1041 Permit Application

Reactivate
An Invenergy Company

RDC CO County Rd 116

Community Scale Solar Project

Alamosa County, Colorado

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Acronyms and Abbreviations

A – Agricultural

AC – Alternating Current

AJD – Approved Jurisdictional Determination

AOI – Area of Interest

AQI – Air Quality Index

BACM – Best Available Control Measures

BGEPA – Bald and Golden Eagle Protection Act

BMP – Best Management Practices

CDA – Colorado Department of Agriculture

CDOT – Colorado Department of Transportation

CDPHE – Colorado Department of Public Health and Environment

CFR – Code of Federal Regulations

CODEX – Colorado Conservation Data Explorer

CPW – Colorado Parks and Wildlife

CR – County Road

CRS – Colorado Revised Statuses

DC – Direct Current

EPA – United States Environmental Protection Agency

EPCRA – Emergency Planning and Community Right to Know Act

ESA – Endangered Species Act

FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map

GAAS – General Accepted Auditing Standards

GLO – General Land Office

HUC – Hydrological Unit Code

IPaC – United States Fish and Wildlife Service Information for Planning and Consultation

JEDI - Jobs and Economic Development Impacts

kV – kilovolt

LUR – Land Use Regulations

MBTA – Migratory Bird Treaty Act

MOA – Memorandum of Agreement

MW – Megawatt

MWac – Megawatt Alternating Current

NFPA – National Fire Protection Association

NHD – National Hydrology Dataset

NLCD – National Land Cover Database

NRCS – National Resources Conservation Service

NRHP – National Register of Historic Places

NWPR – National Waters Protection Rule

OAHP – Colorado Office of Archaeology and Historic Preservation

OHWM – Ordinary High Water Mark

PJD – Preliminary Jurisdictional Determination

POCC – Point of Common Coupling

POI – Point of Interest

PV – Photovoltaic

SAM – Species Activity Mapping

SC – Special Concern

SHPO – State Historic Preservation Office

SWMP – Storm Water Management Plan

SWPPP - Stormwater Pollution Prevention Plan

T&E – Threatened and Endangered

USACE – United States Army Corps of Engineers

USDA – United States Department of Agriculture

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

USLE – Universal Soil Loss Equation

WOTUS – Waters of the United States

1041 Regulations Alamosa County

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1.0 Application

RDC CO County Rd 116 LLC (Applicant) submitted a preliminary 1041 land use application to Alamosa County in late 2024 for the RDC CO County Rd 116 LLC Community Solar Energy Facility (Project) and received preapplication comments back from the County on December 16, 2024.

Following submittal of a compiled application on June 16, 2025, the Applicant received comments on the application back from the County on August 18, 2025. These comments are addressed within this final application.

A Waiver Hearing for the Project was conducted on September 24, 2025, the results of which are also included within this final application.

Please refer to Attachment B: Preapplication and Waiver Request

2.0 Letter of Intent

The Applicant has prepared this 1041 Permit Application in support of the development, construction, operation and decommissioning of a community scale photovoltaic (PV) solar generation facility referred to as the RDC CO County Rd 116 LLC Community Solar Energy Facility on private, undeveloped rangeland in unincorporated Alamosa County, Colorado.

The RDC CO County Rd 116 LLC Community Solar Energy Facility is a 3.9 megawatt (MW) solar PV generation facility located on approximately 20 acres of Parcel Number 541502300147, 6.8 miles east of the City of Alamosa, Colorado, immediately east of County Road 116 South and north of U.S. Highway 160. The Project is being developed by Reactivate CO Development LLC ("Reactivate"), which is a wholly owned subsidiary of Reactivate Devco LLC.

The Applicant has selected the proposed project site due to its immediate proximity to an existing Xcel Energy-owned distribution line, which would serve as the Point of Interconnection to the solar facility immediately south of the parcel boundary and the desire of the underlying land owner to lease a portion of the wholly owned tract of land to the RDC CO County Rd 116 Rd LLC for use as a solar energy project.

During the construction phase, Reactivate will employ a combination of full-time staff and specialized contractors for this solar installation project. The exact number of on-site workers will vary widely on any given day with a maximum of 14 workers depending on the project phase, system size, schedule, and contractor. Construction would take place on a single-shift schedule, with work hours typically from 7 AM to 5 PM, Monday through Friday. Occasional weekend or evening work may be required. During the operation phase there will be no full or part-time active employees on site. Operations are anticipated to occur for up to 45 years. The site will be monitored remotely full-time. Following operation, the project would be decommissioned and the project area restored to existing conditions.

3.0 Applicant Overview

Reactivate is a mission-driven renewable energy company that develops, owns, and operates community-scale renewable energy solutions across the country.

Invenergy and Lafayette Square co-founded Reactivate in 2022 to bring together complementary impact investment and sustainable energy expertise to support renewable energy projects.

Invenergy is a leading privately held, global developer and operator of sustainable energy solutions. Over 20 years, Invenergy has developed 30 gigawatts of large-scale sustainable energy generation and storage facilities across the Americas, Europe and Asia.

4.0 Preliminary Site Plan

Please refer to Attachment C: Preliminary Site Plan.

5.0 Project Description

The RDC CO County Rd 116 Community Solar Energy Facility is a 3.9 MW solar PV generation project located on approximately 20 acres of privately owned land in Alamosa County. Reactivate CO Development LLC holds the solar easement agreement on the project parcel. The underlying landowner of the parcel is Timothy James Outman.

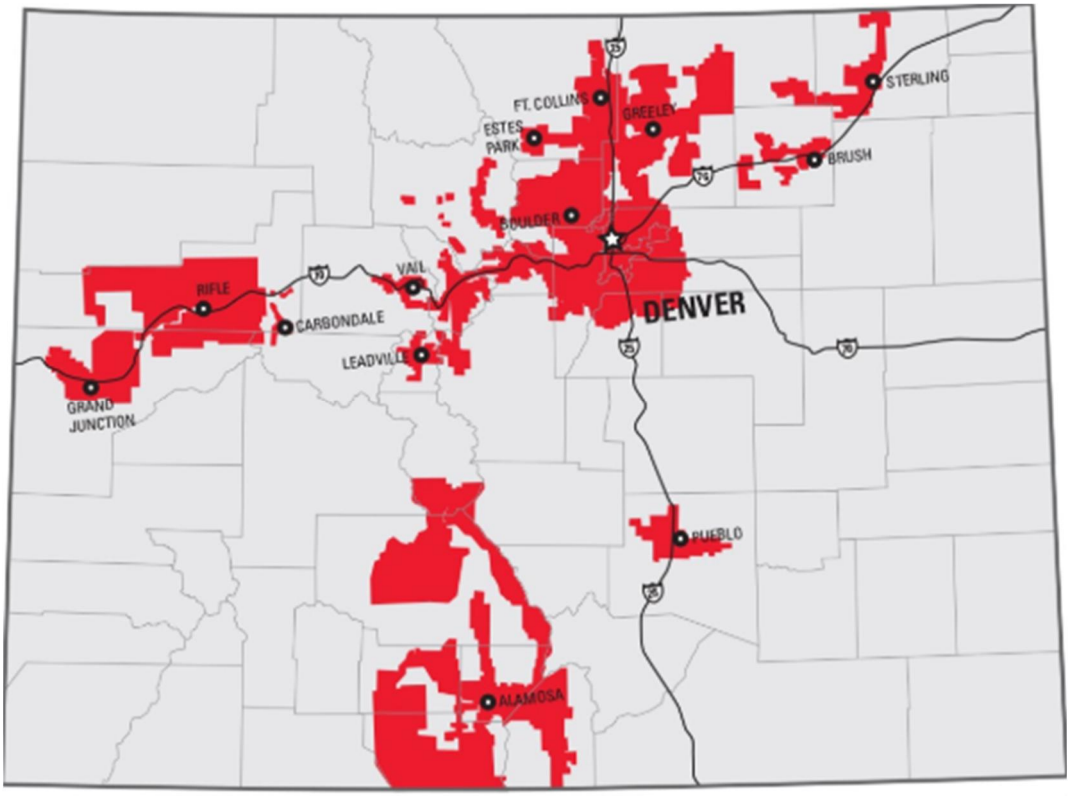
Features of the Project include solar PV modules, a solar racking system, inverters and one transformer; an electric collection system and distribution system; internal access paths and parking; and, perimeter fencing. Power will be generated via energy from the sun, which will be absorbed by the PV cells of the solar panels. The PV panels convert the sun's energy to an electrical current, which leads to an inverter. The inverters at the end of each panel row will then convert the direct current (DC) to alternating current (AC). The energy is then aggregated via an underground collection system and stepped up to 13.2 kilovolt (kV) at the transformer. From the transformer, a 13.2 kV overhead distribution line will carry the AC current to the existing Xcel distribution line, which runs east-west along on the north side of E U.S. Highway 160. The Point of Interconnection or POI to this existing distribution line is approximately 50 feet south of the project area.

The Project is located in Xcel, doing business as the Public Service Company of Colorado (PSCo), service territory. PSCo serves 27 counties in Colorado, with a service territory depicted in Figure 1.

The project is not anticipated to have any future phases or extension of facility; however, the facility plans to participate in Xcel Energy's Community Solar program. RDC CO County Rd 116 LLC is currently in Xcel's interconnection queue and hopes to execute an Interconnection Agreement Date to connect with Xcel Energy by 2026.

