

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-33327
Exam Date: 08/20/2021

1. Current Owner:
TROY D TAYLOR and/or CARRIE L TAYLOR
4801 N EAGLE OWL LN
STAR, ID 83669-5934
(208) 841-7579

2. Accompanied by: Troy Taylor
Phone No: Same as above
Address: Same as above
Relationship to permit Holder: Permit Holder

3. **SOURCE:**
GROUND WATER

Method of Determination: Well Driller's Report, Permit No. 835825 (Well ID # 406318); On site visual inspection – Metal Tag # D0041611

B. OVERLAP REVIEW

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

Comments: There is one water right (no. 63-7056B) that authorizes irrigation within the same quarter-quarter (NWSW) of Section 30, Township 05N, Range 01W, but water right no. 63-7056B pertains to tax parcels not owned by the permit holder.

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

Comments: An exempt domestic use (per Idaho Code §42-111) uses the same well. The well was originally constructed for this ongoing domestic use.

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

GROUND WATER Government Lot 3 (NW¼ SW¼), Sec. 30, Twp 05N, Rge 01W, B.M. ADA County

Method of Determination: GIS and GPS waypoint recorded during field exam; Well Driller's Report, Permit No. 835825

2. **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	
05N	01W	25										2.9							2.9

Total Acres: 2.9

Method of Determination: Visual inspection and GIS; Review of satellite imagery of maximum irrigated acres during development period for permit; Description of diverting works, delivery system, and acres irrigated from permit holder.

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 ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
406318	Unknown	5	Unknown	Unknown	Unknown

D. FLOW MEASUREMENTS

Measurements: No measurement taken. There was no section of pipe from the well that is above ground to attach the portable flow meter.

E. FLOW CALCULATIONS

No Additional Computation Sheets Attached

Measured Method: Groundwater theoretical analysis

$$\begin{aligned} \text{Theoretical rate of flow (cfs)} &= \frac{8.8 * (\text{pump HP}) * (\text{pump efficiency estimate})}{[\text{Total dynamic head} = (\text{Lift} + \text{PSI estimate})]} \\ &= \frac{8.8 * 5.0 \text{ HP} * 0.7}{340 \text{ ft} + 2.31 \text{ PSI}} \\ &= 0.09 \text{ cfs} \end{aligned}$$

Lift = 340 ft = the pumping level recorded in the well driller's report (Well ID No. 406318; Metal Tag No. D0041611).

340 ft is approximately the middle depth of the screened portion of the well casing. The screening begins at 329 ft and ends at the completed depth of 353 ft. Middle depth of screened portion = (329 ft + 353 ft)/2 = 341 ft.

Pump HP = 5.0 HP

The Franklin electrical control box in the garage for the well identifies a 5.0 HP pump connected to the well. At the time of the field exam, the permit holder confirmed that the pump for the well is 5.0 HP.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 2.9 \text{ acres} \times 4.5 \text{ AF / acre} = 13.1 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.09 \text{ cfs} \times 260 \text{ days} \times 1.9835 \text{ AF / (cfs days)} = 46.4 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 13.1 \text{ AF}$$

G. NARRATIVE/REMARKS/COMMENTS

On 20 August 2021, I performed a field exam of this permit. Troy Taylor ("permit holder") attended the field exam and provided descriptions of the diverting works and developed uses. My descriptions of the diverting works and irrigation systems are based on discussion with the permit holder at the time of the field exam, and email correspondence with the permit holder. The system diagrams that are attached to this report are based on a diagram provided by the permit holder via email, and a review of satellite imagery throughout the development period for the permit. The lines dug for the pasture irrigation and the installation of the sprinkler heads are visible in satellite imagery from Google Earth from August 2011, and October 2013.

The point of a diversion (POD) for this permit is a well that was constructed in 2005 for domestic use at the home on the property (Well ID No. 406318, Metal Tag No. D0041611). The permit holder said that the well uses a 5 hp pump but did not have information on the make or model of the pump. The pump control box (located in the garage attached to the home on the property) is also labelled as having a 5 hp pump connected to the well.

Within the well house there is a water heater that provides water for cleaning horses on the cement pad next to the well house on the east side. All other water use from the well passes through a 119 gallon pressure tank (Make: Well-X-Trol; Model: WX-350) located in an outbuilding northwest of the home. The pressure tank provides water for domestic use at the home and for all of the irrigation on the property. The electrical control boxes for the well and the irrigation system for the yard are inside the garage attached to the home.

