



Consumptive Use From Irrigation on the Place of Use of Water Rights 22-7163 and 22-13019 RMEA Project 17-0062

Background

Water rights 22-7163 and 22-13019 share a common place of use in Fremont County, Idaho, as illustrated in Figure 1 (attached). The combined limitations authorize diversion of 1,634.1 acre feet per year on 466.9 acres, at a diversion rate of 4.17 cfs. This report provides an analysis of the consumptive use on the tract labeled "C" in Figure 1. This tract corresponds approximately to the 229.9 acres of enlargement represented by water right 22-13019.

Two sources of data were used. Crop type data were obtained from the USDA National Agricultural Statistics Service, in Geographic Information Systems (GIS) format.¹ Data were available for 2005, 2007, 2008, 2009, 2010, 2012, 2013, 2014, 2015 and 2016. Consumptive use data were obtained from the University of Idaho's *ET Idaho* Internet site, for years 2005 through 2010 (the most recent year available).

Methods

The crop-type data were clipped to the boundaries of tract "C." The 2005 data were set aside and not used in analysis. 2005 was the first year of the data set and it appears the calibration was not correct for this location. Crops in the general area were shown with significant acreages of corn and pasture, which does not correspond with empirical understanding of the local cropping patterns. Data for the following years appeared to be reasonable and were retained for analysis, as shown in Figures 2 through 10. The indication of fallow cropland for 2015 and 2016 corresponds with the history of irrigation on the tract.

The ET Idaho data for the period were processed to find a median monthly consumptive use value for each crop type. The median values were used to replace

¹ United States Department of Agriculture (USDA), National Agricultural Statistics Service (NASS), Research and Development Division (RDD), Geospatial Information Branch (GIB), Spatial Analysis Research Section (SARS), https://www.nass.usda.gov/Research_and_Science/Cropland/SARS1a.php

missing data points, and for years after 2010. No calculations were performed for 2015 or 2016, since the parcel was not irrigated in those years.

The monthly consumptive use values were applied to crop acreages calculated using GIS, and annual sums of consumptive use volume were calculated.

Results

Table 1 shows the results obtained:

Table 1
Consumptive Use Volume
Tract C
Water Rights 22-7136 and 22-13019

Year	Consumptive Use Acre Feet
2007	551
2008	594
2009	629
2010	591
2012	619
2013	620
2014	617
Maximum	629
Median	617
Mean	603
Minimum	551

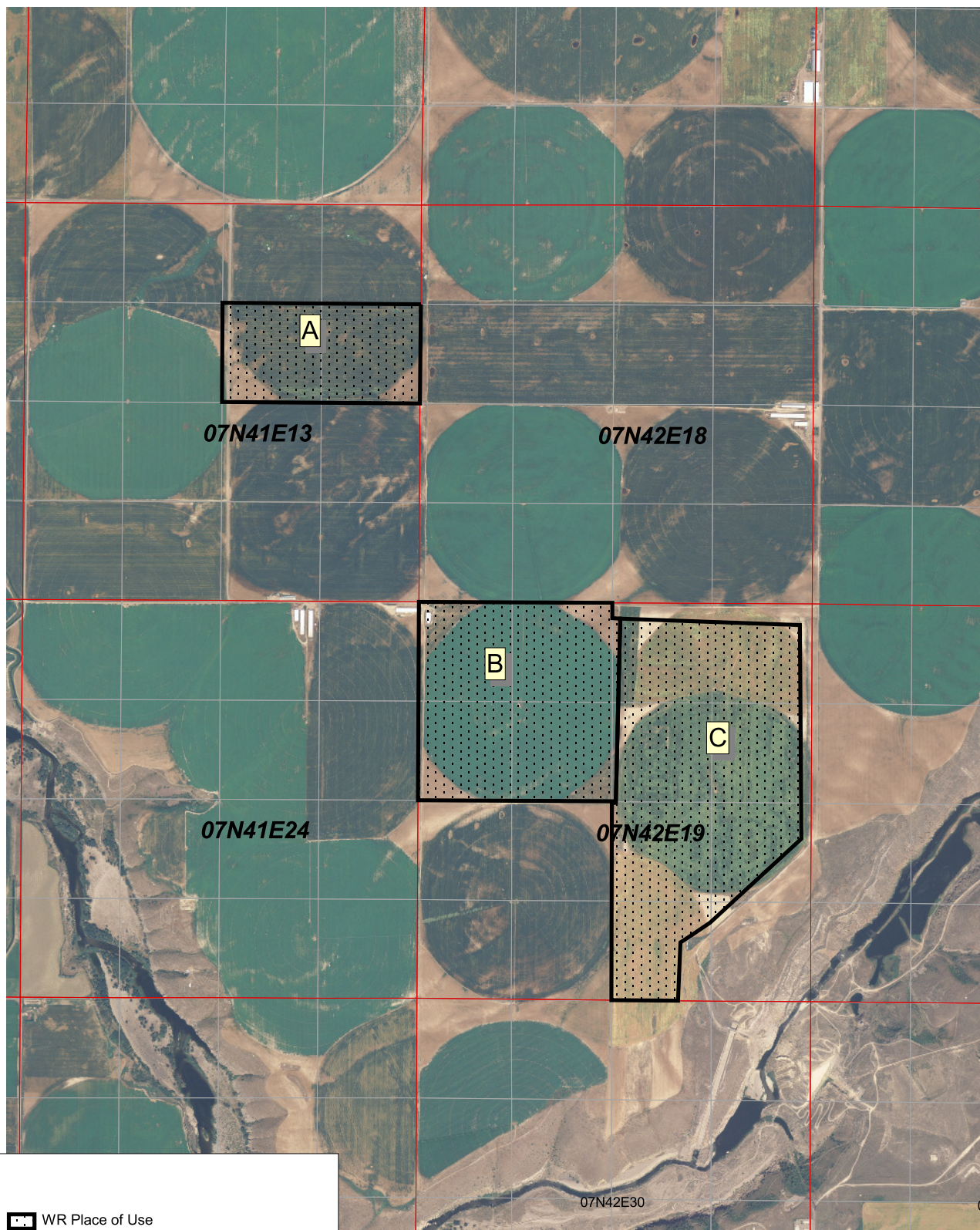
It is my conclusion that the average (arithmetic mean) consumptive use on this tract was approximately 603 acre feet per year, within the limitations of the data available. The median value was 617 acre feet, meaning that half the time the annual consumptive use was greater than 617 acre feet and half the time it was less.



