

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-34752
Exam Date: 08/27/2024

1. Current Owner:
WENDY HEISS 10240 W NED PEPPER LN KUNA ID 83634-3530
2. Accompanied by: Wendy Heiss
Phone No: (714) 473-7789
Address: Same as above
Relationship to permit Holder: Permit Holder

3. **SOURCE:**
GROUND WATER

Method of Determination: GARMINmap76, GIS, and Canyon County tax parcel map.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE	NA	NA	NA

Comments: Only a City of Kuna municipal permit overlaps the place of use (POU). The permit holder confirmed that the permitted well is the only source of water for domestic use within the parcel.

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

Water Right No.	Source	Purpose of Use	Basis
NONE	NA	NA	NA

Comments: No other rights share the permit point of diversion (POD).

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION: GPS: N43 28.998, W116 18.582**

GROUND WATER SW¼ NW¼, Sec. 26, Twp 02N, Rge 01E, B.M. ADA County

Method of Determination: GARMINmap76

PLACE OF USE: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
02N	01E	26							4.3										4.3

Total Acres: 4.3

Method of Determination: GIS, and Canyon County tax parcel map.

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.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Model No.
D0082871 (tag#)	Unknown	5Hp	Unknown	Pentair	L30P4JMGS-04

Comments: The photos containing the technical specifications for the submersible pump were emailed by the permit holder (photos 21-23). The bucket fill test conducted during the field examination provided adequate rate data for the license to be processed.

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
5-Gal Bucket & Cell Phone timer	Cell Phone	Apple	I14+	NA	NA	NA

2. Measurements: It is not necessary to take measurements for the irrigation of less than 5 acres. However, bucket fill time trials were recorded during the field examination. Measurements were taken at the 2" diameter outlet leading from the wellhead to the ditch filling the irrigation pond.

E. FLOW CALCULATIONS

_____ Additional Computation Sheets Attached

Measured Method:

5-Gal Bucket Fill: 5x

1. 5.38 sec
2. 7.14 sec
3. 7.69 sec
4. 9.19 sec
5. 9.56 sec

Avg fill rate = 7.79 sec / 5-gal = 1.56 sec/gal = 60s/min / 1.56 sec/gal = 38.46 GPM / 448.83 gal/cfs = **0.09 cfs**

Max fill rate = 5.38 sec / 5-Gal = 1.076 sec/gal, 60s/min / 1.076sec/gal = 55.76 GPM / 448.83 gal/cfs = **0.12cfs**

Permitted rate = **0.10cfs**

Recommendation = **0.10cfs**

Comments: The hand valve for the 2" discharge poly line connected to the well head manifold was opened and the first of a series of 5 bucket fill tests began after 1 minute. Each of the 5 fillings were timed using a cell phone timer while the discharge remained flowing from the well head. A significant drop off in the fill rate was observed throughout testing. Although the average rate observed was less than the permitted rate of 0.10cfs the maximum fill rate observed was greater than the permitted rate. I am recommending the license be issued with a rate of 0.10cfs, as it is more representative of the maximum instantaneous rate observed.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 4.3 \text{ acres} \times 4.5 \text{ AF/per acre} = 19.4 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.10 \text{ cfs} \times 260 \text{ days} \times 1.9835 = 51.6 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 19.4 \text{ AF}$$

2. Volume Calculations for Other Uses: N/A

Comments: I recommend the license is issued with an annual volume of 19.4 AF, per the field headgate calculation above.

G. PURPOSE OF USE

Irrigation X Y N # Stock NA Domestic # of Homes N/A

Change in Purpose of Use? Y X N

Method of Determination: Canyon County GIS Maps, GIS, and Tax lot Data

G. NARRATIVE/REMARKS/COMMENTS

The Proof of Beneficial Use for permit 63-34752 was received by the Department on September 3, 2020. On section #6 the permit holder stated that the use was developed with a rate of 0.10cfs. The point of diversion is within Water District 63; however, it is downstream of Star and not in the area of concern as outlined by administrative memo #59. The well is diverted into the permit holder's home and into a pond, which the well for neighboring permit 63-34928 to the west of the POU also diverts into. Both permitted uses divert water from the pond using the same 7 ½ Hp pump (photos 19& 20) which is used to irrigate each of the appurtenant 5-acre parcels alternately. The surface area of the pond was measured with GIS at approximately 0.2-acre and the permit holder stated that the pond is 8ft at the deepest point. The average depth was a calculated for the free form polygon with sloped sides and bottom at 3.2 ft. The Pond Spreadsheet was used to estimate the pond volume at 0.64 AF. Even at the combined full permitted rates for permits 63-34752 & 63-34928, totaling 0.20cfs. The pond would require a fill time of two days. I advised the permit holder that they could apply for an irrigation storage right to represent water storage within the POU.