Permit no. 63-33327 authorized the development of a total of 8 acres of irrigation, and the development of 23.0 acre feet (AF) of irrigation storage and aesthetic storage. Based on discussions with the permit holder the intended purpose of the permit was to obtain authorization for the irrigation of the yard and landscaping, which exceeded the 0.5 acre limit under the exemption for domestic use (I.C. §42-111), and to develop additional irrigation of the pastures on the property. One of the purposes of the proposed storage pond was to assist with the irrigation of the pastures. For convenience within this report, I will refer to a subdivision of the pastures proposed for development in the application for permit as the East pasture, the South pasture, and the West pasture.

The permit holder was unable to create a pond that could hold water and the aesthetic and irrigation storage was not developed. No irrigation was developed or accomplished on the West pasture. Irrigation systems were developed for the East pasture (by 2010) and the South pasture (by 2013). The locations of lines dug for the pasture irrigation and the sprinkler heads are visible in Google Earth's satellite imagery. The permit holder says that all of the sprinkler heads in the pastures are the same type (Rainbird 5000). After the initial installation, some of the sprinkler heads in the East pasture were removed as a covered corral and a dirt road through the middle of the pasture were added to the property. Although sprinkler lines were installed in both the East and South pastures, only the East pasture was irrigated during the development period. The limited extent of the irrigation during the development period was confirmed with satellite imagery and through email communications with the permit holder.

I have attached diagrams of the mainlines and irrigation systems for the pastures. The diagrams are based on information from the satellite imagery and a sketch of the mainlines provided by the permit holder. There is a mainline from the pressure tank before splitting off for the sprinkler heads for the yard and landscaping and the East and South pastures. The permit holder said that there are 15 irrigation stations to rotate through the irrigation of the yard and landscaping, with no more than 3 sprinkler heads per station. There is an additional battery powered control box for the East pasture and a similar box for the South pasture to control the rotation through these sets of sprinkler heads. The system design for the irrigation of the

pastures is subdivided to cycle through sets of 2 to 4 sprinkler heads at a time. The sets of sprinkler heads are generally grouped by the lines drawn in orange that extend from the irrigation mainlines which are drawn in red. The permit holder said that it takes between 6 and 7 days to complete a full cycle of the irrigation of the East pasture.

I was unable to measure the rate of diversion from the well directly because the mainlines diverting from the well are buried. The control boxes for the East and South pastures did not have batteries at the time of the visit and I was unable to verify the capacity of the pasture irrigation sprinklers while on site. 2.9 acres were irrigated during the development period. Although the sprinkler system was developed, the permit holder confirmed that the South pasture was not irrigated during any portion of the development period. A theoretical estimate of the diversion rate based on a 5 hp pump was used to calculate an estimated rate of diversion (See item E. "Flow Calculations" above).

Of the proposed uses on the permit, only irrigation will be carried forward to the license. The recommended maximum diversion for the license is $0.03 \text{ cfs} / \text{acre} * 2.9 \text{ acres} = 0.09 \text{ cfs}$. A maximum diversion rate of 0.09 cfs is equal to the calculated theoretical capacity of the diverting works 0.09 cfs (Item E. "Flow Calculations"). The recommended annual diversion volume is $4.5 \text{ AF} / \text{acre} * 2.9 \text{ acres} = 13.1 \text{ AF}$.

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>Diversion Volume</u>
IRRIGATION	03/01 to 11/15	0.09 CFS	13.1 AF

2. Recommended Amendments

☐ Change POD as reflected above ☐ Add POD as reflected above ☒ None
☐ Change POU as reflected above ☐ Add POU as reflected above ☒ None