April 25, 2017

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Attachments: Figures



 WR Place of Use
 PLSS Section Lines
 Section QQ

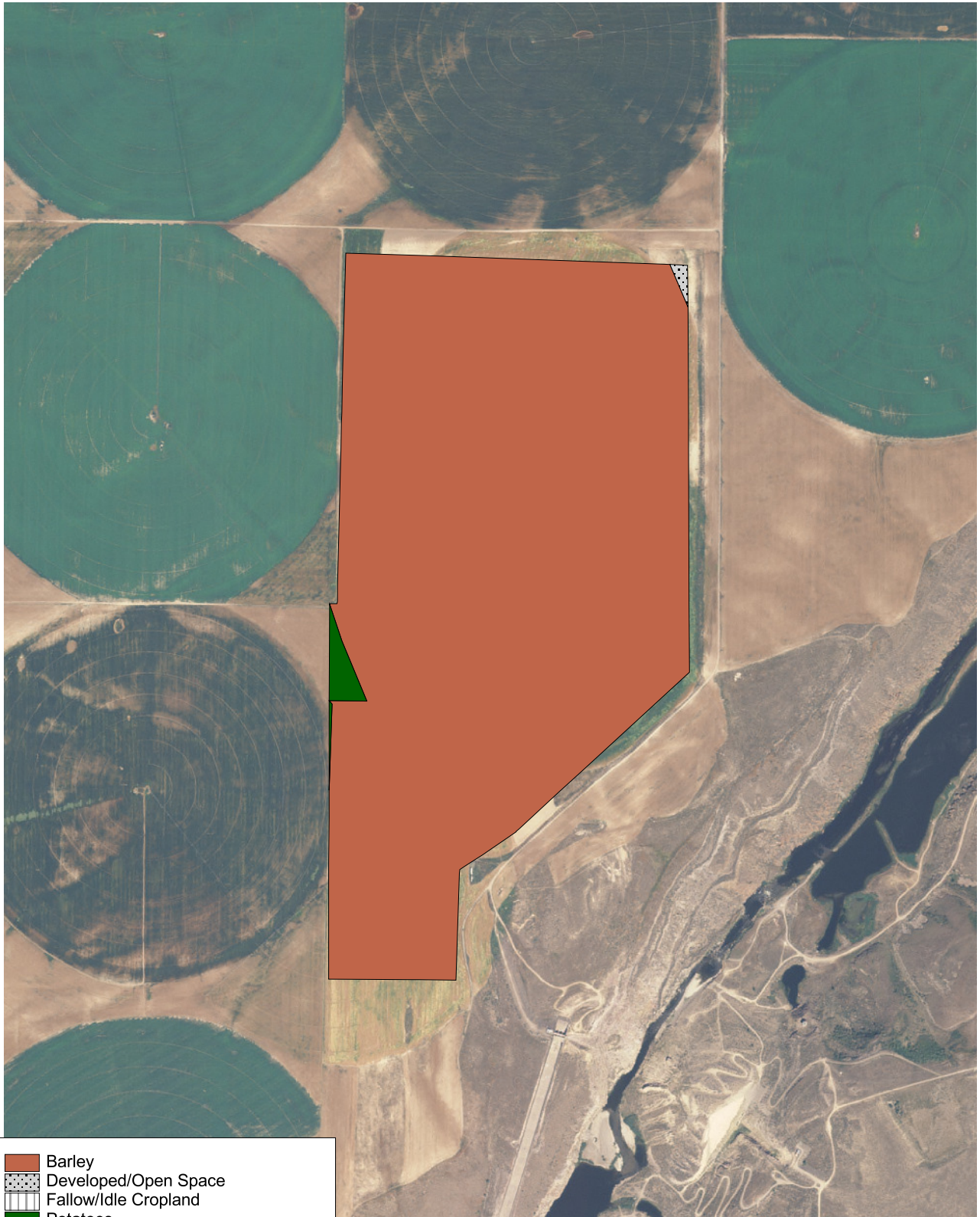


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Figure 1: Water Right Place of Use