For the field examination five timed bucket fills were conducted at the 2" outlet emptying into a lined ditch filling the lined pond. A sizeable drop off in rate was noted over the duration of the field exam bucket fill test, which averaged approximately 0.09cfs. However, the maximum instantaneous rate measured exceeded the 0.10cfs rate of the permit. I recommend the license be issued for the full permitted rate of 0.10cfs.

The wellhead has a manifold with valves on 2" poly lines to the irrigated area just north of the home (photos 12-13b), the irrigated area directly south of the house (photos 6-8), and the driplines for the orchard in the southeast corner of the parcel (photo 9). The larger areas of the fenced northern field and southwest side of the property are irrigated with the 7.5Hp pump (photos 15-18b) as described in the system diagram (figure 1). Irrigation use was the fullest extent developed in 2020, which is evident in the historic photos provided by the applicant (photos 1-6). The irrigated areas were measured to be approximately 4.3 acres (figure 3). I recommend that the license be issued with an annual volume of 19.4 AF for the irrigation of 4.3 acres, based on the field headgate calculation in section F of this report.

I recommend the license is issued with conditions R69, 103, and 004. Condition R65 should be changed to R9 at licensing, as the irrigated area is less than 5 acres which qualifies the use for 0.03cfs per acre, per Administrative Memo #17 for small acreage irrigation. Condition 121 should be changed to 103 for licensing, per current guidance. Conditions 01m & 26a should be removed at licensing, per current guidance.

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>
IRRIGATION	03/01 to 11/15	0.10CFS	19.4 AF
<u>Totals</u>		0.10 CFS	19.4 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

Bob Howe - Water Resource Agent

Field Examiner's Name Bob Howe Date 10/3/2024

Reviewer Cody Date 10/3/24

Total Storage Calculations

FILE NUMBER	63-34752
REVIEWER	Bob Howe
DATE	8/27/2024

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.2	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	3.2	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook suggests multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that seems reasonable to attain average depth.
Pond Capacity (AF)	0.64	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	0	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: if a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	0.0	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.5	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	1.1	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

Flow Rate into Pond (CFS)	0.20	The "Flow Rate into Pond" depicts the actual flow, either measured or estimated, into the pond. For offstream facilities, this will be equivalent to "diversion to storage" rate.
Highest Daily Evaporation Rate From Evaporation Tab. (mm/Day)	4.72	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table".
Required Daily Maintenance Volume (AF/Day)	0.00	"Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year to maintain pond volume. It is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (CFS)	0.00	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determined by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	2	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.
Days Required to Fill the Pond at 13,000 Gallons per Day	17	Some water users may want to fill a pond under the 13,000 gallons per day domestic exemption. The "Days Required to Fill the Pond at 13,000 Gallons per Day" is calculated by converting the "Pond Capacity" and the "Required Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Required Daily Maintenance Volume" in gallons to determine the number of days to fill pond. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond. Negative values indicate that the supply of 13,000 gallons per day is not enough volume to overcome the required daily maintenance volume; the pond will never fill.