I. AUTHENTICATION

David Betts - Water Resource Agent, Senior

Field Examiner's Name

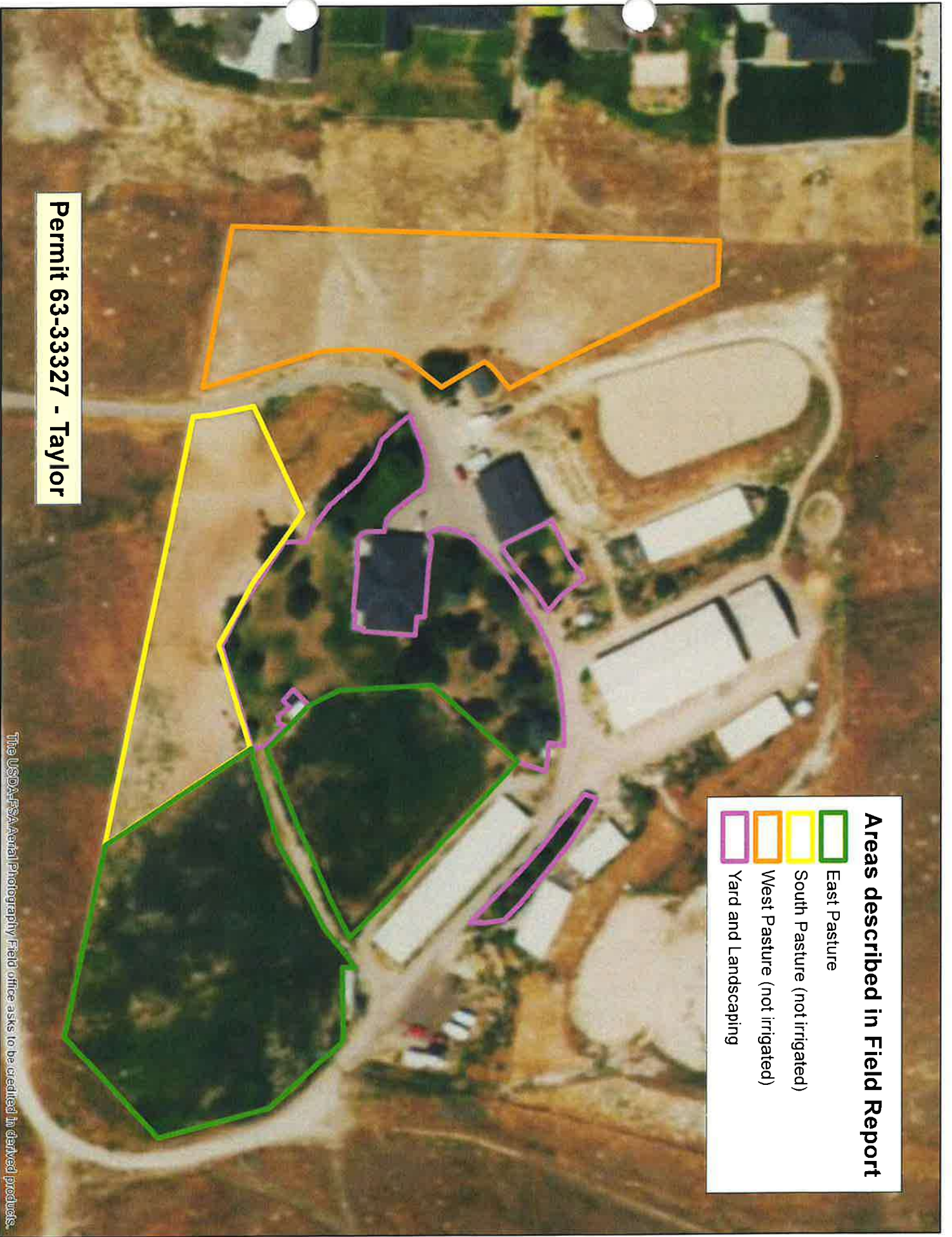
David Betts

Date

Oct. 31, 2022

Reviewer