Consumptive Use Analysis

Project 17-0062



- Barley
- Developed/Open Space
- Fallow/Idle Cropland
- Potatoes
- Spring Wheat

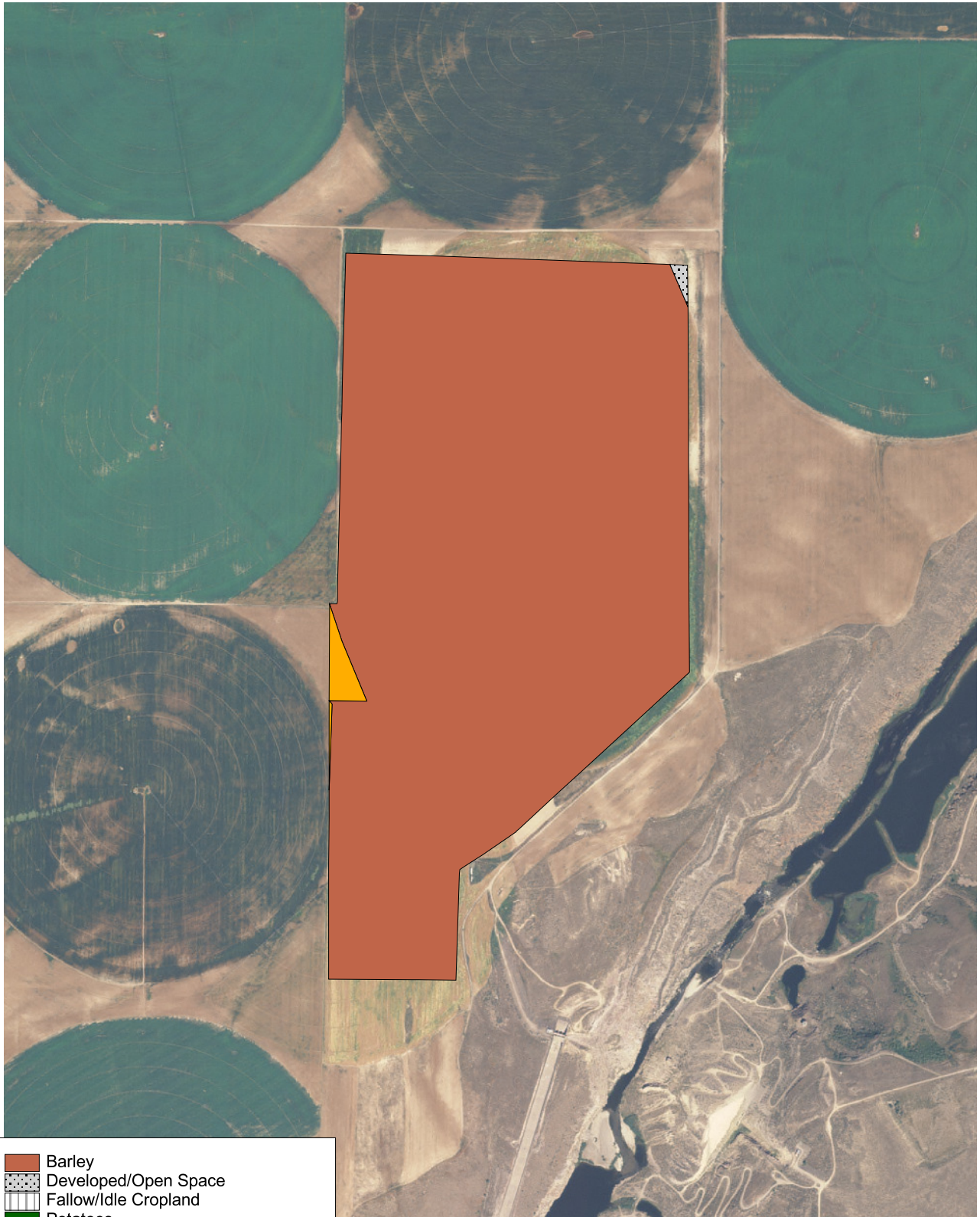


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Figure 2: 2007 Crop Mix

Consumptive Use Analysis

Project 17-0062



- Barley
- Developed/Open Space
- Fallow/Idle Cropland
- Potatoes
- Spring Wheat