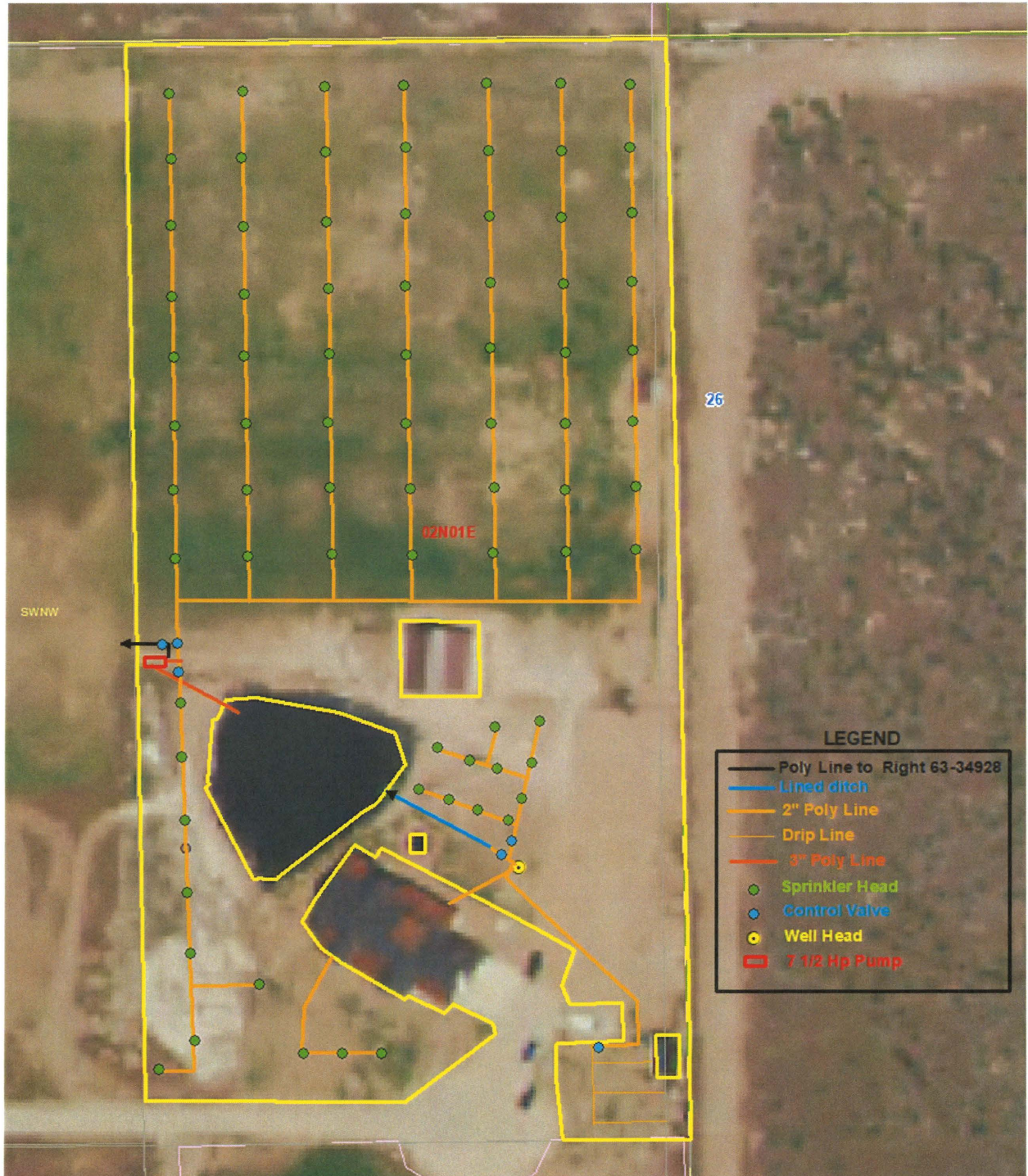


Figure 1 -GIS NAIP 2021 Imagery- Diagram of the irrigation system as observed in field exam. Yellow outlined area is the irrigation place of use.

