

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-34799

Exam Date: 10/7/19

1. Current Owner:
CASTLE ROCK DEVELOPMENT INC 1017 S ARBOR ISLAND WAY EAGLE ID 83616
2. Accompanied by: NONE
Phone No:
Address:
Relationship to permit Holder:

3. **SOURCE:**
GROUND WATER

Tributary
BOISE RIVER

Method of Determination: Aerial imagery

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
63-125G	Boise River	Aesthetic Storage	Decreed

Comments: Overlap is for evaporation water which is diverted into pond covered by right 63-31812 under a joint mitigation plan

2. Other water rights with the same point-of-diversion: NO Overlap

Comments: _____

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

GROUND WATER SE¼ NE¼, Sec. 15, Twp 04N, Rge 01W, B.M. ADA County

Method of Determination: Pond centroid, aerial imagery, digital PLS map

PLACE OF USE: AESTHETIC STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	01W	15				X													

Method of Determination: Aerial imagery, digital PLS map

- ✓ ☒ 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.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
N/A					

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements:

Surface Area = 0.78 acres

E. FLOW CALCULATIONS☐ Additional Computation Sheets Attached

Measured Method:

No measurement, storage only

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} =$$

2. Volume Calculations for Other Uses:

$$0.78 \text{ acres} \times 20 \text{ ft} \times 0.4 = 6.2 \text{ acre-feet}$$

G. NARRATIVE/REMARKS/COMMENTS

This permit was approved on June 28, 2007 authorizing the storage of 55.4 acre-feet of groundwater for aesthetic storage. Proof of beneficial use was submitted August 4, 2017, roughly two months after it was due, which pushed the priority date back an equivalent amount of time. I completed this field exam on October 8, 2019.

The original application appeared to propose one very large pond to the east of Silver Moon Lane. The pond was meant to intercept shallow ground water. After visiting the site, it appears that two smaller ponds were developed in the place of the single larger pond that was proposed. For that reason I have recommended two separate licenses, one for each pond. This permit (63-34799) represents the northern pond which lies on Lot 6, Block 1, Griffiths Subdivision No. 2.

The pond is an area of 0.78 acres which was excavated to a depth below the water table. The pond intercepts shallow groundwater, which is tributary to the Boise River. The permit did not have the tributary information, so I made sure to add it at licensing.

The current landowner did not know the depth of the pond. I have estimated the pond depth at 20 ft. I arrived at this depth because the water bearing zone was conditioned to be to a max depth of 20 ft. The 20 ft depth was intended for the larger pond that was proposed. I doubt that the permit holder would have excavated two smaller ponds to a depth deeper than the depth proposed for a larger pond. The permit holder constructed 5 other ponds west of the place of use in the Rivervine Subdivision. Each of these was roughly 20 ft deep demonstrating a consistent construction. Therefore it seems reasonable that the depth for this pond is around 20 ft. At 20 ft deep, the total volume of the pond would be 6.2 acre-feet.

The evaporation is estimated at 2.4 afa, which is based on the Caldwell ETIdaho precipitation deficit dataset. The evaporation is covered under the Aesthetic Storage component of water right 63-125G. The amount of water allotted for evaporation was determined based on a 1 to 1 swap of acres from irrigation to pond surface area. Originally, the intention was to develop a total of 16.93 acres of ponds between 63-31811, 63-31812, 63-31813, 63-31974, 63-31975, and 63-31814 (now 63-31814 and 63-34799). I measured a total of 11.6 acres of ponds from aerial imagery. Our current understanding of mitigation would require roughly 29 acres of irrigation to be given up to offset the July evaporation rate from the ponds (when the mitigating right is cut to 60% of its value). Therefore, I propose maintaining the mitigation volume that was approved even though less pond surface area was developed. I will make a comment to that effect on 63-125G so that it can be evaluated and updated on that right at a later date. I will update the mitigation condition on rights 63-31811, 63-31812, 63-31813, 63-31974, and 63-31975 to reflect the fact that 63-31814 has been split into two rights.