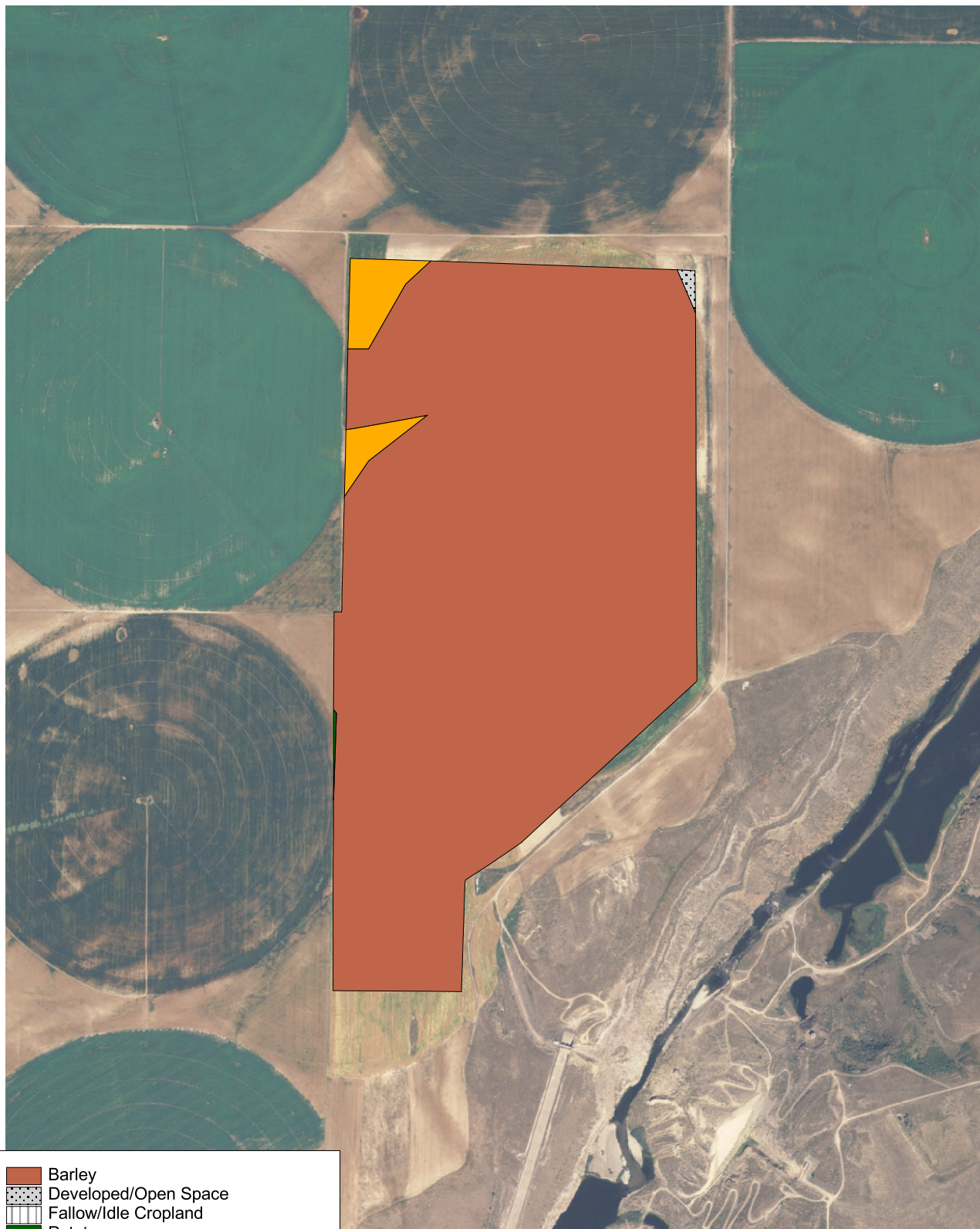


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Figure 3: 2008 Crop Mix

Consumptive Use Analysis

Project 17-0062



-  Barley
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Figure 4: 2009 Crop Mix

Consumptive Use Analysis

Project 17-0062



-  Barley
-  Developed/Open Space
-  Fallow/Idle Cropland
-  Potatoes
-  Spring Wheat

