

STATEMENT OF BASIS

GROUND WATER DISCHARGE PERMIT UGW310001 MORGAN RANCHES DAIRY, LLC

June 2026

INTRODUCTION

The Division of Water Quality (“Division”), under the authority of the Utah Ground Water Quality Protection Rules¹ (Ground Water Rules), issues ground water discharge permits to facilities that have the potential to discharge contaminants to ground water². As defined by the Ground Water Rules, such facilities include land application of wastes, large feedlots, pits, ponds, and lagoons. The Ground Water Rules are based on an anti-degradation strategy for ground water protection as opposed to non-degradation; therefore, discharge of contaminants to ground water may be allowed provided that current and future beneficial uses of the ground water are not impaired and the other requirements of Utah Admin. Code R317-6-6(6.4)(C) are met⁴. Following this strategy, ground water is divided into classes based on its quality⁵; with higher-quality ground water receiving greater protection⁶ due to the greater potential for beneficial uses.

The Division has developed permit conditions consistent with Utah Admin. Code R317-6 and appropriate to the nature of the wastewater, facility operations, maintenance, discharge minimization technology⁷, and the hydrogeologic and climatic conditions of the site, to ensure that the operation will not contaminate ground water.

BASIS FOR PERMIT RENEWAL

This Permit is being renewed in accordance with R317-6-6.7. However, a permit may be terminated or a renewal denied if any one of the four items in R317-6-6.8 applies:

- 1) Noncompliance by the permittee with any condition of the Permit where the permittee has failed to take appropriate action in a timely manner to remedy the Permit violation;
- 2) The permittee’s failure in the application or during the Permit approval process to disclose fully all significant relevant facts at any time;
- 3) A determination that the permitted facility endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or

¹ Utah Admin. Code R317-6

² <https://lf-public.deq.utah.gov/WebLink/ElectronicFile.aspx?docid=618204%20&eqdocs=DWQ-2006-004002>

³ Utah Admin. Code R317-6-6(6.1)(A)

⁴ Preamble to the Ground Water Quality Protection Regulations of the State of Utah, sec. 2.1, August 1989

⁵ Utah Admin. Code R317-6-6(3)

⁶ Utah Admin. Code R317-6-6(6.4)

⁷ Utah Admin. Code R317-6-6(6.4)(C)(3)

- 4) The permittee requests termination of the Permit.

PURPOSE

The purpose of this *Statement of Basis* is to describe the permitted facilities, ground water quality, and compliance monitoring program for the Morgan Ranches Dairy facility. Ground water discharge permit UGW310001 was issued to Morgan Ranches, LLC (“Permittee”) in 2010. Subsequent renewals of the permit were issued in 2016 and 2021.

DESCRIPTION OF FACILITY AND OPERATIONS

The Permittee operates a dairy farm located approximately 0.5 miles east of Circleville, Utah. The dairy farm consists of barns, parlors and waste facilities to accommodate 3,500 dairy cattle. A site diagram showing the location of all permitted facilities and associated monitoring wells is included as Appendix A.

Manure from the dairy operation is flushed from the barns using recycled plate cooler water. The wastewater is transferred from the barns to the Primary Lagoon through a subsurface drainage pipe. The Primary Lagoon is connected to the Secondary Lagoon by a subsurface pipeline system. Wastewater is pumped from the Primary Lagoon to the Secondary Lagoon as needed. Wastewater stored in the lagoons may be land applied at the appropriate agronomic rate as specified in the *Comprehensive Nutrient Management Plan*.

SITE HYDROGEOLOGY

The Morgan Ranches Dairy Farm is located in Circle Valley, approximately 0.5 miles east of Circleville in Piute County. In this vicinity, ground water generally flows from the mountainous recharge areas located on the west and east sides of the valley in a northerly direction toward the upper end of Circle Valley. The Sevier River runs through the center of Circle Valley and is considered a point of discharge for the alluvial basin fill aquifer. The alluvial basin fill aquifer beneath the existing grade at the site consists of unconsolidated and semi-consolidated, poorly sorted, alluvial materials; primarily clay, sand, and gravel, inter-bedded with silt and clay. The alluvial aquifer in the Circle Valley may be several hundred feet thick under the dairy site. Monitoring wells have been completed in the uppermost water table aquifer at the site.