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

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
AESTHETIC STORAGE	01/01 to 12/31		6.2 AF

Totals:

6.2 AF

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
 ☒ None

I. AUTHENTICATION

Cody Parker - Water Resource Agent, Senior

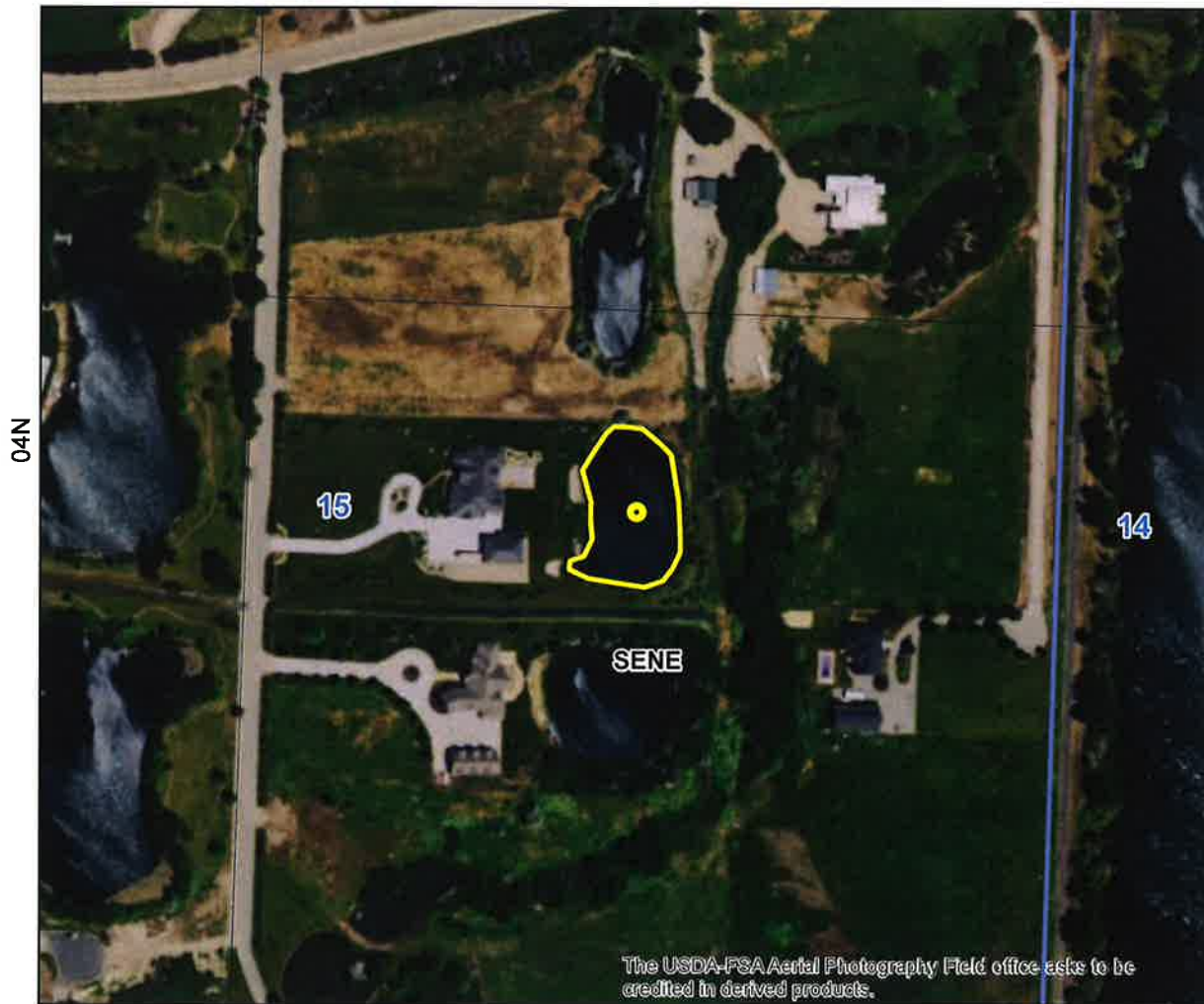
Field Examiner's Name Cody Parker Date 10-24-19