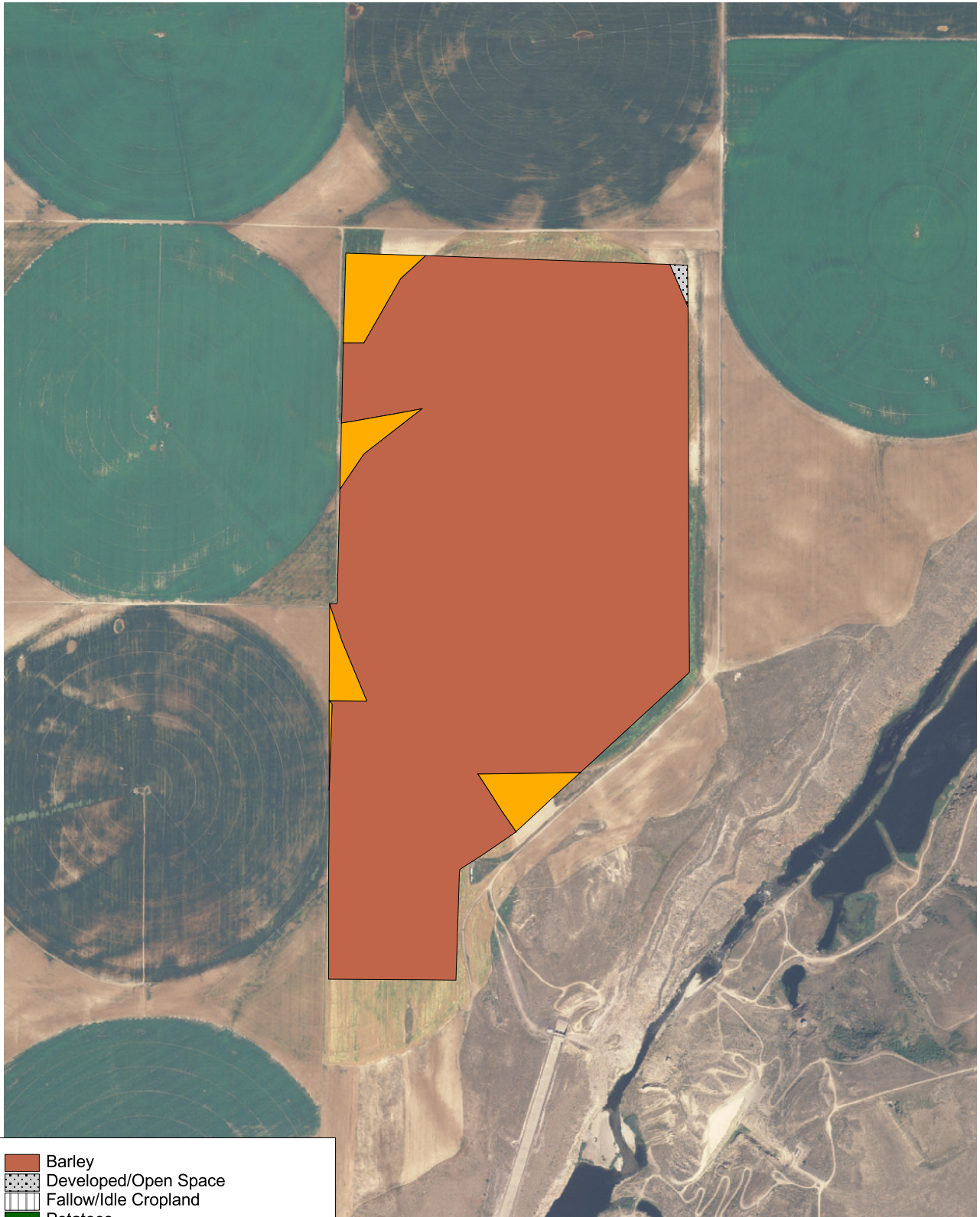


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Figure 5: 2010 Crop Mix

Consumptive Use Analysis

Project 17-0062



- Barley
- Developed/Open Space
- Fallow/Idle Cropland
- Potatoes
- Spring Wheat