Under its Solar Rewards Community Program, Xcel Energy will purchase the energy and renewable energy credits (REC) generated from the project (as a qualifying solar garden). In turn customers who subscribe to the solar gardens (subscribers) will receive a monetary credit on their bill equal to their share of production multiplied by the Solar Rewards Community Service (SRCS) Credit applicable to their rate class (found in Xcel Energy's electric tariff).

Figure 1. Xcel's Electric Service Territory in Colorado



Specific examples of Project equipment described above include:

- Bifacial, monocrystalline PV Modules (analogous to JA Solar JAM72S30-540/MR/1500V (540W) panels; approximately 8,658 panels in total)
- PV panel racking system
- Inverters (analogous to Sunny Highpower Peak3 150-US (150kW) inverters; approximately 26 small-scale inverters in total)
- Project Control System (provided by Green Power Monitor or equivalent)
- Transformer (Star Delta Transformer; 13.2kV)
- Underground collection system lines and overhead distribution interconnection line (13.2kV).

County Road 116 S will serve as the primary access road to the Project, and a new access drive from County Rd 116 to the project area will be built at the southwestern corner of the parcel. Security

fencing will be comprised of wildlife exclusion fencing designed to Colorado Parks and Wildlife (CPW) standards to surround the Project and protect wildlife from entering the Project. This fencing will be 8 feet in height and will surround 14.9 acres of the Project area.

There is no grading anticipated to accommodate the PV panel area. The Project has no plans for expansion or phasing.

5.1 Project Objectives

The RDC CO County Rd 116 LLC Community Solar Energy Facility is anticipated to participate in Xcel Energy's Community Solar Program. On May 22, 2024 Governor Polis signed into law SB24-207 Access to Distributed Generation, which established requirements for the development of inclusive community solar capacity that investor-owned electric utilities must make available to utility customers. The final legislation requires Xcel Energy to offer its Colorado customers 50 megawatts per year of community solar in 2026 and 2027. Qualifying projects must not exceed 5MW of capacity and must interconnect with a participating utility's distribution system.

Under its Solar Rewards Community Program, Xcel Energy purchases the energy and renewable energy credits generated from the project (as a qualifying solar garden). In turn, customers who subscribe to the solar gardens will receive a monetary credit on their bill equal to their share of production multiplied by the Solar Rewards Community Service (SRCS) Credit applicable to their rate class (found in Xcel Energy's electric tariff).

If approved, the RDC CO County Rd 116 Community Solar Energy Facility would be the first or one of the first qualifying community scale solar projects in Xcel's program in Alamosa County.

5.2 Project Support Facilities

The project will interconnect to an existing Xcel-owned distribution line south of the project area with an approximately 50-foot long interconnection line. Support facilities proposed to be developed to support the project include an equipment pad (2,418 square feet concrete pad); a 20-foot wide new access road from County Road 116 S with turnaround in the project area; and a perimeter fence.

Standard pollution control, erosion/sediment control measures, and vegetation maintenance will be employed during construction and operation phases.

The Project will not have an operations and maintenance building on site and will not require any public facilities for water supply or sewage treatment.

RDC CO County Rd 116 LLC will create a stormwater management plan and will obtain a Stormwater Pollution Prevention Plan (SWPPP) permit prior to construction to prevent any non-point source pollution from the site and to maintain water quality control in any runoff. The active use of the site as a solar energy facility does not introduce any additional nonpoint source pollution potential. As a result, no alternatives to pollution prevention are associated with the project. The Project will not discharge any point source pollution into the air, water, or ground.

5.3 Water Usage

A limited amount of water is necessary during construction, primarily for dust abatement, but also for concrete work. Due to lack of water access in the project vicinity, water will be hauled from offsite for construction and dust control purposes. The quantity of construction water anticipated to be required to support construction is under 4,000 gallons/month and would likely be sourced through the East Alamosa Water Sanitation district or other available provider. If the construction contractor elects to use water through the district, a Bulk Water Dispenser Use Application has been completed by RDC CO County Rd 116 LLC to obtain rights to purchase Bulk Water from the district; *please refer to Attachment D: Bulk Water Dispenser Use Application.*

The Project will not require a water system for power production.

To supply water for the cleaning of the solar panels, the O&M team will carry water on site via trucks. Nominal water needs for panel cleaning are anticipated on a semi-annual basis.

6.0 Site Description

The proposed project is located on private land in unincorporated Alamosa County, approximately 6.8 miles east of the City of Alamosa. US Highway 160 borders the project south and County Road 116 S to the west (Appendix A – Project Location Map). The project is located within a parcel approximately 40-acres in size (study area). The proposed project would be developed on approximately 20 acres (project area) within the study area. Qualified Kimley-Horn environmental scientists surveyed the entire study area on March 4, 2025, to characterize existing study area conditions and to observe for potential natural resources of concern.

The study area is surrounded by private lands to the north, east, south, and west. A Bureau of Land Management (BLM) Area of Critical Environmental Concern (ACEC) (Blanca Wetlands) is located approximately 1 mile northeast of the study area.

Topography of the site is generally flat at 7,525 feet, and the site drains generally north towards an existing ditch. The site is not used for agricultural purposes and is comprised primarily of disturbed desert scrub habitat.

The project is located within the following special districts: the Alamosa County Fire Protection District (discussed further in Section 9.8), the Alamosa County Ambulance District, the Alamosa County Weed Control District, the Mosca-Hooper Conservation District, the East Alamosa Water and Sanitation District and the Alamosa RE-11J School District.

Please refer to Attachment E: Maps, Land Ownership, Vicinity and Special Districts.

6.1 Visual Conditions

The project area is bound by County Road 116 to the west and E U.S. Highway 160 to the south. There are no known scenic easements or visually sensitive areas adjacent to the project area. The Green Acres Airport (FAA CO83), consisting of two privately owned dirt airstrips, is located 0.44 miles due north of the project area. The nearest public airport, the San Luis Valley Regional Airport, is located 6.65 miles southwest of the project area.

Within 0.75 miles of the project area, there are four single family residences on adjacent properties north of the project area and one residence due east of the project area. Additionally, there are six single family residences south and west of the project area that are separated from the project by public roads. There are no schools, churches, cemeteries or any other potential sensitive receptors within two miles of the project area.

Project renderings were developed of the Project to show how the Project would appear from the nearest publicly accessible viewpoints. Two observation points from U.S. Highway 160 were selected (from the southeast and southwest corners of the project area), and renderings of the Project were completed to illustrate how the Project will appear to viewers at these selected observation points.

Please refer to Attachment F: Visual Impact Review

6.2 Zoning

The project area is zoned as rural. RDC CO County Rd 116 LLC will need to secure a land use permit from Alamosa County. This land use permit will adhere to the Alamosa County 1041 land use permitting process. The 1041 Regulations were enacted by the Colorado General Assembly in 1974. Commonly referred to as "1041 powers", these regulations help define the authority of the state and local governments in making planning decisions for matters of statewide interest through a local permitting process. Through this process, local governments are provided the power to maintain control over development projects with statewide impacts. The Project falls under the construction of a major facility of a public utility, which is included as a matter of statewide interest.

6.3 Atmospheric Conditions

Alamosa County gets an average of 9 inches of rain per year and 30 inches of snow per year. In worst case winter time conditions, the average wind speed gets to about 8 miles per hour. The lowest mean temperature in worst-case winter time conditions is -2.2 degrees Fahrenheit. The average air quality index (AQI) for Alamosa County is 33.

The project area location in Alamosa County is in attainment with the National Ambient Air Quality Standards for NO2, PM2.5 24-hour, PM2.5 annual, PM10, SO2, 1-hour, Pb, 1-hour Ozone (O3), 8-hour O3, and CO according to the Environmental Protection Agency's current Green Book. Best

practices during construction activities should be followed to minimize combustion of gas and emissions of hydrocarbons in the atmosphere.

6.4 Site Geology

The underlying geology of the study area is unclassified surficial deposits and underlying Alamosa formation in San Luis Valley. The study area lies within the Salt Flats (22c) Sub-Region of the Arizona/New Mexico Plateau Ecoregion. There are two different Soil Map Units (SMU) identified within the study area by the National Resources Conservation Service (NRCS) Web Soil Survey. Both SMUs of the study area, Corlett-Hooper complex, undulating, and Hapney loam, are dominant soils (over 20 percent) of the study area. Corlett-Hooper complex, undulating, constitutes a total of 53.2%, or 21.4 acres, of the study area, and is characterized as fine sand and sand with a parent material of eolian deposits. Hapney loam constitutes a total of 46.8%, or 18.6 acres, of the study area, and is characterized as loam, clay, sandy clay loam, and loamy sand with a parent material of alluvium.

Soil test pits were taken at 11 locations within the study area on March 4, 2025; no hydric soils were observed in the area.

Geologic conditions were considered for the site and the surrounding area in respect to avalanches, mud flows & debris fans, unstable or potentially unstable slope, special seismic considerations, areas of high radioactivity, ground subsistence, and expansive soil & rock. None of these conditions were mapped as present in the study area.

Please refer to Attachment E: Maps, Underlying Geology and Hazards Map

6.5 Project Site Study and Analysis Overview

The following site studies and analyses have been completed:

- Cultural Resources Existing Conditions Review:

  Kimley-Horn completed a Class I Cultural and Paleontological Resources Assessment of the study area in March 2025. The cultural resource record search results provided by the Colorado Office of Archaeology and Historic Preservation (OAHP) indicated that there is one (1) previously recorded cultural resource and three (3) previous studies within the study area. Within the study area, the previously recorded cultural resource (5AL.956) is a segment of a historic-era road known as US Highway 160. Kimley-Horn staff did not identify any previously recorded paleontological resources in the study area. Staff determined that the project area has a low sensitivity for subsurface paleontological resources and moderate sensitivity for prehistoric-era archaeological sites.