PERMITTED FACILITIES

The Permittee utilizes two lined lagoons for the storage of wastewater as part of the dairy farm operations. The following facilities are authorized to store dairy wastewater in accordance with Utah Admin. Code R317-6-6(6.1):

- 1) *The Primary Lagoon* (also identified as the “*New Pond*”) is located immediately to the north of the dairy barns. The Primary Lagoon has a capacity of 40.2-acre feet and was constructed in 2019 with a single layer 60-mil high-density polyethylene (HDPE) flexible membrane liner (FML).
- 2) *The Secondary Lagoon* (also identified as the “*East Pond*”) is located approximately 4,000 ft to the east of the Primary Lagoon. The Secondary Lagoon has a capacity of 45.8-

acre feet and was constructed in 2025 with a single layer 60-mil HDPE FML.

The following facilities are located immediately to the west of the Primary Lagoon and are authorized under Permit by Rule in accordance with Utah Admin. Code R317-6-6(6.2)(5):

- 1) *The Old Irrigation Pond* is an unlined lagoon that was historically used to store dairy wastewater prior to the construction of the current permitted lagoons.
- 2) *The Irrigation Pond* is a lagoon that was historically used to store dairy wastewater prior to the construction of the current permitted lagoons. The lagoon is equipped with a single-layer synthetic liner; however, the liner is damaged and does not meet the performance standards of this Permit.

These facilities are only authorized to store clean irrigation water. Dairy wastewater storage is no longer authorized in these facilities.

BEST AVAILABLE TECHNOLOGY

At full population, the dairy farm can contain 3,500 animals in total confinement. The Primary Lagoon and the Secondary Lagoon are constructed with single layer 60-mil HDPE FMLs and are designed to maintain at least 1 foot of freeboard while operating.

Solid manure waste from the dairy farm operations is deposited in a graded and bermed area for composting. The composted solids are either land applied as an organic fertilizer or sold as compost. Runoff from the compost area is drained into the Primary Lagoon. Wastewater and sludge from the lagoons may be land applied to at the appropriate agronomic rate and in accordance with the approved *Comprehensive Nutrient Management Plan* included in Appendix B of the Permit.

The design, operational, and contingency requirements detailed above represent Best Available Technology since the implementation of these requirements will be protective of ground water resources in the area surrounding the facility.

GROUND WATER CLASSIFICATION AND PROTECTION LEVELS

Ground water beneath the Primary Lagoon and the Irrigation Ponds is classified as Class IA - Pristine Ground Water, with total dissolved solids (TDS) concentrations less than 500 mg/L. Ground water beneath the newly installed Secondary Lagoon is assumed to be Class IA – Pristine Ground Water but will be confirmed through background ground water monitoring as required by Part I.F.5.e of the Permit.

Protection levels have been established for total nitrate + nitrite (as N), chloride, and TDS and are included in Table 1 of the ground water discharge permit. For Class IA – Pristine Ground Water, the protection levels are determined based on the following criteria:

- 1) The protection level for TDS is the greater of 1.25 times the mean background concentration or the mean background concentration plus two standard deviations.

- 2) For contaminants that are detected in background concentrations, the protection level is the greater of 1.25 times the mean background concentration, the mean background concentration plus two standard deviations, or 0.25 times the ground water quality standard for each analyte.
- 3) For contaminants that are not detected in background concentrations, the protection level is the greater of 0.1 times the water quality standard or the laboratory limit of detection.
- 4) In no case will a pollutant be allowed to exceed the ground water quality standards as listed in R317-6-6(2) unless otherwise specified by the Director.

For new monitoring wells constructed during the term of the Permit that have not completed the background monitoring requirements described in Permit Part I.F.5.e, the protection level for total nitrate + nitrite (as N) shall be 0.25 times the ground water quality standard, and the protection level for TDS shall be the maximum value for Class IA Pristine Ground Water.

GROUND WATER MONITORING

The Permittee has installed at least one upgradient and one downgradient monitoring well for each of the permitted lagoons. The monitoring wells are located along the direction of ground water flow and are completed in the uppermost water-bearing zone at the facility. Ground water monitoring is conducted on a semi-annual basis in accordance with the approved *Sampling and Analysis Plan* included in Appendix C of the Permit.

Background ground water quality concentrations have been calculated for all up-gradient and down-gradient monitoring wells for the purpose of establishing ground water protection levels. If any additional up-gradient or down-gradient monitoring wells are installed, ground water samples will be collected from each of the newly installed wells on an accelerated quarterly schedule, at equal time intervals, until at least eight (8) sampling events have been completed.