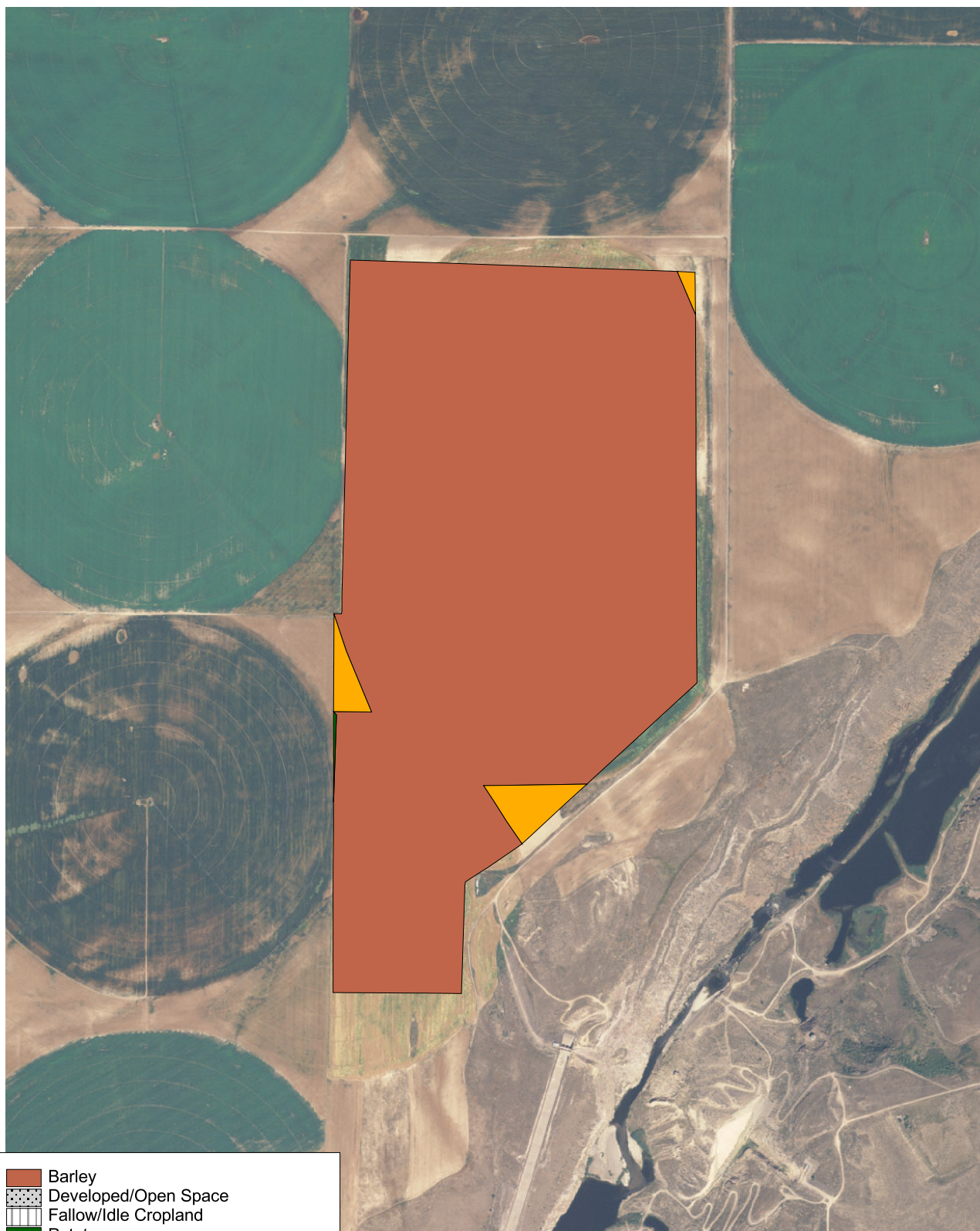


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Figure 6: 2012 Crop Mix

Consumptive Use Analysis

Project 17-0062



-  Barley
-  Developed/Open Space
-  Fallow/Idle Cropland
-  Potatoes
-  Spring Wheat