  Please refer to Attachment G: Cultural Resources Review

- Wetlands and Aquatic Resources

  Qualified Kimley-Horn environmental scientists surveyed the entire study area on March 4, 2025, to characterize existing study area conditions and to survey waters and wetlands of the U.S., waters and wetlands of the state and aquatic conditions. Aquatic features were evaluated using the *U.S. Army Corps of Engineers* (USACE) *1987 Wetland Delineation Manual and Regional Supplement: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE 2010) and *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (USACE 2025). Aquatic feature surveys were conducted on foot within the study area.

  One aquatic feature (Aquatic Feature 1), an artificially irrigated surface water approximately 0.45 acres in size, was observed within the northwest portion of the study area. This feature was isolated in uplands and had no downstream connections and is likely not federally or state jurisdictional. The NHD-mapped waterbody feature located in the north-central portion of the study area was entirely not present.

  Impacts to the aquatic features will be avoided by project layout. The project area and associated development will not intersect any mapped or field observed aquatic features. No impacts to these features are anticipated. Wetlands permitting, consultation, and/or coordination are not required as project development will not impact aquatic features.

  Please refer to Attachment I: Biotic and Aquatic Conditions Report.

- Biological Resources

  There are no federally designated critical habitats within the project vicinity. There are no state-designated high priority habitats intersecting the study area. Qualified Kimley-Horn environmental scientists inventoried the entire study area on March 4, 2025, to characterize existing study area conditions and to observe for potential natural resources of concern. Suitable habitat for protected state and federal species was not identified within the study area.

  Vegetation species identification in support of sensitive wildlife habitat suitability were identified to the Genus taxonomic rank, at minimum, with a focus on identification down to Species taxonomic rank, when possible. Biological surveys were conducted on foot within the study area, and within a vehicle on publicly accessible roads within a 0.5-mile radius of the study area when in search of raptor nests. Observations were conducted with the naked eye and were also aided with binoculars, when appropriate. The study area is comprised primarily of disturbed desert scrub habitat, and there are no current or historic agricultural activities within the study area. Vegetation consisted of species commonly observed in the Arid West and was dominated (over 20% ground cover) by greasewood

(*Sarcobatus vermiculatus*). No endangered or threatened vegetative species were observed within the study area. With the majority of vegetation within the study area being shrubs of short to medium height, the study area appears to be comprised primarily of pioneer species with regard to phases of ecological succession. No previous disturbances to the study area were identified during site reconnaissance.

Wildlife utilization observed within the study area on March 4, 2025, included a coyote (*Canis latrans*) and small burrows, likely those created by small rodents such as mice. Livestock were also present within the study area. The entirety of the study area is suitable migratory bird nesting habitat. Pre-construction surveys are required by USFWS prior to disturbance activities if construction will occur during nesting season between March 15 and August 31.

The Colorado Natural Heritage Program (CNHP) Conservation Data Explorer (CODEX) tool was referenced to identify any Colorado Parks and Wildlife (CPW) High Priority Habitats (HPHs) located within a one-mile radius of the study area. No HPHs were identified as intersecting the study area. Two HPHs were identified within one mile of the study area: an elk production area and an aquatic native species conservation water associated with an unnamed lateral approximately 1,300 feet north of the study area. These features are not expected to be a constraint to development.

Please refer to Attachment I: Biotic and Aquatic Conditions Report.

- Hydrology:

Kimley-Horn was retained by the Applicant to perform a review of the existing limits of inundation and potential scour associated with the 100-year, 24-hour storm event for the Project. The study area is located on FEMA FIRM Panel No. 0800090025A with an effective date of January 19, 1978. This panel is unmapped per FEMA Index Panel 080009IND0. As the area is unmapped, the site is Zone D. FEMA Zone D indicates areas with possible but undetermined flood hazards, because no flood hazard analysis has been conducted.

Precipitation Frequency Data Server 100-year, 24-hour point precipitation values (from NOAA) for seven locations contained in the hydrologic model area were input as meteorological data. Additionally, discharge from the Rio Grande at Del Norte was input to the hydrologic model as a Flow Hydrograph boundary condition at a steady rate of 10,734 cubic feet per second (cfs). This represents the one-percent annual chance (or 100-year) peak discharge of the Rio Grande at Del Norte, per Flood Insurance Study 08105CV000A.

The site is generally protected from floodwater from the Rio Grande River by County Road 116 to the west of the site and an elevated irrigation ditch to the north. For the 100-year, 24-hour storm, depths of inundation on site are less than 0.5 feet for the entire site. For the 100-year, 24-hour storm, potential flow velocities are less than 0.5 feet per second for the entire site.

Kimley-Horn calculated the potential for anticipated local pier scour depth by using the maximum potential inundation depth values and flow velocities on the site. Pier scour was calculated using guidance in *HEC-18: Evaluating Scour at Bridges, Fifth Edition* (FHWA, 2012). Based on the calculations, Kimley-Horn the entirety of the site will experience potential scour depths of less than 0.5 feet during a 100-year, 24-hour design storm. The site layout was designed accordingly.

Please refer to Attachment K: Hydrology Report.

7.0 Financial and Socioeconomic Review

7.1 Economic Development

RDC CO County Rd 116 LLC has completed an assessment of the project's potential impacts on the local economy, housing, and the community's social and cultural fabric to ensure the Project results in a net positive impact to the community.

7.1.1 Employment and Economic Opportunities

Energy insecurity is defined as the inability to afford and access reliable and affordable energy sources, potentially impacting the household's health and well-being. Across the U.S., 45% of low-to-moderate income (LMI) households report energy insecurity, with 34% of all households foregoing other necessities to cover their energy costs.

Alamosa County continues to experience both energy insecurity concerns and energy reliability issues. Reactivate is committed to building solar projects that help alleviate energy insecurity and energy poverty. Community scale-solar project such as the RDC CO County Rd 116 Project can benefit a wide range of residential customers, including income-qualified. Income qualified residents within Xcel's service territory can qualify for reduced energy rates if they subscribe to Xcel's Solar Rewards Program (Xcel 2025).

Reactivate's initiatives help working-class families save on electricity bills, freeing up their financial resources for other essential needs. By subscribing to local solar farms, households can benefit from reduced energy costs without the need for property ownership or upfront investments.

Our projects deliver multiple benefits to hardworking families, such as:

- Financial Savings: Families receive energy credits on their energy bills, increasing their monthly cashflow and reducing the burden of energy costs.
- Lower Entry Costs: Unlock private solar installation, with high sticker price and rigid sizing constraints, community solar subscriptions are both size and package-flexible, reducing upfront entry costs.
- Increase Program Participation and Accessibility: Residential solar historically only benefit the households directly under the rooftop array; but, community solar allows renters and working class families to participate in state- or federal renewable energy programs without the need for homeownership.
- Double-Duty Land Use: Small-scale solar projects can accommodate dual-use design (such as agrivoltaics or provide pollinator-friendly habitats), and can more readily be located in brownfields or industrially contaminated areas that rarely accommodate other uses.
- Urban Benefits: In urban areas, small-scale and community solar array can be used to reduce urban heat island effects, reducing the risk of increased heat-related health incidents.
- Environmental Benefits: Community solar projects reduce greenhouse gas emissions and by reducing air pollution, these projects contribute to healthier living environments and reduce the risk of respiratory and other health issues.

Reactivate's projects tackle energy affordability and accessibility challenges while delivering renewable energy solutions that enhance reliability and resilience. Our work provides economic, social, and environmental benefits—helping residents and businesses save on energy costs, creating jobs, driving local economic growth, strengthening grid resilience, and improving air quality for communities across the country.

In 2023, Reactivate launched the flagship Building Equity in Solar Training (BEST) work-force training program. The B.E.S.T. program has been developed as a national certification program that will standardize the skills needed to be a successful solar installer by responding to industry demand across the entire energy sector. The curriculum was created in conjunction with experienced solar curriculum facilitators GRID Alternatives (GRID), Solar Energy International (SEI), and Jobs for the Future (JFF) a nationally recognized workforce training and curriculum facilitator. B.E.S.T's foremost priority is quality and is committed to creating the strongest equity-driven model possible to ensure that individuals from underserved or disadvantaged populations or communities have the support they need to enroll, complete training, enter a career with family sustaining wages, and overcome any barriers they may face.

The RDC CO County Road 116 Project would employ the following workforce:

- Construction would occur over an anticipated 4-month period in 2026.
- Maximum number of construction workers onsite: 12
- Maximum number of large truck deliveries expected in one day: 3
- Arrival window: 6am-10am

- Departure window: 1-4pm
- One shift per day/standard construction hours: 7:00am-4:00pm
- The project operations and maintenance phase of the project is anticipated to include average activity of one day per week consisting of two employees working one shift per day.

All employees will be provided with the prevailing wages, as established by Colorado Senate Bill 19-196. The table below shows the Labor Summary for the Project.

Table 1. Preliminary Construction Labor Summary

Job Title	Number Employed	Manhours	Hourly Wage*
Electrician	2	6,800	$33.55
Iron/Steel Worker	2	6,800	$55.22
Construction Laborer	6	20,400	$24.61
Supervisor/Foreman	2	6,800	$54.34
Total	12		$1,475,192

**sourced from https://osa.colorado.gov/state-buildings/prevailing-wage-and-apprenticeship/wage-determinations*

Direct wages associated with construction of the project are anticipated to be approximately $1,475,200.