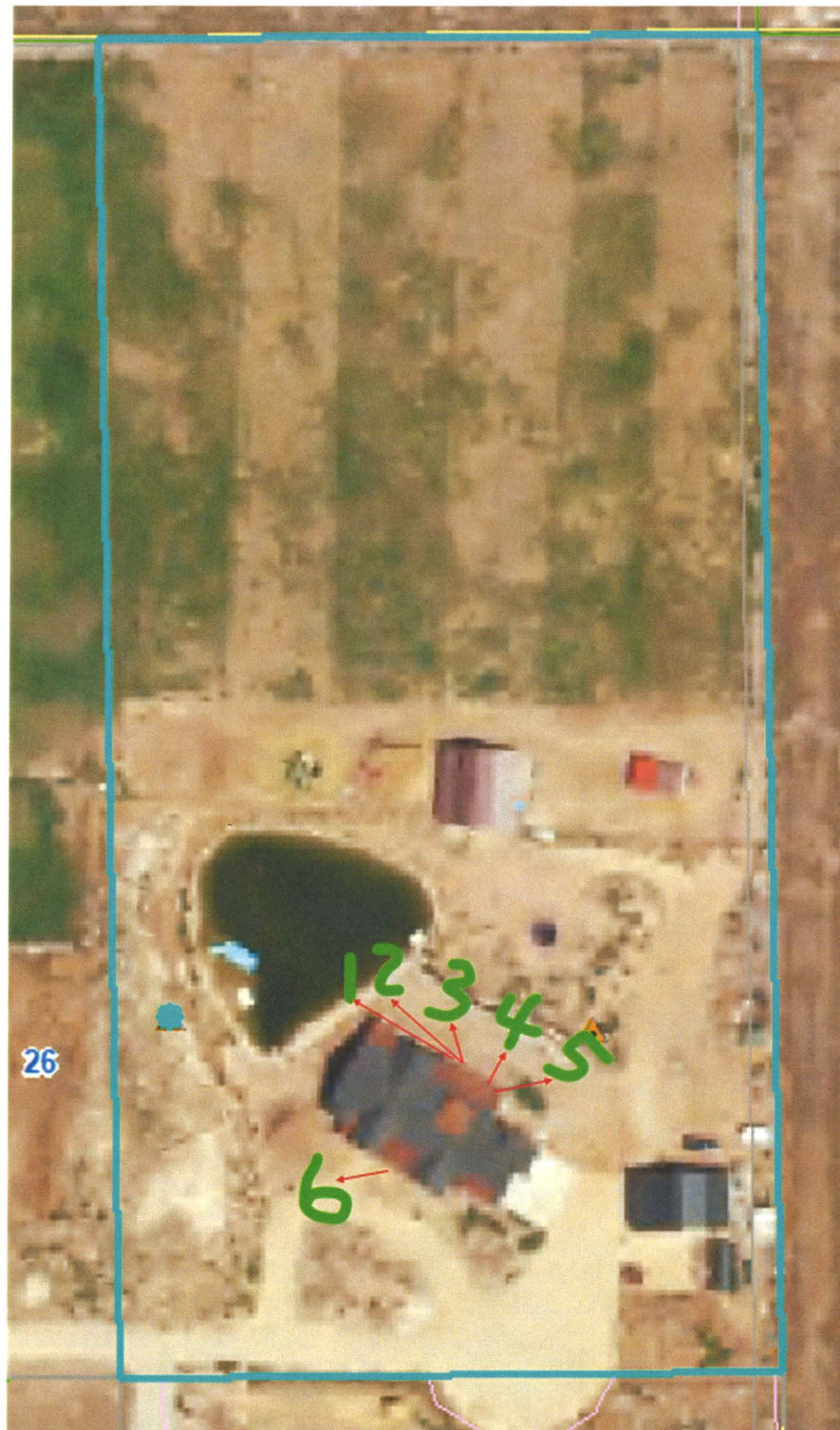


Figure 2 -GIS NAIP 2023 Imagery- Diagram of the orientation of circa. 2020 photos submitted by the permit holder of the irrigation developed within the permitted POU.



Photo 1 -c.2020—Taken by permit holder from back porch facing northwest. The pond under excavation.



Photo 2 -c.2020—Taken by permit holder from the back porch facing slightly north of photo 1. The chicken coop with the edge of the material excavated from the pond visible in the left of the image.



Photo 3-c.2020-Taken by permit holder facing north-northwest through the patio door. Outbuilding visible in the right of the image. The area north of the house with the exception of a narrow strip nearest the home shows evidence of irrigation.



Photo 4- c.2020- Taken by the permit holder from the back porch facing north-northeast.



Photo 5-c.2020-Taken by the permit holder from the back porch facing northeast.



Photo 6-c.2020-Taken by the permit holder from the front porch facing southwest. Landscaping work and spraying resulting in the mounds installed along the southside of the property for privacy. Irrigation appears to have been throughout the area previously.



Photo 7- c.2024- Taken at field exam standing in the roundabout in south of the house facing northwest.



Photo 7-c.2024-Taken at field exam from roundabout south of the home facing south.