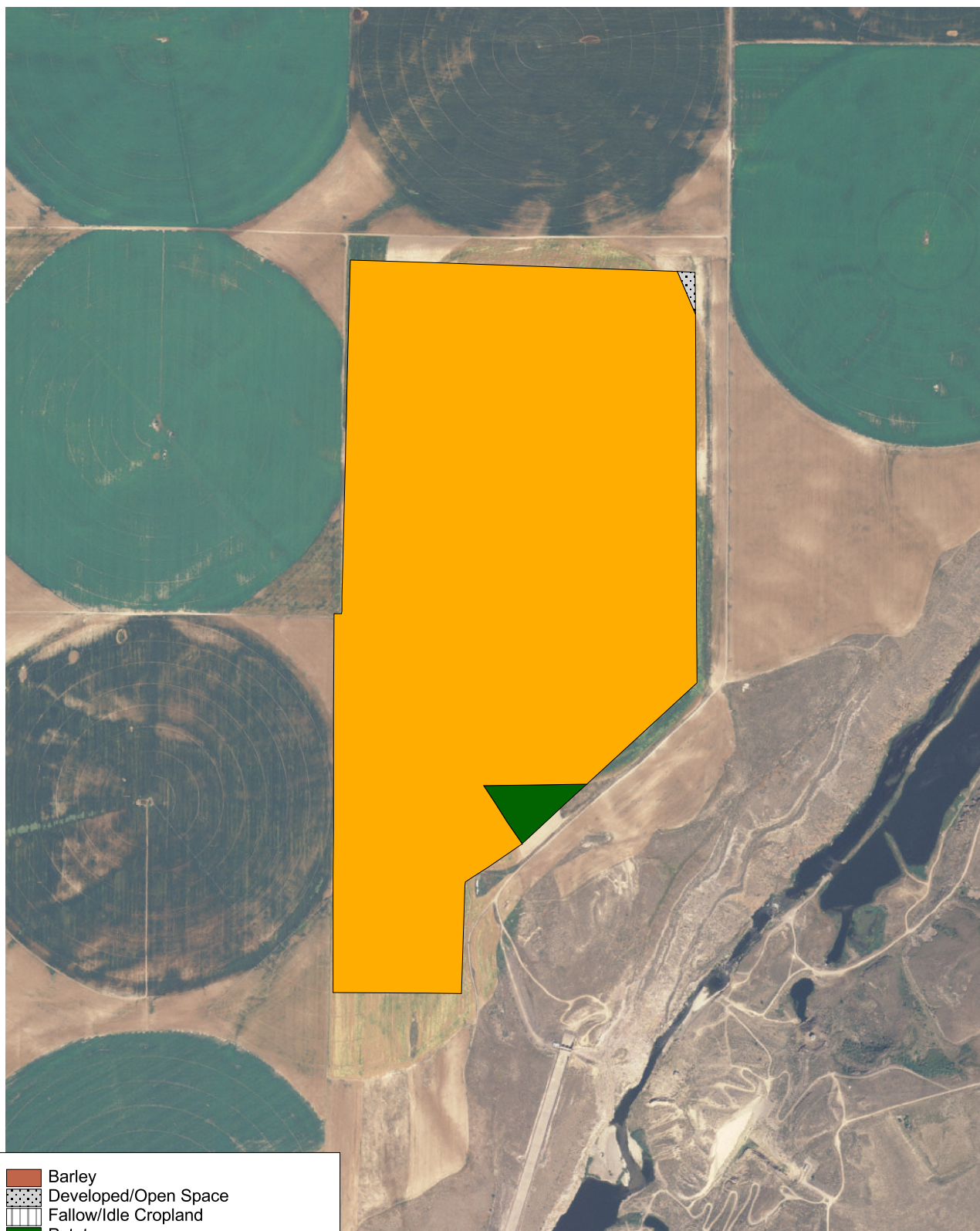


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Figure 7: 2013 Crop Mix

Consumptive Use Analysis

Project 17-0062



- Barley
- Developed/Open Space
- Fallow/Idle Cropland
- Potatoes
- Spring Wheat

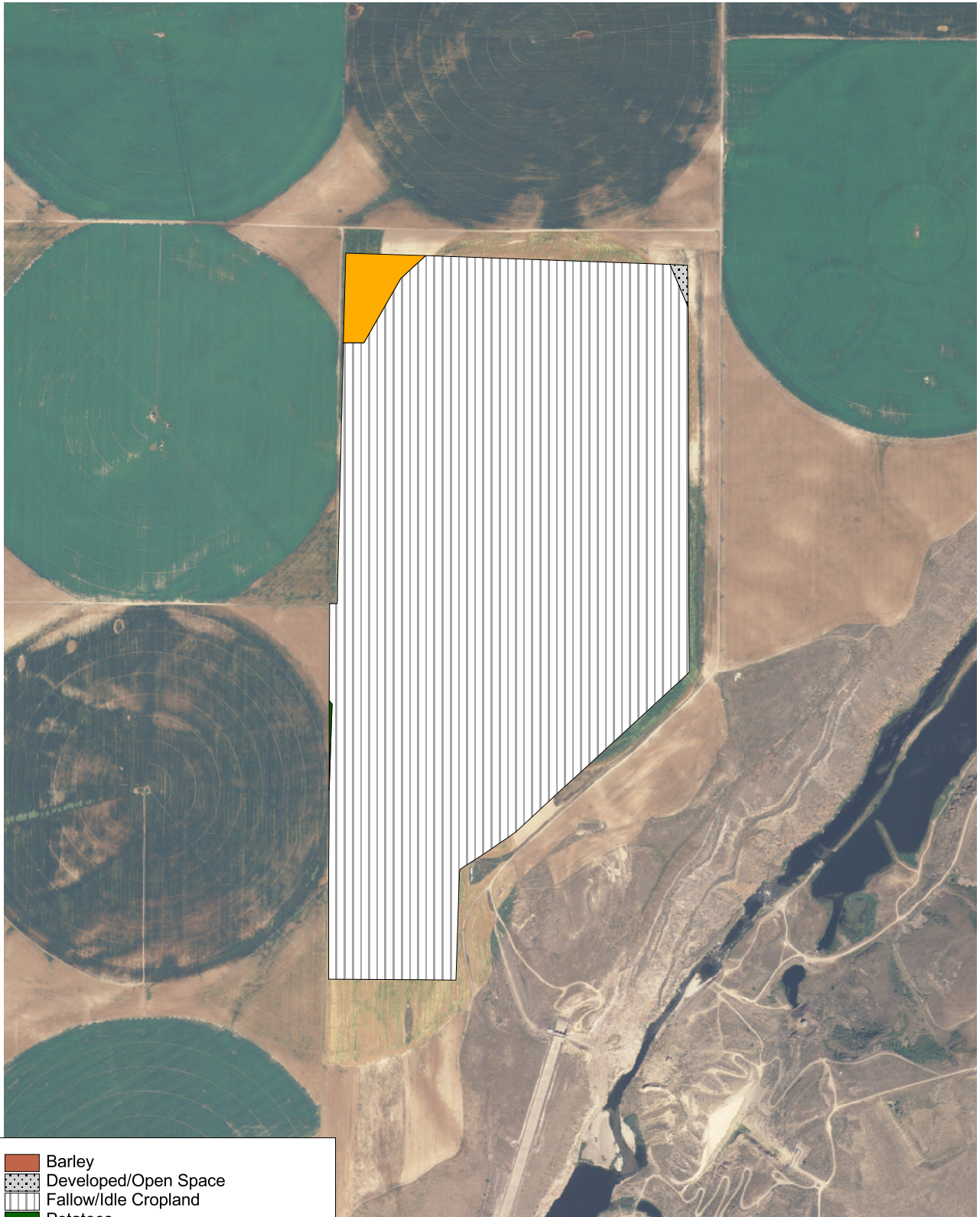


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Figure 8: 2014 Crop Mix

Consumptive Use Analysis

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-  Barley