7.1.2 Statewide and Local Economic Impacts

The Project will benefit the State of Colorado and the Alamosa Community by enhancing spending in the supply chain, retail, and service sectors. The Applicant utilized National Renewable Energy Laboratory's Photovoltaic Jobs and Economic Development Impacts (JEDI) model to estimate local and statewide economic impacts associated with the Project.

The JEDI model estimates economic impacts during the construction and operation periods. The model was developed by the National Renewable Energy Laboratory (NREL) to calculate the economic benefits associated with PV systems in the U.S. Project size and location are entered into the model, and geographic specific taxation values are used in the assessment.

The project area is located within Tax District 221. Using the Jobs & Economic Development Impact Model (JEDI), the project is estimated to generate a total of 15 jobs during its construction and installation period, with an added value to the local economy of about $1,089,000. During the period of operation, between vegetation management, periodic maintenance visits, and remote operations, the project is estimated to generate about 2 total jobs each with annual earnings of about $91,200.

Please refer to Attachment L: Financial Information.

7.1.3. Capital Investment and Project Costs

RDC CO County Rd 116, LLC is a Project Company owned by Reactivate Colorado DevCo, LLC which owns 100% of the ownership interest for all Reactivate projects in Colorado. Reactivate Colorado DevCo, along with numerous other state-focused DevCo, LLCs is owned 100% by Reactivate, LLC. Reactivate, LLC's projects are structured in this manner to allow projects to be pooled together on a state level to enable economies of scale in development, financing and construction.

Reactivate, LLC, an Invenergy company, is a mission-driven organization that develops, owns, and operates renewable energy solutions that are designed to improve the quality of life for communities, with a focus on meaningful benefits for working-class people. Reactivate, LLC operates as Invenergy's DG platform and focuses on solar and storage solutions connected to the distribution grid.

Invenergy is a leading privately held, global developer and operator of sustainable energy solutions. Over 20 years, Invenergy has developed 30 gigawatts of large-scale sustainable energy generation and storage facilities across the Americas, Europe and Asia.

The total capital cost of RDC CO County Rd 116 is calculated at $4,095,000 (materials and land), and $2,730,000 (labor) for a sum of $6,825,000.

As shown in *Attachment M – Decommissioning Plan*, the total probable cost of decommissioning the project exclusive of salvage value 5 years after the project is completed is $282,255. The total probable salvage value of decommissioning 5 years after the project is completed is estimated to be $972,581. These estimates reflect the value of currency at the time of this narrative, and do not take into account annual inflation rates. These values therefore are most representative of expected costs for the Project, including but not limited to materials, labor, equipment, procurement, and quality measures.

7.2 Socioeconomic Review

7.2.1 Alamosa County Socioeconomic Environment

The Project is located in unincorporated Alamosa County, approximately 6.8 miles east of the City of Alamosa. Alamosa County has a population of approximately 16,689 as of July 2024 (USCB 2024). Service industries, including education and healthcare dominate the area's economy, with tourism playing a leading role. Alamosa is home to Adams State University and the Valley branch of Trinidad State College. Of Alamosa County residents, in July 2023:

- 48.7% of the county's population self-reported being Hispanic/Latino
- 2.4% self-reported being Black/African American
- 6.3% self-reported being American Indian or Alaskan Native

The Median household income in Alamosa County was $51,445 as of July 2023 according to the 2024 Census, while 21.7% of the population in the County is below the poverty line.

The 2024 United States Census reports that of the 16,689 residents of Alamosa County (USCB 2024):

- 6.0% are under the age of 5
- 23.9% are under 18 years old
- 15.5% are 65 years of age, or older
- 89.1% of 25+ year olds are high school graduates
- 29.3% of 25+ year olds have a Bachelor's degree or higher

According to the U.S. Bureau of Labor Statistics, the average unemployment rate in Alamosa County in March 2024 was 4.5%. During construction of the Project, there is anticipated to be a very minor temporary population increase (an estimated 12 workers).

According to the Colorado State Demography Office, Alamosa County has approximately 7,280 housing units. Of these 7,280 units, approximately 6,522 are occupied, and 758 are vacant, resulting in a vacancy rate of 10.41% Individuals not located in nearby communities will relocate to the Alamosa area temporarily. No permanent housing will be required.

The Project has been designed to have a positive impact on the environment and surrounding communities. There will not be any adverse effects on communities in Alamosa County. During the construction phase, the Project will bring temporary employment opportunities and an economic boost to the local community.

The Project is designed to participate in Xcel's Solar Rewards Community Program. Xcel Energy will purchase the energy and renewable energy credits (REC) generated from the project; in turn customers who subscribe to the solar gardens (subscribers) will receive a monetary credit on their bill equal to their share of production multiplied by the Solar Rewards Community Service Credit applicable to their rate class. Overall, the Project strives to positively impact the environment and local communities while providing clean, renewable energy to the region.

Please refer to Attachment E. Maps, Impact Area for a map of the directly impacted area.

7.2.2 Migration Trends

The Applicant investigated migration trends in Alamosa County from the Colorado State Demography Office. In 2022, net migration was 12 people, and 209 jobs were created, while in 2021, net migration was 176 people, and 206 jobs were created. In 2020, net migration was 93 people, with -201 jobs created, which is likely reflective of the COVID-19 pandemic. The Project will likely have a positive impact on migration and job creation statistics in Alamosa County during the construction period from 2025 to 2026 but is unlikely to impact long range job and migration forecasts. A Job Change and Net Migration chart sourced from the US Bureau of Economic Analysis can be seen in Figure 2. Seasonal population fluctuation in Alamosa County due to tourism and migrant farm workers are unlikely to be impacted by the RDC CO County Rd 116 Project.

Figure 2. Job Change and Net Migration in Alamosa County

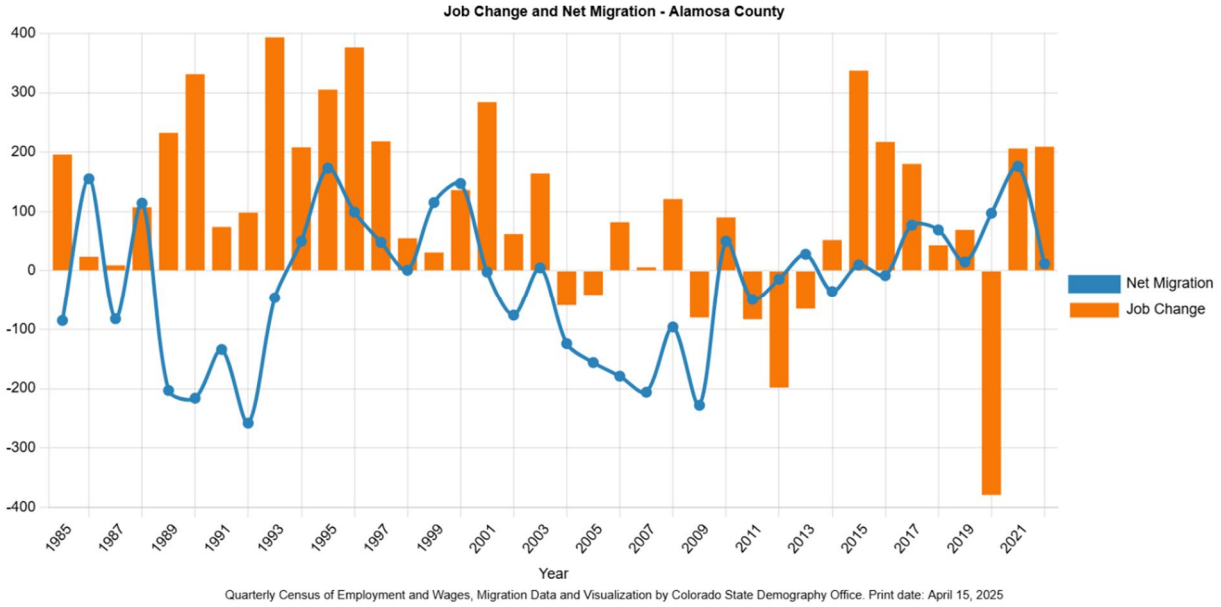
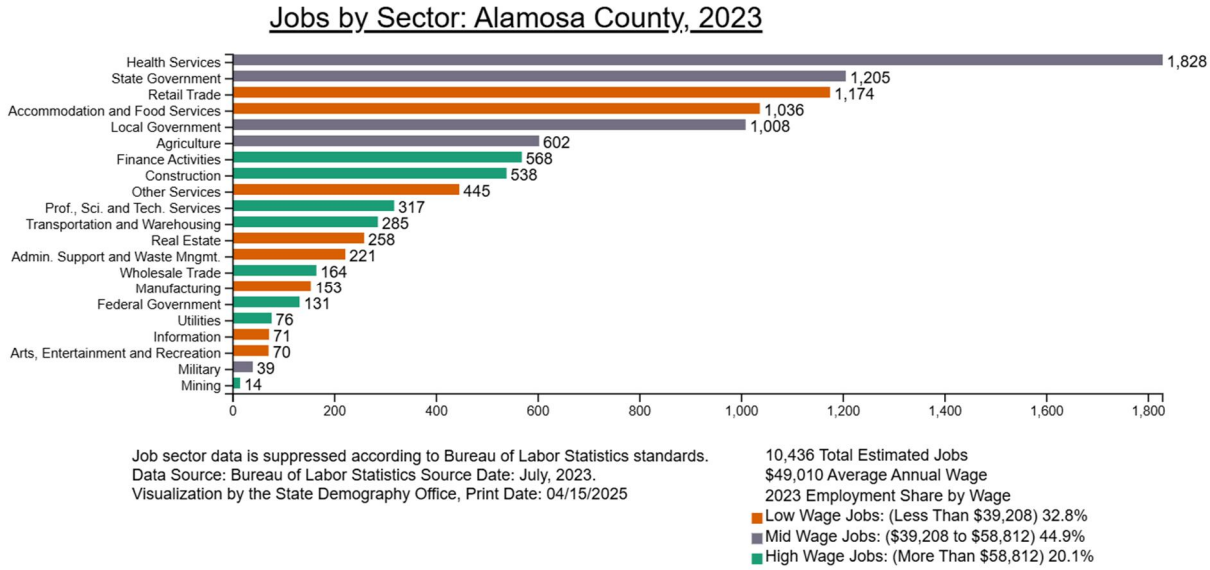


Figure 3 shows a chart of Jobs by Sector in Alamosa County, sourced from the Colorado State Demography Office. In 2023, there were 602 agricultural jobs, and 538 construction jobs in Alamosa County. It is anticipated that the Project will not impact agricultural jobs, since the project property is not currently in use for agricultural purposes. The project will beneficially impact construction jobs during construction, and marginally after construction is completed.

