

6/2013

IN-OFFICE BENEFICIAL USE EXAM REPORT

Permit No. 63-12316

Prepared by VICKY MUSIC

Date 3-4-2014

Same as permit Different than permit

Owner Name	☐	☒ <u>HOA REQUESTED NAME CHANGE</u>
Owner Address	☐	☒ <u>HOA REQUESTED ADDRESS CHANGE</u>
Source	☒	☐ _____
Tributary	☒	☐ _____
POD	☒	☐ _____
POU	☒	☐ _____
Beneficial Use(s)	☒	☐ _____

Exam Fee Required for Permitted Rate \$50

Exam Fee Paid \$50

Overlaps ☐ No ☒ Yes, summarize SEE MEMO

Amendment ☒ No ☐ Yes, summarize _____

Technical Confirmation Tools

ArcMap (Bing)	☒	GPS	☒
Taxlot	☒	Photos	☒
Well Log	☒	Diagrams	☒
Other	☒ explain: <u>FIELD EXAM</u>		

Conditions/Comments SEE ATTACHED MEMO

Exam Date Entered ☒

Draft License Created ☒

Shapes Updated ☒

INTEROFFICE MEMORANDUM

TO: LICENSING FILE 63-12316
FROM: VICKY MUSIC
SUBJECT: FIELD EXAM
DATE: MARCH 4, 2014

This exam qualifies as an in-house per the Department rules; however, I conducted a field exam to verify the location of the PODs and the place of use, and to understand how these uses were incorporated into the geothermal delivery system. Dale Pippitt, President of the Paradise Pines HOA, accompanied me on the exam. He submitted a request that the contact and address for the rights be changed to the HOA registered agent and secretary, Julene Walker. Proof was timely filed.

The permit was issued for heating use in one home and in a recreation center. The recreation center was not built and the geothermal spring water was instead plumbed to a changing room by the soaking pool in the same permitted QQ.

The PODs are two geothermal springs that are also the PODs for right no. 63-10559 and 63-31526. One of the springs is in the middle of the Trinity Pines swimming pool so it was not possible to get a GPS reading. GPS coordinates for the second spring are: N 43.55291, W-115.26951.

Water from the "lower spring" in the swimming pool, and is pumped via 5 pumps in the lower pump house. There are 4 pumps in the upper pump house. All of the pumps are the same make and motor pump and motor, 3 hp submersible Sta-rite pumps rated at 20 gpm. Mr. Pippitt provided information regarding the pumps and motor specifications, and diagrams of the delivery system.

POU overlap is permit 63-12317 is for cold water domestic and stockwater in the same POU, one home and the changing room.

Home heating

The geothermal water is used to heat one home, though the POU is listed as 5 lots in the permit place of use condition. Homes have not been built on any of the lots but all are stubbed in for the geothermal water, according to Dale. The Department considers the stub ins for domestic use for lots in a subdivision as proof of beneficial use for licensing purposes, in Admin Memo 18. The memo is silent regarding whether the rationale can be extended to geothermal spring water. I consulted IDWR supervisory staff, and they agreed that it is reasonable to assume the logic applies here, as there is no danger of injury to other users.

Three of the four lots [lots 3-5?] in the place of use were covered under a lapsed permit, 63-12230. The Department destroyed the file per procedure, and there are no backfiles. I don't know which lot was intended to be licensed. Tax Lot 1 referred to in the permit is not subdivided or stubbed in. I recommend that the home heating POU remain the 4 lots, lots 3-6.

Changing room

The changing room is on the east end of the soaking pool. Hot water is circulated in a system of pipes in the floor to heat the interior of the room. Hot water is also diverted to a heat exchanger, through which glycol is heated and directed to pipes to keep the walkway outside of the changing room free of ice.

Flow and volume

The pumps are rated for $20 \text{ gpm} / 448.8 = 0.04 \text{ cfs}$. A design narrative by the subdivision consultant during the licensing of 63-10560, estimated that 5 gpm per house was sufficient. $5/448.8 = 0.01 \text{ cfs}$. The amount of water needed to heat the changing room is so small that, no flow was calculated when using the IDWR heating/cooling spreadsheet. A flow of 0.02 is reasonable to the changing room. I recommend for licensing 0.04 cfs.

Regarding volume, I used the IDWR heating/cooling spreadsheet, and calculated volumes of 5.4 af for the home and 1.2 af for the changing room. I used the same parameters for the home used during the licensing of 63-10560. The changing room is about 300 square feet, so I used this measurement in the calculation.

