u>

Calculated Flow Velocity

v = flow velocity (ft/s)	<u>41.85</u>
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* Head losses substantial for the flow measurements.
Cannot determine the system's capacity using the
bucket and stopwatch method.

Hazen-Williams Equation for Pressure Loss in Pipes

Imperial Units

Specified Data

L = length of pipe (ft)	120
C = Hazen-Williams roughness constant	150
Q = volume flow (gal/min)	40
d_h = inside or hydraulic diameter (inches)	1 1/2

Calculated Pressure Loss

f = friction head loss in feet of water per 100 feet of pipe (ft H ₂ O per 100 ft pipe)	<u>12.67</u>
f = friction head loss in psi of water per 100 feet of pipe (psi per 100 ft pipe)	<u>5.45</u>

Head loss (ft H ₂ O)	→ <u>15.21</u>
Head loss (psi)	<u>6.54</u>

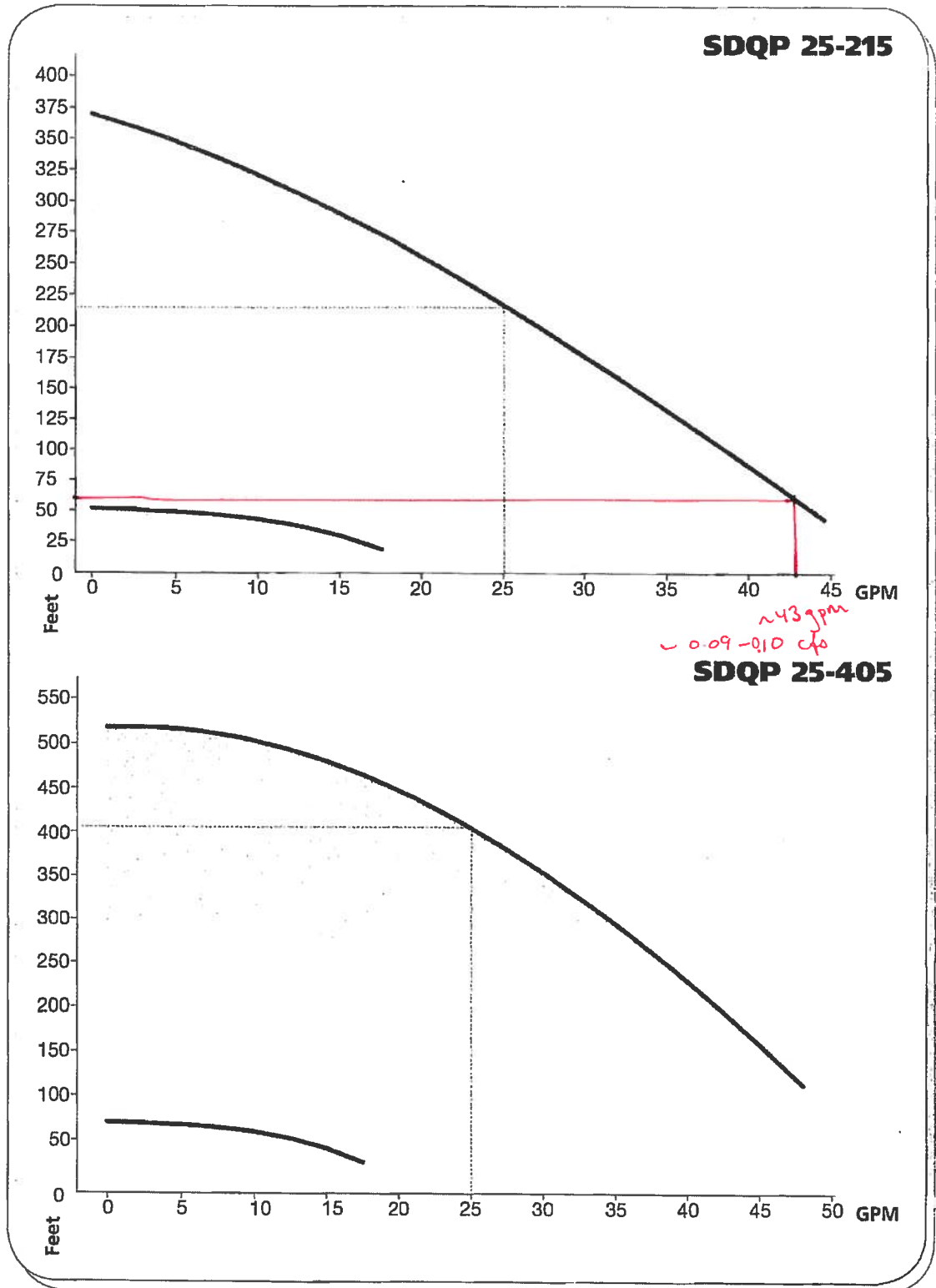
Calculated Flow Velocity

v = flow velocity (ft/s)	<u>7.27</u>
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QuickPAK

SubDrive QuickPAK Performance Curve

Salgado
Pump



Overlap Analysis for 37-21622

Type	WR #	Owner	Source	TRS	NWSE	SWSE	Significant Overlap y/n?
Permit	37 21150	SALIGAO LLC,	BIG WOOD RIVER	04N17E1	X		N--use is for aesthetic use in a pond
Permit	37 21622	SALIGAO LLC,	GROUND WATER	04N17E1	X		
Right	37 8478	RIVERWOODS HOMEOWNERS ASSN,	GROUND WATER	04N17E1	X	X	N--Domestic and Irrigation
Right	37 8480	THE BARER FAMILY TRUST,	GROUND WATER	04N17E1	X		N--Different POU
Right	37 8465	ROBERT COLMAN, PRESIDENT,	GROUND WATER	04N17E1	X		Y--Same POU/37-21622 meant to be supplemental Addressed in conditions of permit
Type	WR #	Owner	Source	TRS	NWNE	SWNE	
Right	37 8478	RIVERWOODS HOMEOWNERS ASSN,	GROUND WATER	04N17E12	X		N--Domestic and Irrigation

37-21622_Taxlot

UPDATE	OWNER	ADDRESS	CITY	STATE	ZIPCODE	P_ADDRESS	SUB_NAM	LEGAL1	LEGAL2
3/10/2012	SALIGAO LLC	PO BOX 5308	KETCHUM	ID	83340-0000	46 ADAMS GULCH RD		RIVERWOODS SUB 3A	LOT

Taxlot data per Blaine Cty Records