Figure 3. Jobs by Sector in Alamosa County



8.0 Project Timeline

The general Project schedule for RDC CO County Rd 116 is summarized below.

Siting Process and Lease Agreement: 2024
Site Studies/Land Use Analysis/1041 Permit (anticipated 6-8 months): Q1 2025-Q3 2025
Final Design/Building Permit and Access Permit (3-4 months): Q4 2025-Q1 2026
Start construction: Q2 2026
Construction (3-4 months): Q3 2026
Begin Operation: Q4 2026
Operational Life Span: 45 years

After the end of the operational life, the project will be decommissioned.

Please Refer to Attachment M: Decommissioning Plans

9.0 Project Impacts and Mitigation

As detailed in the subsections below, RDC CO County Rd 116 will have short-term localized adverse impacts to traffic and noise, lasting for the duration of construction. The Project is not anticipated to result in long-term adverse impacts to natural or socioeconomic resources within the project area or region. Conversely, long-term beneficial economic and energy benefits are anticipated to result from development and operation of the project.

9.1 Preliminary Agency Coordination

RDC CO County Rd 116 has coordinated with various agencies to proactively discuss the Project's potential impacts and mitigation approach. This coordination is summarized in Table 3. Please see the referenced report section for detail about discussions and considerations. Note that coordination is ongoing with the organizations referenced below, and the Applicant will continue to engage with agency personnel throughout the design, development, and construction of the Project.

Table 3. Preliminary Agency Coordination

Preliminary Agency	Initial Coordination Date	Personnel	Key Notes	Report Section
Colorado Parks and Wildlife (CPW)	04/2/2025	Peter Foote, CPW Land Use Coordinator Brian Magee, CPW Energy Liaison Leon Martinez, CPA Wildlife Manager (Alamosa Region)	Big game (elk) movement between Blanca Wetlands is further west of the site; have not observed standing water on site. No significant crane or bird activity.	9.5 Biological and Aquatic Resources
San Luis Valley Ecosystem Council (SLVEC)	3/4/2025	Christine Canaly, SLVEC Director	Size of project is good and site looks good; recommended additional data sources for hydrologic study.	9.6 Hydrology
Alamosa County Fire Protection District	3/6/2025	Bill Stone, Fire Chief	No problems with site layout and access roads with regards to fire emergency access. As long as panel height above ground is not excessively high, no issues for fire trucks to reach the top of panels in the event of a fire.	9.8. Fire Protection
Colorado Department of Transportation	10/07/2025	Region 5, Randee Reider	Confirmation of CDOT Access Permit requirement; to be submitted upon advancing project design. Awaiting feedback on traffic study and acceptance of haul route.	9.2 Roads

9.2 Roads

A preliminary Conceptual Transportation Plan was developed for the Project and is found in Attachment N. The Project area will be accessed from County Road (CR) 116 South upon turning off U.S. Highway (US) 160. The portion of County Road 116 that will be used for access is a gravel road maintained by Alamosa County, Colorado.

The full movement access per CDOT requirements is proposed approximately 350 feet north of US-160 (measured edge to edge) along CR-116. The anticipated truck and passenger car routes to RDC CO County Rd 116 from the City of Alamosa to the west and the Town of Fort Garland to the east along US-160 to access CR-116.

Construction of the Project is expected to generate a maximum of approximately 30 daily trips (15 round trips) with eight (8) of these trips occurring in the morning peak hour and six (6) of these trips occurring in the afternoon peak hour during the peak construction activities.

After the RDC CO County Rd 116 project has been constructed, the number of trips generated by the Project is expected to be significantly less than during the construction period, approximately one vehicle per week (2 weekly trips). Therefore, traffic impacts related to the operation of the Project will be negligible and insignificant.

Access for the site will be provided by the north leg of the US-160 and CR-116 intersection. Therefore, a temporary CDOT access permit is anticipated to be needed for the north leg of CR-116 along US-116 due to more than 20% of project traffic being contributed to the existing intersection.

The Applicant has conducted a preconstruction road survey to identify the current condition of the county roads that will be used for construction access. The Applicant has summarized the current condition and projected potential maintenance/ rehabilitation efforts. *Please refer to Attachment O: Road Condition Survey*. RDC CO County Rd 116 LLC will coordinate all county road use for this Project with the Alamosa County Road and Bridge Department to minimize impacts to utilized roads. Should any unforeseen damage occur due to Project impacts during construction, the Applicant will assess the damage, coordinate with the Road and Bridge Department, and if necessary, conduct repairs as soon as feasible.

Mitigation Measures

- Gravel roadway will be resurfaced as needed to accommodate construction traffic and minimize dust at the Project access point.
- Speed limit will be managed during construction.
- During construction, the Applicant will apply water or magnesium chloride as a dust-control agent to the gravel access road.

Please refer to Attachment H. Noxious Weed Mitigation, Revegetation & Dust Mitigation Plan

9.3 Noise

The Applicant has completed a noise study to investigate the anticipated noise emission levels of the equipment required for the long-term operation of the proposed solar generation facility.

After modeling and analyzing the anticipated operational sound levels throughout the solar site, it was determined that there will be no negative effects to facilities surrounding the site. Unmitigated equivalent operational noise levels were estimated to be near or below approximately 45 dB(A) at the project site property boundary, which is below the 55 dB(A) reference threshold established in the Colorado Revised Statutes. Noise abatement is not recommended at this time.

Please refer to Attachment P. Noise Study.

9.4 Water and Air Quality

The Project will require Air and Water Quality Permits from the Colorado Department of Public Health & Environment (CDPHE) to support construction activities. Operation of the Project is anticipated to have negligible impact on air quality due to the nature of solar PV projects, which is a system that does not discharge pollutants.

The Applicant will complete permitting with CDPHE for Colorado's Stormwater Construction General Permit. The landscape that the Project will be built on is open rangeland and is generally flat; as a result, no grading of the site is expected to be required. Stormwater runoff and water quality impacts are not anticipated to result from the Project.

One aquatic feature, Aquatic Feature 1, was observed within the study area. Aquatic Feature 1 is likely not federal or state jurisdictional. No hydric soils were observed. The proposed panel area and associated development will not impact any NWI, NHD, CNHP, or field reconnaissance observed aquatic features, including Aquatic Feature 1. Thus, WOTUS and WOS permitting, consultation, and/or coordination are not required for the development of this project.

Please refer to Attachment J: Drainage Report.

9.5 Biological and Aquatic Resources

The Applicant has investigated the Project's impacts to biological and aquatic resources. A Biotic/Aquatic Conditions Review has been conducted of the Project area, which consisted of a desktop survey and field inventory. *Please refer to Attachment I: Biotic and Aquatic Conditions Report*.

Primary potential impacts of the Project include wildlife habitat impacts for avian species and big game vehicular collision risk. Specifically, the Project is suitable migratory bird habitat, the Project parcel is located in a general region supporting populations of big game, and the Project intersects a CPW-designated greater sandhill crane (*Grus canadensis*) range. The proximity of the Project to County Road 116 South and U.S. Highway 160 is also of concern for increased big game vehicular collision risk. These issues will either be mitigated in Project layout and design or are not applicable concerns based on field reconnaissance and CPW correspondence.

Low lying areas within the Project may become inundated during periods of heavy precipitation. Areas with standing water may serve as an attractant to water-obligate avian species during migration through the San Luis Valley. This issue may pose a collision risk between avian species and Project infrastructure during periods of heavy precipitation.

The Project area is located within CPW-designated greater sandhill crane range; however, the area to be developed within the Project lacks the required components for suitable habitat.

The Project does not intersect any sensitive big game areas mapped by CPW; however, the proximity of the Project to County Road 116 South and U.S. Highway 160 may increase the chances of vehicular collision for big game moving through the general area. To help minimize this potential impact, a 50-100 foot setback from the respective roads to the project fence line is incorporated into project design.

Colorado Parks and Wildlife

The Applicant attended a meeting with CPW on April 3, 2025, to discuss Project impacts and mitigation measures. CPW questioned whether the proximity of the Project to County Road 116 South and U.S. Highway 160 would lead to an increased likelihood of big game vehicular collisions. However, CPW stated during the meeting that the Project area and adjacent vicinity was absent of crane and notable big game activity and they did not have concerns about the Project.