Regulatory decisions made as a result of ground water monitoring must consider the background variability of ground water quality at the site. The Permittee will not be required to take corrective action if it can be verified that changes in ground water quality are a result of other factors not related to their operations.

COMPLIANCE SCHEDULE

1. Retrofitting Evaluation of Upgradient Monitoring Wells.

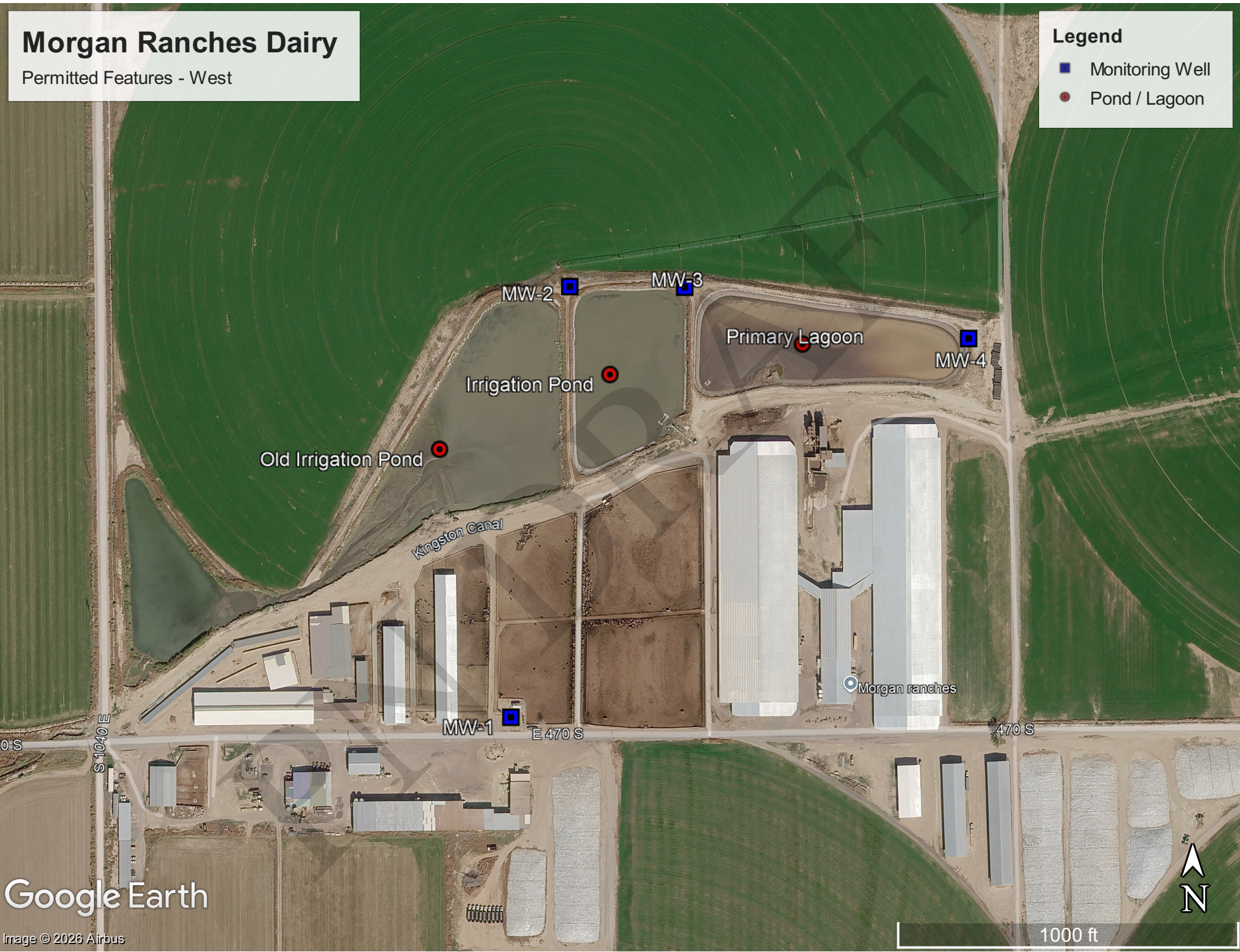
The up-gradient monitoring wells for the Primary and Secondary Lagoons are equipped with fixed well heads and pumps that do not allow the Permittee to collect the depth to water measurements required by Part I.F.5.b or to complete the potentiometric surface map required by Part I.H.3. Within 90 days of permit issuance, the Permittee will submit a plan and compliance schedule to the Director. This plan will evaluate whether the deficient up-gradient monitoring wells can be modified to meet permit requirements or if new monitoring wells are needed.