Photo 8-c.2024-Taken at the field exam standing in the roundabout south of the home facing west.



Photo 9-c.2024-Taken standing on the east side of the driveway at the southern extent of the parcel facing east. Orchard trees visible in area between the fence line and the shop and outbuildings.



Photo 10- c.2024- Taken at the well head facing west towards the pond. Red recirculation pump is visible to the right of the well head. The white PVC manifold on the left of the pump has 2" poly lines with valves feeding the lined ditch that empties into the pond, the 11 wind fighter sprinklers on risers just north of the ditch, and the driplines for the orchard in the southeast corner of the parcel. A separate buried line supplies the home and sprinklers directly to the south of the home.



Photo 11- c.2024- "Bubbling" due to running recirculation pump causing rippling on the surface of the pond on the left.



Photo 12- c.2024- (above left)“Wind Fighter” sprinklers used in the areas on the north and south of the home. Photo 13a & 13b-c. 2024-(upper right and below respectively) Standing northwest of the home facing southeast with several “Wind Fighter” sprinklers and 2” poly lines in view.





Photo 14- c.2024-On the west side of the home facing south. Irrigated mounds can be seen north and west of the home.



Photo 15-c.2024 At east fence line north of the home facing north. Several rotary sprinklers are seen throughout the field.

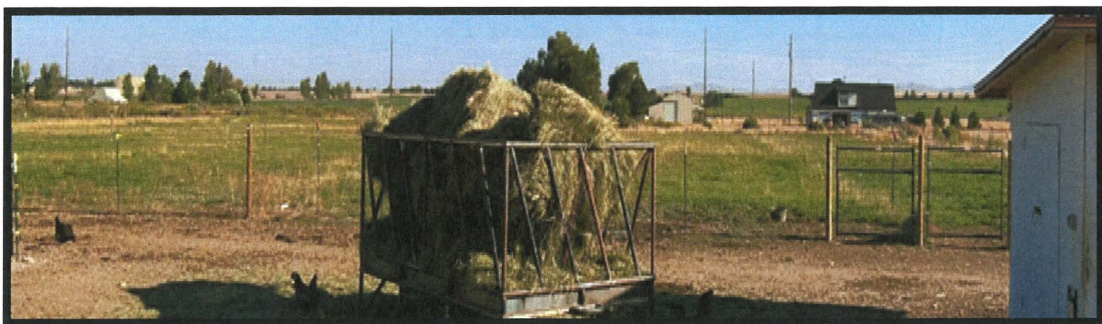


Photo 16-c.2024 North of the home facing north. Rotary sprinklers are in rows in the field to the north.



Photo 17- Facing northeast at the southwest corner of the field north of the home.



Photos 18a & 18b-c.2024 (left and right respectively)- The same Aquaburst AL30 rotary sprinklers as those used north of the home. Seven rows with eight sprinklers in each providing coverage throughout the field.