Mitigation Measures

A question was raised by CPW regarding avian collision risk with Project infrastructure and big game collision risk with County Road 116 South and U.S. Highway 160.

The Project will utilize modern solar panel technology to maximize energy production while minimizing the potential for avian collisions. The solar panels used for the Project will consist of monocrystalline PV panels with an anti-reflective coating. This coating provides a low reflectance, but with a high transmittance. Thus, the panels reflect minimal light into the surrounding area while at the same time allowing large amounts of light to pass through and be absorbed by the panel. PV panels have lower reflectivity than traditional CSP panels, which use mirrors to concentrate solar rays onto a central collector.

Project fencing will be designed using guidance from CPW and Colorado Department of Transportation (CDOT). This includes a 50 and 100 foot setback between Project fencing County Road 116 South and U.S. Highway 160, respectively, as well as implementation of wildlife-friendly fencing specifications that reduces the risk of big game entanglement and injury.

Following construction, revegetation and weed management would occur per the measures outlined in *Attachment H: Noxious Weed Mitigation, Vegetation Restoration, and Dust Mitigation Plan.*

9.6 Drainage

The Project would be developed on 20 acres of relatively flat land consisting primarily of sparse grasslands and desert scrub with site improvements including a gravel access road and equipment pads. Minimal grading will be needed and the area under the solar panels will be reseeded, as needed, with a low-maintenance native plant seed mix to mimic natural processes to manage stormwater, which follows the Low-Impact Development (LID) approach. This approach is a land planning and engineering approach that focuses on managing stormwater runoff on-site, mimicking natural processes and minimizing the environmental impact of development.

Installation of the solar facility will result in a negligible increase in stormwater runoff flow rates from the project area (e.g. existing peak flow is 23.83 cubic feet per second (cfs) while post-construction peak flow is anticipated to be 23.91 cfs during the 100 year - 1hr storm event). Therefore, permanent stormwater attenuation measures are not proposed with the project.

The site design promotes conservation design at both the watershed and site levels, with the goal of replicating the native hydrologic characteristics of the sub-watersheds, creating natural ground coverage, and minimizing proposed grading and compaction. Offsite drainage patterns will remain the same as historic conditions. Runoff water quality will not be impacted by the solar facility components.

Please refer to Attachment J: Preliminary Drainage Report

9.7 Environment

RDC CO County Rd 116 LLC is a community scale solar project and the Applicant is confident that the proposed Project will not substantively diminish the environmental character of this region of Alamosa County. No impacts to geologic resources are anticipated to occur and construction impacts to soils and vegetation will be mitigated by design and grading approach, dust suppression, weed management, and revegetation and vegetation maintenance measures.

The Project is not anticipated to require coordination with the Federal Aviation Administration, as it is below height of adjacent infrastructure, including the existing height of the distribution system adjacent to where it is located. The project is not anticipated to result in impacts to aviation.

Given the rural nature of the Project location and surrounding areas, the facility is not anticipated to be overly visible to adjacent parcels and should not significantly impact viewsheds. Visual renderings are provided which show the location of the proposed development in relation to surrounding rights-of-way. The proposed location of the project is located approximately 6.8 miles east of the City of Alamosa, Colorado and is not adjacent to dense suburban development. *Please refer to Attachment F: Visual Impacts Review*.

9.8 Fire Protection and Law Enforcement

The Applicant has developed a preliminary Hazard and Emergency Procedures Report, which includes a fire mitigation plan to address fire risk and project operations and maintenance measures. The Emergency Procedures Report is intended to assist emergency response teams through technology specific education. Alamosa County addresses hazards and hazard mitigation within the *San Luis Valley Regional Hazard Mitigation Plan 2023-2028*. The Hazard Mitigation Plan outlines the region's goals and objectives to reduce future hazard related losses, identifying specific areas of concern, and coordinating specific mitigation activities. The *San Luis Valley Regional Hazard Mitigation Plan 2023-2028* also details emergency preparedness and how emergency management training is provided.

The Project site falls within the Alamosa County Fire Protection District and is considered the main stakeholder in the Hazards and Emergency Procedures Report. As such, the Project team coordinated with the Alamosa County Fire Protection District in March of 2025 to discuss any concerns with the Project, get details on the district's fleet information, and outline any training methods to incorporate in the Hazard and Emergency Procedures Report.

Following feedback from Bill Stone, fire chief of the Alamosa County Fire Protection District, on March 6, 2025, the site design reflects that the proposed panel and access road layout does not create any barriers to access for the fire department in the event of a fire emergency. All access and facility roads will be kept in generally good condition to allow for full site access, and access to areas of the site that cannot be directly reached by an access road can be conducted through off-road mobilization by fire emergency vehicles. On-site vegetation will be managed to ensure any accessory structures and electrical equipment have defensible space around them and to keep ignition hazards at a minimum. There will be a gate with a cuttable chain lock at all primary access points to allow quick first responder access.

No additional training or equipment is expected to be needed by the Fire Department to accommodate the project. The project is not anticipated to impact the resources, capacity or staffing levels of the Fire Department.

Attachment Q. Hazard and Emergency Procedures Report.

The Alamosa County Sheriff's Office is responsible for law enforcement, investigations, and detention in unincorporated Alamosa County, including the project area. The project is not anticipated to impact the resources, capacity or staffing levels of the Sheriff's Office.

9.9 Special Districts

The project site lies within Alamosa Re-11J School District. The Project is not anticipated to impact school district resources or result in any changes to school enrollment levels.

The project site lies within the Alamosa County Weed Control District and will comply with state and local guidance and regulation regarding weed control. The project will not impact weed control resources within the district.

The project lies within the East Alamosa Water and Sanitation District; however, the project will not rely on resources provided by or treated by the district and will not impact water or sanitation district resources.

The project site lies within the Mosca-Hooper Conservation District, which assists local landowners with conservation of soil and water resources. District priorities include educating and assisting district residents regarding noxious weeds, soil health, and water quality and quantity. The RDC CO County Rd 116 Project will be consistent with district policies and priorities and will implement a proactive approach to natural resource management on site. The project will not impact district resources or capabilities.

Please refer to Attachment E: Maps, Special Districts.

9.10 Agricultural Resources

The project area is not currently used for agriculture and agricultural activity is not anticipated to be impacted by development of the Project. Zoning for the project area is anticipated to remain rural. The soils within the project area are not classified as prime or important farmland soils. It is anticipated that the integrity of the majority of soils within the project site would be intact following site development and stabilization; if the project area is decommissioned and reclaimed in the future, soils within the project area could potentially be used again for similar purposes with no anticipated long-term loss of soil productivity. It is possible that areas of soil degradation could potentially see some degree of soil regeneration.

Please Refer to Attachment I: Biotic and Aquatic Report

9.11 Land Use Planning

The Project is consistent with State of Colorado and Xcel Energy's goals to increase community scale solar within Xcel's service territory. The Project is also consistent with the San Luis Valley Regional Hazard Mitigation Plan (WSP 2023), as discussed in Section 9.8.

Alamosa County recently adopted a new Comprehensive Plan (Alamosa County 2025). The Imagine Alamosa Comprehensive Plan includes the following priorities as key components of the County's future economic growth and diversity: prioritizing the preservation of agricultural community, strategically encouraging renewable energy development, and supporting recreation and tourism as a viable industry. Agricultural production will remain a high priority in the economic vitality of Alamosa County, while conservation of water resources and wildlife habitat other key priorities (Alamosa County 2025).

Since 2008, Alamosa County has approved six operating utility scale solar farms in the County with more currently under review in the permitting process. Additionally, one other community scale project is also in the permitting process; the RDC CO Stanley Rd Project is also proposed by

Reactivate. Alamosa County is currently leading a valley-wide effort to increase transmission infrastructure, which will provide opportunities for further solar generation. Solar development remains a priority in Alamosa, however, future development of renewable energy production should be strategically planned and located. The County requires thoughtful revegetation for solar installation sites plans to pursue designation as a SOLSmart community (Healthy Environments Goal 3, Strategy 3.1).

The new County Comprehensive Plan includes an Energy Overlay map. This energy overlay designates areas within Alamosa County where utility scale renewable energy projects are most appropriate (Alamosa County 2025). The map is based on a variety of factors, including existing electric transmission lines, future land uses categories identified in the comprehensive plan, water availability, resource protections and industry needs. Identifying such areas helps manage the growth of solar and other energy developments while also balancing the preservation of agricultural land and natural landscapes. Following thorough analysis of multiple factors, this map gives generalized place based guidance – an approach that provides predictability for developers and assists in strategic siting decisions. The RDC CO County Rd 116 site appears to lie adjacent and partially within a designated Solar Opportunity Area, per the Energy Overlay map.

For community scale solar projects specifically, the County Plan notes that the scale of development relies on local distribution networks, which are much more widespread throughout the county than transmission lines. Solar sites that occupy less than 40 acres and generate less than 10 Megawatts can provide direct benefits to neighboring residents and should be facilitated through a simpler and quicker permitting process than a 1041 permit for utility scale projects (Alamosa County 2025). The RDC CO County Rd 116 appears consistent with published local and state federal planning documents and consistent with local, state and federal regulations.

10.0 Alternatives

The proposed Project area was selected due to landowner interest, proximity to interconnection, and to support community growth as well as to participate in Xcel's Community Solar Program. The proposed Project layout was developed in order to minimize biological conflicts, viewshed, and traffic impacts to the surrounding community.