Appendix A1

Morgan Ranches Dairy

Permitted Features - West

- Legend**
- Monitoring Well
 - Pond / Lagoon



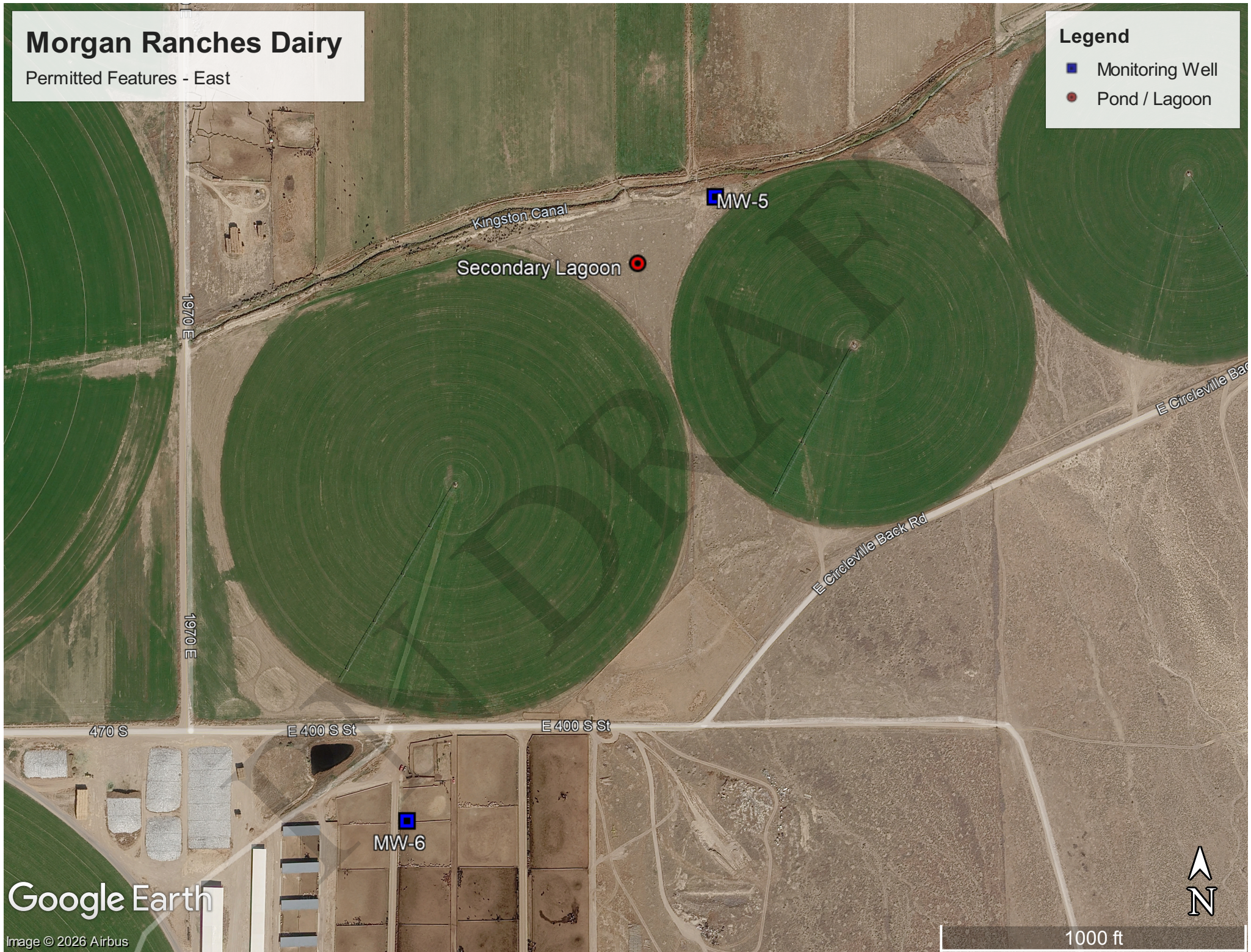
Appendix A2

Morgan Ranches Dairy

Permitted Features - East

Legend

- Monitoring Well
- Pond / Lagoon



Google Earth

Image © 2026 Airbus

1000 ft