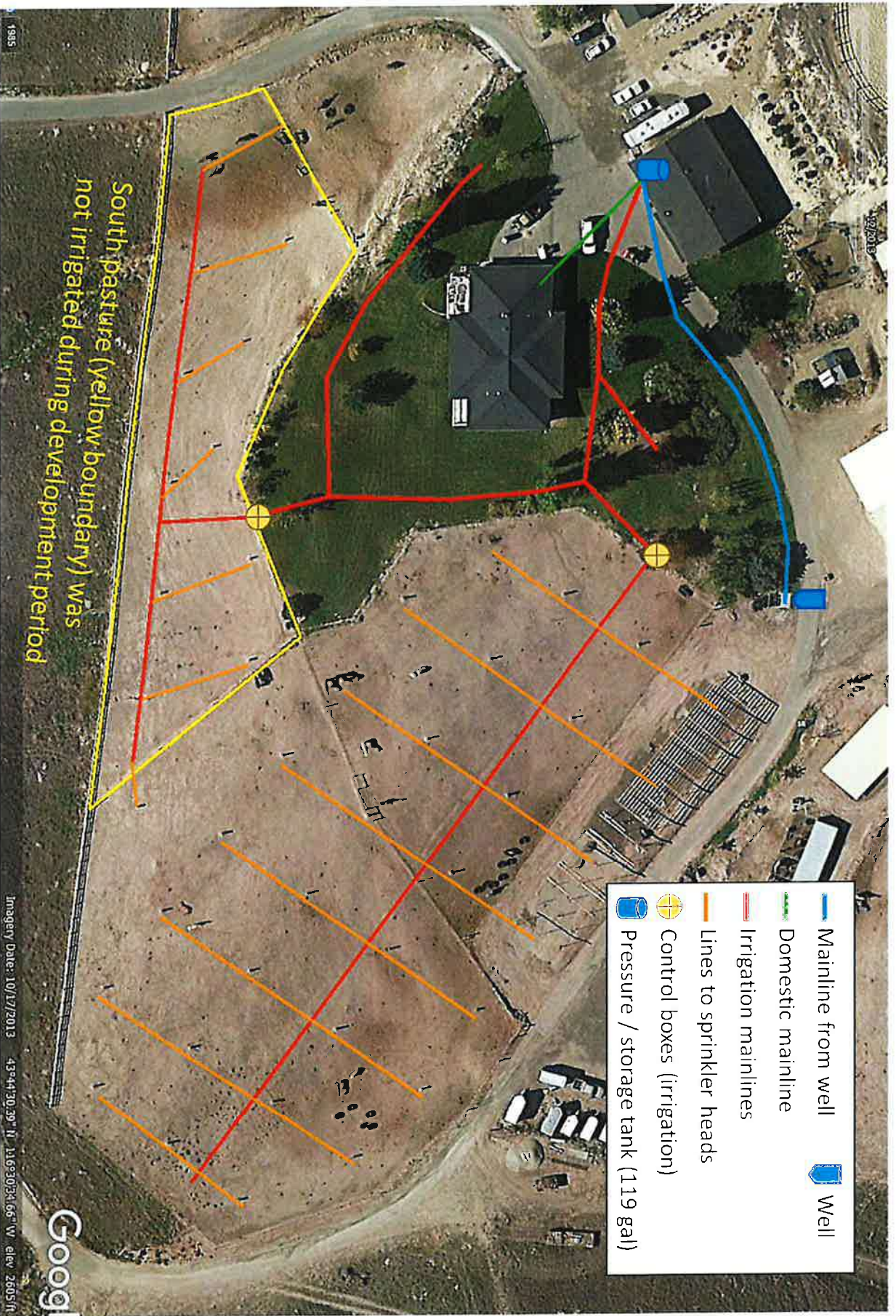
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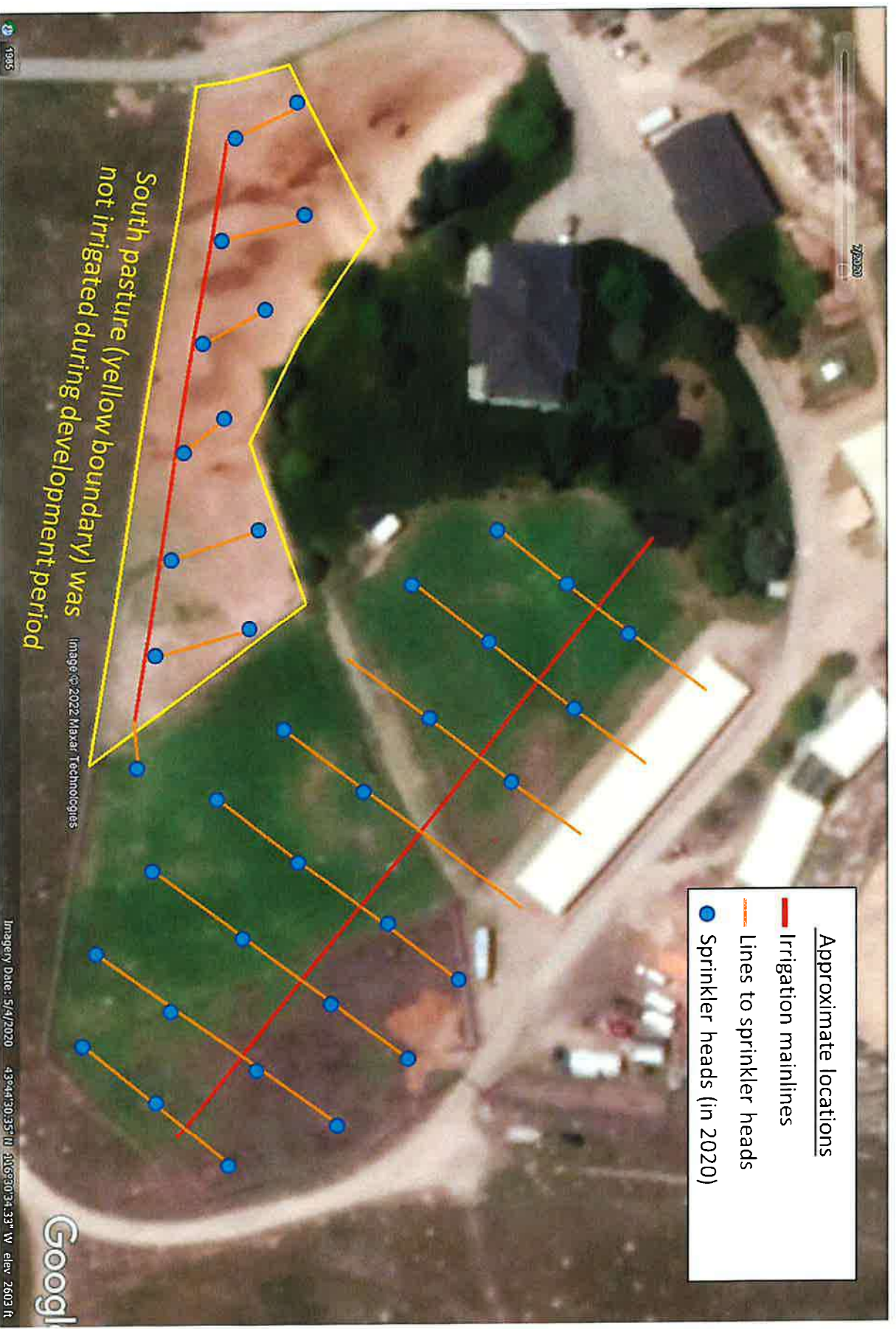
Areas described in Field Report