10.1 Alternatives Analysis

The Project maximizes the use of available land while minimizing impacts to natural resources within Alamosa County to the fullest extent possible. The Project is surrounded predominantly by open range land and rural development. The Project parcels are currently not in use for agricultural purposes. There are no existing solar facilities in the Project area. Other beneficial uses of the project area, including subdivision or additional residential development, do not appear preferable or reasonable,

nor would they have a commiserate level of economic benefit to the community, according to zoning and land use maps (Alamosa County 2025).

It is not anticipated that the Project access will be shared with another utility or company during construction, and the long-term use of the Project access routes during the operational phase is negligible. *Please refer to Attachment N. Conceptual Transportation Plan and Haul Route Map.*

The landscape that the Project will be built on is very flat and minimal grading of the site will be required. Therefore, stormwater runoff and water quality impacts are not anticipated. However, the Project will require Air and Water Quality Permits from the Colorado Department of Public Health & Environment (CDPHE) to support construction activities, and best management practices will be followed to ensure stormwater and erosion control.

The Applicant will coordinate with the Alamosa County Public Works Department to ensure County considerations and preferences for hauling and access, including avoidance of conflicts with school bus routes, parade routes, or other specific road uses, are met. Compliance with these conditions, including limits to hauling hours and completion of required hauling approvals will ensure effective joint use of rights-of-way with other utilities and will limit impacts to neighboring Residents.

10.2 Non-Structural Alternatives Analysis

The proposed development of this facility will result in the production of community-scale solar energy for Alamosa County residents. It will utilize currently undeveloped parcels that are not actively used for agricultural production or appear viable for other development uses.

Site selection and haul route selection were determined following evaluation of numerous other respective alternatives. As a 2024 recipient of U.S. Department of Energy's Community Power Accelerator Prize for Community Benefits Through Community Solar, Reactivate is dedicated to serving underserved energy communities and therefore focuses on siting their projects in these locations. In keeping with this approach, the Applicant approached several landowners in the general vicinity of the project area to gage potential interest for leasing currently vacant and unused land for use in solar production and submitted several potential locations with associated Rights of Way location to Xcel for evaluation of interconnect potential. The site, interconnect location and haul route ultimately selected minimize impacts to the greatest extent possible in the region and reflect a viable project for interconnect.

10.3 Management Alternatives Analysis

The site layout was selected to maximize available land while limiting impacts to natural resources. The facility will comply with zoning requirements including existing setbacks while maintaining its size and scale. *Please refer to Attachment C. Preliminary Site Plan*.

Construction of the Project is anticipated to occur between June and September 2026. This anticipated schedule is dependent on acquisition of discretionary and ministerial permits, as well as equipment procurement. The Applicant will coordinate with Alamosa County Planning, as well as the County's Department of Public Works to develop a hauling and construction schedule which complies with any land use requirements and conditions.

Approximately 12 temporary employees will be hired for the construction of the facility. The Applicant aims to hire local construction and electrical design laborers. Training will be provided to employees to ensure compliance with any building and design standards conditioned by the Alamosa County Planning Department. The Applicant will also provide training to emergency response personnel to limit the threat of fire and explosion within the facility.

Project design standards, development scheduling practices, and offered training to onsite personnel and emergency service providers will emphasize best management practices and will ensure efficient and successful completion of the Project.

11.0 Public Engagement

The Applicant is hosting a Community Meeting prior to the project hearing on June 18, 2025, from 6:30pm-8:30pm in Porter Room 130 at Adams State University. Ahead of the Community Meeting, RDC CO County Rd 116 sent a letter notifying adjacent landowners and potentially interested parties of the Project.

The landowner notification letter and community meeting invite was mailed to landowners within 1,500-foot radius of the Project location on May 14, 2025. The notifications were also sent to preliminary agencies or any organizations deemed to have interest in the Project. A community meeting invitation was subsequently mailed to landowners and agencies, organizations on May 19, 2025.

Please refer to Attachment R. Public Involvement Materials

12.0 Ownership and Interested Parties

12.1 Mineral and Energy Resources

There are two parties having a potential legal right to mineral rights underlying the Project area. These parties were identified via a surface-mineral ownership report conducted by Western Land Services. The Applicant contacted the two respective mineral interest parties, William James Oakley, Trustee of the Oakley Mineral Trust, and Claudio Rael, via Certified Mail on April 17, 2025. *Please refer to Attachment S. Mineral and Energy Resources*, which contains the Project Surface and Mineral Ownership report and copies of mailings.

There are no known extractable minerals underlying the project site and no other known sources of energy generation within the project area. The project area receives ample sunshine (over 350 days per

year according to Alamosa County 2025). The RDC CO County Rd 116 Project takes advantage of the known energy source within the project area, solar, and is not anticipated to conflict with other mineral and energy resources in the project area.

12.2 Contact Information of Applicant and Owner

Applicant:
RDC CO County Rd 116
c/o Reactivate CO Development LLC
James Bentley
1 South Wacker Drive, Suite 1800
Chicago, IL 60606

Landowner:
Timothy James Outman
6860 County Road 116 South
Alamosa, CO 81101

Please Refer to Attachment A. Landowner Permission to Apply

13.0 References

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Attachment A:

Landowner Permission to Apply and Title

Outlook

Re: Fw: Reactivate - Permission to Apply for Permit

From richard@outmanelectric.com <richard@outmanelectric.com>
Date Thu 3/27/2025 11:29 AM
To James Bentley <bentley@reactivate.com>

Please move forward with the permit, permission granted.

Richard Outman
817-718-8838

On 2025-03-27 09:27, James Bentley wrote:

> Re-sending this e-mail.
>
> Thank you,
>
> James Bentley (he/him)
> Renewables Project Developer
> 1 806.584.5846
> bentley@reactivate.com
> www.reactivate.com
>
> Reactivate
> An Invenergy Company
>
> Reactivate was founded by Invenergy and Lafayette Square
>
> ***** Disclaimer *****
> This message contains confidential information and is intended only for the individual(s) addressed in the message. If you are not the named addressee, you should not disseminate, distribute, or copy this e-mail. If you are not the intended recipient, you are notified that disclosing, distributing, or copying this e-mail is strictly prohibited.
>
> **From:** James Bentley
> **Sent:** Monday, March 24, 2025 10:43 AM
> **To:** richard@outmanelectric.com <richard@outmanelectric.com>
> **Subject:** Reactivate - Permission to Apply for Permit
>
> Good morning, Richard,
>
> As we move further into the permitting process for the project that is to be located on your family land, it is required by Alamosa County that you provide acknowledgement that we are applying on

your behalf. This can be as simple as a response via e-mail. Would you be able to provide that acknowledgement as a response?

Please get back to me when you can.

Regards,

James Bentley (he/him)
Renewables Project Developer
1 806.584.5846
bentley@reactivate.com
www.reactivate.com

Reactivate was founded by Invenergy and Lafayette Square

391841 5/21/2024 9:53 AM
1 of 9 R$50 D$0 S$3 M$0
Mari Felix
Alamosa County

After recording return to:

Reactivate CO Development LLC
c/o Invenergy LLC
One South Wacker Drive, Suite 1800
Chicago, IL 60606
ATTN: Land Administration

THIS SPACE FOR RECORDERS USE ONLY

MEMORANDUM OF SOLAR AND STORAGE EASEMENT AGREEMENT

THIS MEMORANDUM OF SOLAR AND STORAGE EASEMENT AGREEMENT (this "**Memorandum**"), is made, dated and effective as of the date of the last signature hereto, between **Timothy James Outman, a single man** (together with his successors, assigns and heirs, "**Owner**"), whose address is 6860 County Road 116 South Alamosa, CO 81101, and Reactivate CO Development LLC, a Delaware limited liability company (together with its transferees, successors and assigns, "**Grantee**"), whose address is c/o Invenergy LLC, One South Wacker Drive, Suite 1800, Chicago, IL 60606, ATTN: Land Administration, with regard to the following:

1. **Agreement**. Owner and Grantee did enter into that certain SOLAR AND STORAGE EASEMENT AGREEMENT dated on or about the date hereof (the "**Agreement**"), which affects the real property located in Alamosa County, Colorado, as more particularly described in Exhibit A attached hereto (the "**Property**"). Capitalized terms used and not defined herein have the meaning given the same in the Agreement.

2. **Grant**. The Agreement grants, and Owner hereby grants, Grantee, among other things, (a) the exclusive right to develop and use the Property, including, without limitation, for (i) converting solar energy into electrical energy and collecting and transmitting the electrical energy so converted; and/or (ii) energy storage and collecting and transmitting the electrical energy so stored; (b) an exclusive easement to capture, use and convert the unobstructed solar flux over and across the Property from all angles and from sunrise to sunset at the Property during each day of the Term; and (c) an exclusive easement for electromagnetic, audio, visual, glare, electrical or radio interference attributable to the Facilities or Site Activities. The Agreement contains, among other things, certain Owner and third party use and development restrictions on the Property.