The total volume recommended for licensing = $1.2 + 5.4 \text{ af} = 6.6 \text{ af}$.

Conditions have been met but should be changed as follows:

- 1] Place of use condition for the 1 home should be changed to Blk 1, Lots 3- 6.
- 2] Heating use condition should be changed to 1 home and a changing room associated with the soaking pool.
- 3] R04 – change to Water District No. 63, Boise River.



63-12316 - PLACE OF USE IS WITHIN LOTS 3 - 6 AND THE SOAKING POOL. PODS ARE TWO SPRINGS.

RESIDENTIAL SPACE HEATING/COOLING REQUIREMENTS FOR COLD OR GEOTHERMAL SOURCES

Worksheet created by Cindy Hodges, 11/93.

Data entered by:

Vicky Music

Exam Date:

9/18/13

File No:

63-12316

Computations for:

Heating of a changing room

REQUIRED DATA:

Area of livable floor space, ft² (A) 300
2 story? (N = 1, Y = 2) 1
House efficiency factor (e) * 0.44
Inside design temperature (Ti) 72
Average outside temperature (To) ** -8
Source temperature, degrees F (S) 118
Heating/cooling days per season (D) 365
Hours/day system operates (H) 12

CALCULATED DATA:

DESIGN HEAT LOAD (BTU/hr required)

Formula: $E = [e \times (T_i - T_o)] A$

Applies factor of 0.8 for two-story dwelling

E = 10,560 BTU/hour

TEMPERATURE DROP ACROSS SYSTEM

Formula: $T_s = 0.3 \times [S - T_i]$

Ts = 13.8 degrees F

* e values are as follows:

- 0.28 Best energy efficiency - extra insulation, caulked and weatherstripped, with storm windows and doors
- 0.44 Better energy efficiency - standard insulation, caulked and weatherstripped, with storm windows and/or doors
- 0.67 Average residence - standard insulation, no weatherproofing but with storm windows or double panes
- 1.11 Poor energy efficiency - minimal insulation, no weatherproofing or storm windows (older homes, shops or greenhouses)

** Suggested average outside temperatures:

WINTER

4 deg F Boise
6 deg F Grand View
-8 deg F Cascade

SUMMER

80 deg F Boise
90 deg F Grand View
70 deg F Cascade

FLOW RATE REQUIRED (at given source temperature)

Formula: $Q = E / (500 \times T_s) \times 448.8$

Q = 0.00 cfs

DIVERTED VOLUME OVER SEASON

Formula: $V_{div} = Q \times D \times H / 24 \times 1.9835$

Vdiv = 1.2 AFA

AVERAGE TEMPERATURE CALCULATION:

4 DEG MIN + 80 DEG HIGH / 2 =

42 DEG AVERAGE YEAR ROUND TEMP.

RESIDENTIAL SPACE HEATING/COOLING REQUIREMENTS FOR COLD OR GEOTHERMAL SOURCES

Worksheet created by Cindy Hodges, 11/93.

Data entered by: Vicky Music
Exam Date: 05/13/13
File No: 63-12316
Computations for: Heating of 1 home

REQUIRED DATA:

Area of livable floor space, ft2 (A) 2000
2 story? (N = 1, Y = 2) 2
House efficiency factor (e) * 0.67
Inside design temperature (Ti) 72
Average outside temperature (To) ** -8
Source temperature, degrees F (S) 128
Heating/cooling days per season (D) 240
Hours/day system operates (H) 12

CALCULATED DATA:

DESIGN HEAT LOAD (BTU/hr required)
Formula: $E = [e \times (Ti - To)] A$
Applies factor of 0.8 for two-story dwelling

E = 85,760 BTU/hour

TEMPERATURE DROP ACROSS SYSTEM
Formula: $Ts = 0.3 \times [S - Ti]$

Ts = 16.8 degrees F

FLOW RATE REQUIRED (at given source temperature)
Formula: $Q = E / (500 \times Ts) \times 448.8$

Q = 0.02 cfs

DIVERTED VOLUME OVER SEASON
Formula: $Vdiv = Q \times D \times H / 24 \times 1.9835$