-  East Pasture
-  South Pasture (not irrigated)
-  West Pasture (not irrigated)
-  Yard and Landscaping

Permit 63-33327 - Taylor



Permit 63-33327 – Diagram of well and irrigation lines. (17-OCT-2013)
 Sprinkler heads are visible next to the orange lines that extend from the mainline.



Permit 63-33327 – Diagram of approximate locations of sprinkler heads. (4-MAY-2020)

The location of sprinkler heads in this diagram corresponds with the count made at the time of the field exam (20-AUG-2021).

POD: Permit No. 63-33327
Well ID: 406318
Metal Tag: D0041611



(Top Left) Well that provides for domestic use and the point of diversion (POD) for irrigation through permit no. 63-33327.

Small water heater on back wall of the wellhouse provides water to wash livestock using the cement pad to the left (east) of the well house.

All other water use from the well is diverted through water tank that is in the outbuilding northwest of the home.



(Left) Photo facing southeast towards the home.

119 gal. pressure tank in outbuilding to the northwest of the home.

Inset photo includes information about the pressure tank:

- Make: Well-X-Trol
- Model: WX-350



(Bottom Right) Control panels in the garage that are connected to the well (POD) and irrigation system for the yard.

Inset photo includes information from the uppermost control box about the diverting works from the well (HP = 5).



Control box: East



Control box: South



Permit No. 63-33327 – place of use includes
irrigation of pasture

Both control boxes (above) are battery powered.

Combined, the east and south pastures have a total of 38
sprinkler heads standing in protective cages filled with
stone. The permit holder said that all the sprinkler heads
are the same model as in the picture to the left.

Permit No. 63-33327



Top left: East pasture – Photo taken next to well house.

Top right: East pasture – photo taken next to control box for east pasture. Rock stands supporting rainbirds are visible in middle.

Bottom: South pasture and home. Southern end of east pasture visible.

Yard around the home connected to same well and general diverting works.



East pasture

South pasture
(not irrigated)