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-  Potatoes
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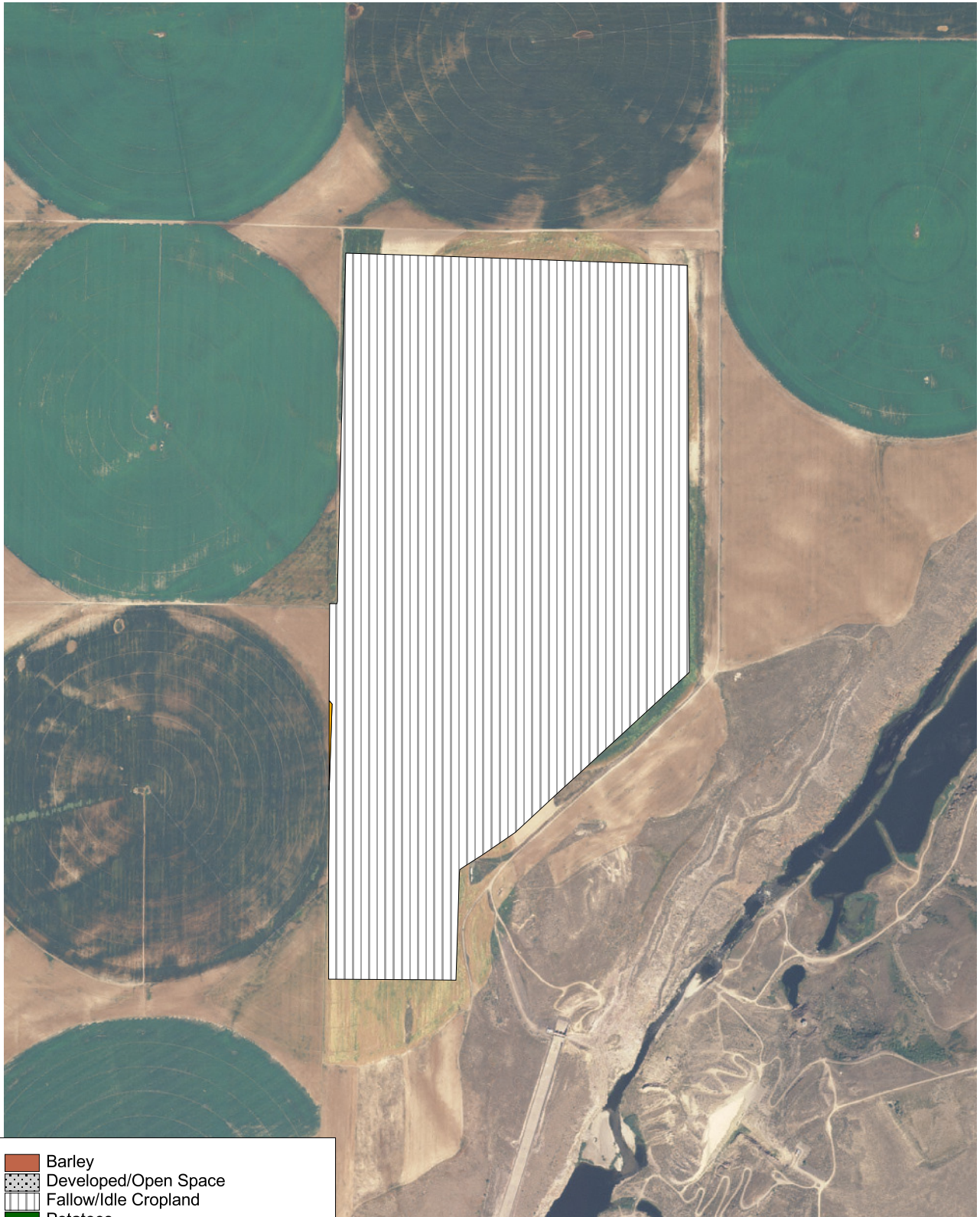


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Figure 9: 2015 Crop Mix

Consumptive Use Analysis

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-  Barley
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Figure 10: 2016 Crop Mix

Consumptive Use Analysis

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