Vdiv = 5.4 AFA

** Suggested average outside temperatures:

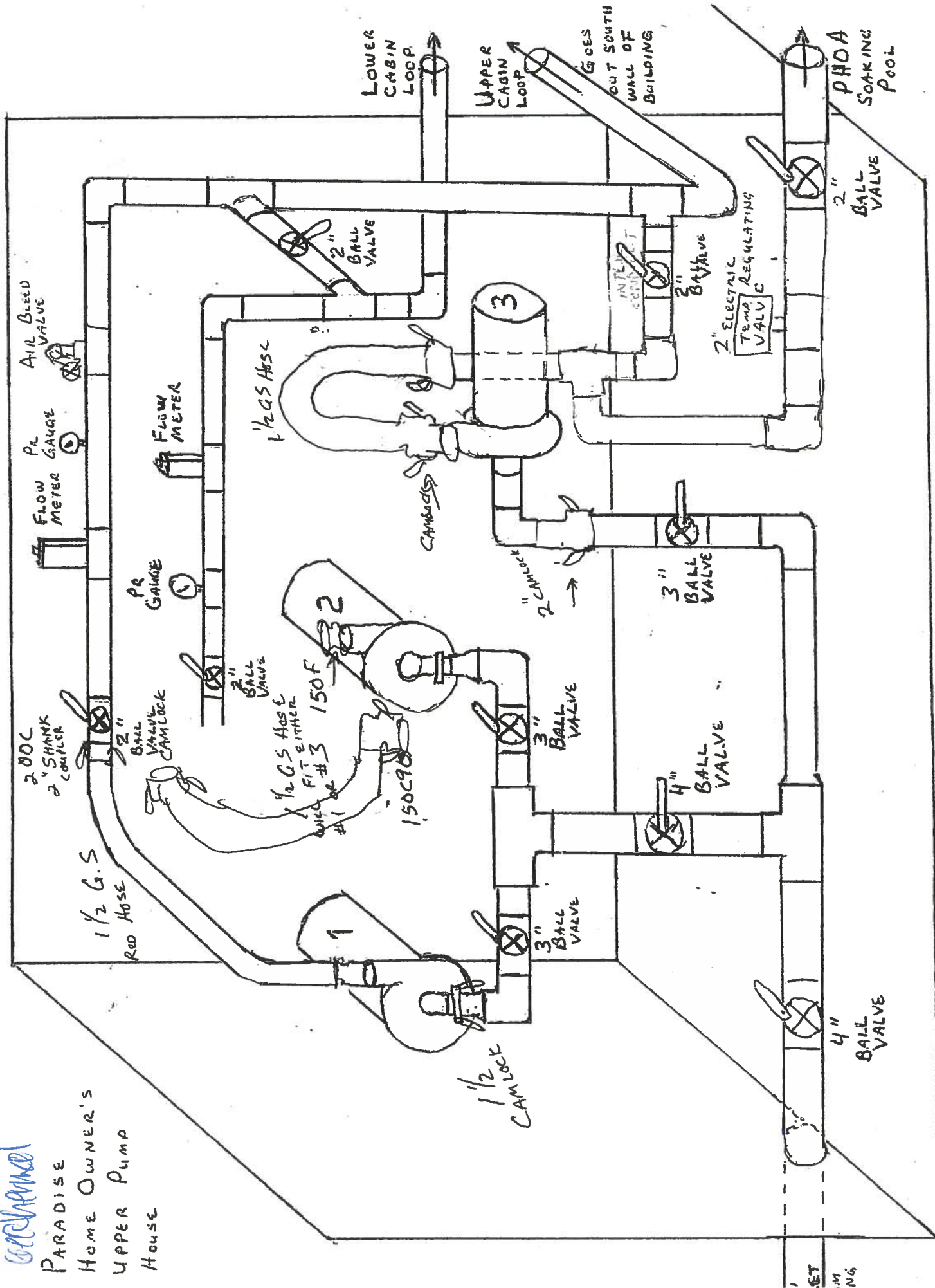
WINTER SUMMER
4 deg F Boise 80 deg F Boise
6 deg F Grand View 90 deg F Grand View
-8 deg F Cascade 70 deg F Cascade

AVERAGE TEMPERATURE CALCULATION:

4 DEG MIN + 80 DEG HIGH / 2 =
42 DEG AVERAGE YEAR ROUND TEMP.

WCHAND

PARADISE
HOME OWNER'S
UPPER PUMP
HOUSE



Lower Pump House

- #1 Grouse Creek Loop - Pump 1 or 2
- #2 Hansen Drive Loop - Pump 3 or 4
- #3 Old Part of Sub Division - Pump 5
- #4 Trinity Lodge Loop - Pump 6

INTER-CONNECTION
OF LOOPS 1 THRU 4

⊗ = 2" PVC
SCHED 80
BALL VALVE