Reviewer Patricia Miller Date 10-24-2019

State of Idaho
Department of Water Resources
Beneficial Use Field Report
63-34799

AESTHETIC STORAGE

01W



-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.035 0.07 0.14 Miles



Evaporation Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

FILE NUMBER	63-34799
REVIEWER	Cody Parker
DATE	10/7/2019

User Input
Calculated value
Formula Explanations

The acronyms used on the Kimberly Research Center website are defined below:

P = Precipitation
ET= Evapotranspiration
P _d = Precipitation deficit
P _d =ET-P

USING THIS SPREADSHEET

Use the link below to access the Kimberly Research Center website. This website provides the Precipitation Deficit for a station most representative of the pond under examination. The Precipitation Deficit is the total amount of free water surface evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used throughout the state. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at X:/Spatial/Climate/ETIdahostations.shp.

Instructions:

1. Use the link below to navigate to ET Idaho 2012.
2. Select the station which is most representative to your pond location.
3. Click Submit Query.
4. Under "Land Covers with Evapotranspiration Estimates," select "Open Water - Shallow Systems (ponds, streams)" or "Open Water - small stock ponds" depending on the pond size.
5. Click the link to "Precipitation Deficit."
6. Reference and copy (ctrl + C) the first subheading "Mean" values.
7. Click the "Paste Values from ET Idaho" button. The table will automatically enter a zero (0) for any negative precipitation deficit values.

Found at: <http://data.kimberly.uidaho.edu/ETIdaho/>

Precipitation Deficit

Station: Caldwell (NWS -- USC00101380)

Month	mm/day ¹	Days per month	mm/Month
Jan	-0.76	31	0.00
Feb	0.30	28	8.40
March	1.53	31	47.43
April	3.12	30	93.60
May	4.41	31	136.71
June	5.04	30	151.20
July	5.57	31	172.67
August	4.69	31	145.39
September	3.34	30	100.20
October	2.08	31	64.48
November	0.06	30	1.80
December	-0.67	31	0.00

PLEASE NOTE: The seasonal average for precipitation deficit should not be used for calculations because precipitation often exceeds evaporation during wetter months of the year. If the pond is kept full, excess precipitation during wetter months does not serve to refill the pond during drier months.

For example, see Sandpoint KSPT (NWS -- 108137), the annual precipitation deficit is -106 mm. However, April through September have positive precipitation deficit values. To properly estimate the annual volume of water necessary to refill a pond due to evaporation losses, the table will automatically enter a zero (0) for each month that the precipitation value is reported as a negative value.

As described above, precipitation offsets evaporation in winter months, so the net effect is that wintertime precipitation deficit is usually zero.

Total mm/year = **921.88**

$$((\text{mm/yr}) \div (\text{convert to feet})) \times (\text{Surface area of pond, in acres}) = \text{Evaporation Loss in Acre Feet}$$