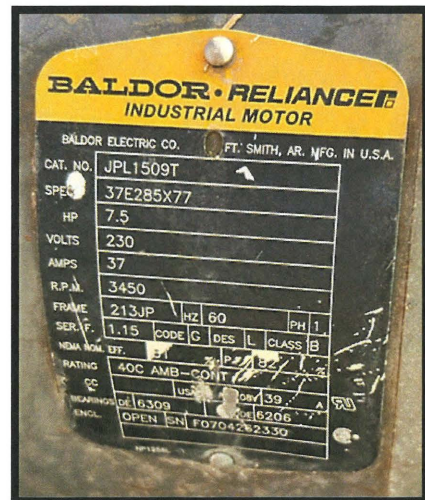
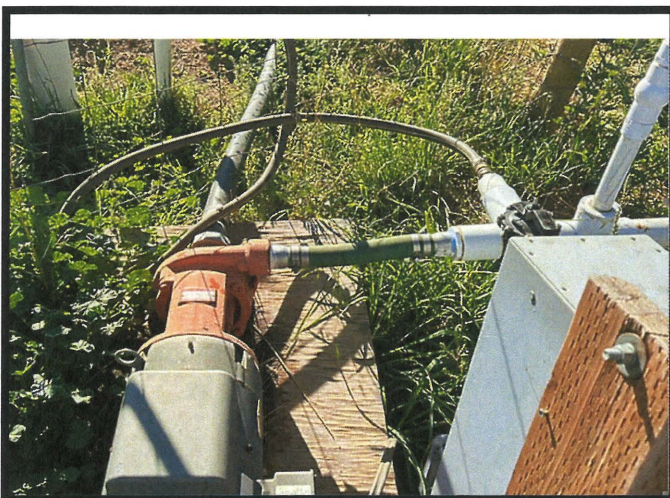
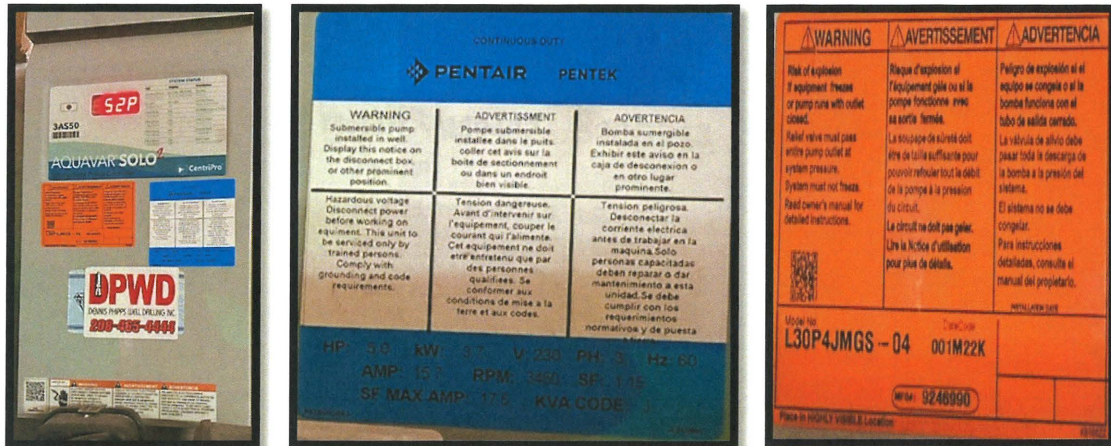


Photo 19 & 20-c.2024-(left and right respectively)-19.Irrigation pump diverting from pond. 20. Irrigation pump spec. plate.



Photos 21,22 & 23- c.2024- Control panel located in the permit holders house with pump specifications labels on it.



Figure 3-GIS NAIP 2021 Imagery- Irrigation POU outlined in yellow. Yellow point is well head POD.

From: Howe, Bob
Sent: Friday, August 30, 2024 4:18 PM
To: wendyheiss21@gmail.com
Subject: RE: Photos for Permit 63-34752

Hi Wendy,

Could you please send the pump specifications for the well north of your home? I believe you tried to send them to me while we were on site for the field exam, but it doesn't look like I ever received them. Thank you!

<image006.jpg>

From: wendyheiss21@gmail.com <wendyheiss21@gmail.com>
Sent: Monday, August 26, 2024 2:06 PM
To: Howe, Bob <Bob.Howe@idwr.idaho.gov>
Subject: RE: Photos for Permit 63-34752

CAUTION: This email originated outside the State of Idaho network. Verify links and attachments BEFORE you click or open, even if you recognize and/or trust the sender. Contact your agency service desk with any concerns.

Hi Bob,

I've attached the pictures from 2020 taken around the time we originally submitted for our beneficial use. I've labeled them to correspond with the overhead image/map you provided, with the arrows indicating the general direction of each photo. The images are ordered sequentially, starting with Pic 1 on the far left and rotating right through Pic 5. Pic 6 captures the view from the front porch, looking towards Ned Pepper Lane. I hope this layout makes sense.

You can also see the date each photo was taken in the image properties in case that helps with your review. We can review them together when you're out here tomorrow if that works for you.

Thanks so much! Looking forward to seeing you tomorrow.

Best regards, Wendy Heiss

<image007.png>

From: Howe, Bob <Bob.Howe@idwr.idaho.gov>
Sent: Monday, August 26, 2024 12:40 PM
To: wendyheiss21@gmail.com
Subject: Photos for Permit 63-34752

Good Afternoon Wendy,

Please respond to this email with any photos for the development period of the parcel appurtenant to permit 63-34752 (see attached 2023 imagery of the place of use). Thank you for your time and assistance in this matter.