(**921.88**) ÷ (**304.8**) X (**0.78**) = **2.4 AFA**

STATE OF IDAHO
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BENEFICIAL USE FIELD REPORT

04N01W15

BasinSeq	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE
63-10105	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-10840	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-11413	CITY OF	GROUND MUNICIPAL		X	X	X	X				X					X	X		X
63-11671	CITY OF	GROUND MUNICIPAL				X			X							X	X	X	
63-11737	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-11922	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12039	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12100	STAR SEV	GROUND MUNICIPAL							X										X
63-12162	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12173	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12181	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12295	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12346	CALDWE	GROUND DOMESTIC						X											
63-12370	STAR SEV	GROUND MUNICIPAL							X										
63-12378	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12416	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12444	EAGLE C	GROUND DOMESTIC							X										
63-12448	CITY OF	GROUND MUNICIPAL		X	X	X	X	X	X		X					X	X		X
63-12448	FARRIS, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-12560	CITY OF	GROUND MUNICIPAL				X						X		X	X	X	X	X	
63-12560	FARRIS, I	BOISE RI AESTHETIC STORAGE		X	X	X	X												
63-12560	FARRIS, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-1266	FARRIS, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-145	CARLOCI	BOISE RI IRRIGATION													X	X	X	X	
63-15578	BYARD, A	GROUND DOMESTIC						X											
63-15693	GRIFFITH	GROUND DOMESTIC			X														
63-15693	GRIFFITH	GROUND IRRIGATION			2														
63-15693	GRIFFITH	GROUND STOCKWATER			X														
63-161X	CONSUM	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-16383	CARLOCI	PHYLLIS IRRIGATION													X	X	X	X	
63-16383	CARLOCI	PHYLLIS STOCKWATER													X	X	X	X	
63-168B	BORTLE, BOISE RI	IRRIGATION		X	X	X	X									X	X		
63-168D	FARRIS, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-173	FARRIS, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-17994	CALDWE	GROUND DOMESTIC						X											
63-183	PIONEER	BOISE RI IRRIGATION		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
63-19513	KILBURN	GROUND DOMESTIC							X										
63-19513	KILBURN	GROUND STOCKWATER							X										
63-198AC	FARRIS, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-21921	KILBURN	GROUND DOMESTIC		X															
63-21923	KILBURN	GROUND DOMESTIC		X															
63-22557	ROBELLC	GROUND DOMESTIC																	
63-23136	YELTON, GROUND	DOMESTIC						X											
63-23865	HERRIDC	GROUND DOMESTIC						X											
63-23865	HERRIDC	GROUND STOCKWATER																	
63-254	FARRIS, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-255	COUZEN, I	BOISE RI IRRIGATION		X	X	X	X									X	X		
63-28665	ARANA, I	GROUND DOMESTIC																	X
63-28665	ARANA, I	GROUND IRRIGATION														1	3	24	36
63-28773	COLEMA, I	GROUND DOMESTIC														X	X	X	X
63-2893	CITY OF	GROUND MUNICIPAL				X		X				X		X	X	X	X	X	
63-30403	HARDY, C	GROUND DOMESTIC						X						X	X	X	X	X	

Different use, no overlap
Same QQ different pond, no overlap
Evaporation water for pond, overlap

04N01W15

BasinSeq	Owner	Source	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE
63-12346	CALDWE	GROUND WATER					X											
63-12444	EAGLE C	GROUND WATER						X										
63-15578	BYARD, A	GROUND WATER					X											
63-15693	GRIFFITH	GROUND WATER		X														
63-17994	CALDWE	GROUND WATER					X											
63-19513	KILBURN	GROUND WATER						X										
63-21921	KILBURN	GROUND WATER	X															
63-21923	KILBURN	GROUND WATER	X															
63-22557	ROBELLC	GROUND WATER					X											
63-23136	YELTON,	GROUND WATER					X											
63-23865	HERRIDC	GROUND WATER					X											
63-28665	ARANA, I	GROUND WATER					X											
63-28773	COLEMA	GROUND WATER					X											X
63-30403	HARDY, C	GROUND WATER					X											
63-31606	CASTLE I	GROUND WATER																
63-31811	CASTLE I	GROUND WATER		X														
63-31812	CASTLE I	GROUND WATER			X													
63-31813	CASTLE I	GROUND WATER			X													
63-31814	CASTLE I	GROUND WATER				X												
63-31974	CASTLE I	GROUND WATER			X													
63-31975	CASTLE I	GROUND WATER			X													
63-33031	STEPHEN	GROUND WATER						X										
63-34799	CASTLE I	GROUND WATER				X												

Different pond, no overlap