3. **Purposes**. The Agreement is solely and exclusively for solar energy purposes (as such term is broadly defined, including ancillary rights related thereto and necessary for the development and operation of Solar Facilities and/or Storage Facilities (as defined below)), and not for any other purpose, and Grantee shall have the exclusive right to develop and use the Property for solar energy purposes and/or energy storage purposes and to derive all profits therefrom, including but not limited to the following activities (collectively, "Site Activities"):

(a) Converting solar energy into electrical energy, and collecting and transmitting the electrical energy so converted;

(b) Storing electricity and collecting and transmitting the electrical energy so stored;

(c) Determining the feasibility of energy storage, solar energy conversion and other power generation on the Property or on adjacent lands, including studies of solar energy emitted

upon, over and across the Property and other meteorological data, environmental studies and extracting soil samples;

(d) Constructing, laying down, installing, using, replacing, relocating, reconstructing and removing from time to time, and monitoring, maintaining, repairing and operating the following only for the benefit of the Project or Projects (as defined below) (i) energy collection and electrical storage equipment of any kind (the "Energy Storage Equipment"); (ii) overhead and underground electrical distribution, collection, transmission and communications lines or cables, electric combiners, inverters, transformers and substations, energy storage facilities, and telecommunications equipment; (iii) roads and crane pads; (iv) control buildings, operations and maintenance facilities and buildings; and (vi) installing, operating, maintaining, repairing and replacing any other improvements, whether accomplished by Grantee or a third party authorized by Grantee, that Grantee reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing (all of the above, including the Energy Storage Equipment, collectively "Energy Storage Facilities").

(e) Constructing, laying down, installing, using, replacing, relocating, reconstructing and removing from time to time, and monitoring, maintaining, repairing and operating the following only for the benefit of the Project or Projects (as defined below) (i) solar energy collection and electrical generating equipment of any kind (including, without limitation, any such equipment utilizing photovoltaic (collectively, "Solar Generating Equipment" and together with the Energy Storage Equipment, the "Equipment"); (ii) overhead and underground electrical distribution, collection, transmission and communications lines or cables, electric combiners, inverters, transformers and substations, energy storage facilities, and telecommunications equipment; (iii) roads and crane pads; (iv) meteorological measurement equipment; (v) control buildings, operations and maintenance facilities and buildings; and (vi) installing, operating, maintaining, repairing and replacing any other improvements, whether accomplished by Grantee or a third party authorized by Grantee, that Grantee reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing (all of the above, including the Solar Generating Equipment, collectively "Solar Facilities" and together with the Energy Storage Facilities, the "Facilities").

(f) The term "Project", for the purposes of the Agreement, means either (a) an integrated solar energy generation system, consisting of Solar Facilities, which is constructed and operated on the Property, and/or adjacent lands, by Grantee, or a third party authorized by Grantee, and/or (b) an integrated battery storage system, consisting of Energy Storage Facilities, which is constructed and operated on the Property, and/or adjacent lands, by Grantee, or a third party authorized by Grantee. Grantee may determine whether any particular group of Facilities constitutes a single Project or multiple Projects for purposes of the Agreement, and in the case of multiple Projects, which portion of the Property shall be included within each Project.

4. **Grant of Additional Easements**. Owner hereby grants, conveys and warrants to Grantee the following additional easements upon, over, across and under the Property, and is owned or controlled by Owner, as of the Effective Date:

(a) Solar Easement. An exclusive "Solar Easement" in the Property to prevent measurable diminishment in output from the Project due to obstruction of the sunlight across the Property. Without limiting the generality of the foregoing, Owner hereby grants and conveys to Company an exclusive easement on, over and across the Property for direct sunlight to any "Solar Energy Device" on the Property, as defined in C.R.S. § 38-32.5-100.3(2), throughout the entire Property to and for the benefit of the area existing horizontally three hundred and sixty degrees (360°) from any point where any Solar Energy Device is or may be located at any time from time to time (each such point referred to as a "Site") and for a distance from each Site to the boundaries of the Property, together vertically through all space located above the surface of the Property, that

is, one hundred eighty degrees (180°) or such greater number or numbers of degrees as may be necessary to extend from each point on and along a line drawn along the surface from each point along the exterior boundary of the Property through each Site to each point and on and along such line to the opposite exterior boundary of the Property. Neither Owner nor any person claiming through or authorized by Owner shall (i) engage in any activity on the Property (whether by planting trees or other vegetation, constructing buildings or other structures, exploiting or preparing to exploit the subsurface property rights or otherwise) that obstructs or impairs the availability of sunlight to the Property; or (ii) engage in any activity which would cause the introduction of excessive dust for continued and prolonged periods of time onto the Property;

(b) Interference. An exclusive easement for electromagnetic, audio, visual, view, light, noise, vibration, electrical, radio interference, or other effects attributable to the Solar Generating Equipment, Energy Storage Equipment, the Project or any Site Activities;

(c) Access Easement. A non-exclusive easement for ingress to and egress from the Project or Projects (whether located on the Property, on adjacent property or elsewhere) over and across the Property by means of roads and lanes thereon if existing or later constructed by Owner, or otherwise by such route or routes as Grantee may construct from time to time;

(d) Other Easements. All other easements reasonably necessary to accomplish the activities permitted by the Agreement, including without limitation, generation-tie and transmission line easements, utility easements (including underground and above-ground gas, electricity, water, and telephone), drainage easements, and geotechnical and environmental testing and sampling easements.

5. **Term**. The term of the Agreement shall commence on the Effective Date and continue for the following described periods (collectively, the "Term"):

(a) Development Term. The Agreement shall be for an initial term (the "Development Term") commencing on the Effective Date and continuing until the earlier to occur of: (a) Sixty (60) months following the Effective Date or (b) the commencement of construction, however, the Development Term shall not expire due to the Limited Construction Activities. During the Development Term, Grantee shall have the right to enter the Property to investigate and determine the feasibility of obtaining entitlements, utility meters, interconnection points, and other agreements for Grantee's proposed solar and/or energy storage development. Grantee shall be permitted to inspect the Property and take such measurements, recordings and photographs, and conduct such surveys and environmental, engineering, mechanical, structural, biological, cultural, geotechnical, archaeological and other similar tests and studies, all as Grantee shall reasonably require to assess the suitability of the Property for the Facilities.

(b) Commencement of Construction. The terms "commencing construction" and "commencement of construction" as used herein shall mean that date on which Grantee begins grading of the Property for the installation of the Solar Facilities and/or the Energy Storage Facilities, provided, however, upon prior consultation with Owner in which Grantee provides (i) reasonable detail sufficient to establish the necessity for limited construction activities to begin on the Property to satisfy the requirements of an investment tax credit as that term is defined by the regulations of the Internal Revenue Service, and (ii) a written proposal detailing the nature and scope of the specific construction activities Grantee intends to undertake ("Limited Construction Activities"), Grantee may perform such Limited Construction Activities on the Property without triggering the commencement of construction as defined in the Agreement.

(c) Limited Construction Activities. During any period in which Grantee is performing Limited Construction Activities, Grantee shall be required to (a) make all ongoing

Development Term payments due under the Agreement plus the additional payment described in Exhibit B herein; and (b) make all applicable surface damage and Crop Compensation payments arising from the Limited Construction Activities. If, at any time during Grantee's Limited Construction Activities on the Property, Grantee determines that its activities materially exceed the written scope of work originally provided to Owner, Grantee shall determine and notify Owner of such date when the Construction Term begins.

(d) Construction Term. Upon the expiration of the Development Term, the term of the Agreement shall automatically extend and continue ("Construction Term") until the earlier to occur of: (a) the date on which Grantee begins production of electrical energy generated by substantially all of the Solar Generating Equipment to be included in the Project or (b) the commercial operations date of any Project (or portion of a Project) consisting entirely of Energy Storage Equipment; or (d) the Eighth (8th) anniversary of the Effective Date. Upon the occurrence of either subsection (a) or (b), that date, as declared by Grantee, is hereinafter referred to as the "Operations Date."

(e) First Extended Term. Upon the expiration of the Construction Term, the term of the Agreement shall automatically extend for an additional Thirty-five (35) year term (the "First Extended Term").

(f) Second Extended Term. Provided that Grantee has not fully surrendered or terminated the Agreement, then on or before the expiration of the First Extended Term, Grantee may, at its option, extend the term of the Agreement for an additional Five (5) year period (the "Second Extended Term"). Provided that Grantee has not fully surrendered or terminated the Agreement, then on or before the expiration of the Second Extended Term, Grantee may, at its option, extend the term of the Agreement for an additional Five (5) year period (the "Third Extended Term"). Grantee may exercise its option to extend the Agreement for the Extended Terms by giving Owner written notice thereof on or before the date that is one hundred and eighty (180) days prior to the expiration of the previous Extended Term.

6. **No Interference**. Owner's activities and any grant of rights Owner makes to any person or entity, shall not, currently or prospectively, disturb or interfere with: the construction, installation, maintenance, or operation of the Facilities, whether located on the Property or elsewhere; access over the Property to such Facilities; any Site Activities; or the undertaking of any other activities permitted hereunder. Without limiting the generality of the foregoing, Owner shall not erect any structures, plants or other equipment, or enter into any third party agreements or amend or extend any existing agreements ("Third Party Agreements") or undertake any other activities (an "Owner Action" or collectively the "Owner Actions") that may: (i) interfere with Grantee's right to install Facilities on any portion of the Property, (ii) potentially cast a shadow onto the Solar Facilities, (iii) cause a decrease in the output or efficiency of any Facilities, (iv) interrupt the flux of solar energy upon, across and over any portion of the Property used or to be used by the Solar Facilities, or (v) otherwise interfere with Grantee's operations on the Property (each an "Interference"). Prior to undertaking an Owner Action, that may cause an Interference, Owner shall consult with Grantee to confirm that such Owner Action will not cause any Interference. If Grantee reasonably determines the Owner Action could cause an Interference, then Owner shall not be permitted to undertake such Owner Action. Owner shall not disturb or, to the extent permitted by applicable law, permit the disturbance of the subsurface such that may impact in any way the structural integrity or the operations and maintenance of the Facilities. Further, notwithstanding the foregoing, Owner agrees that it will notify Grantee in writing within ten (10) days after it receives any notice of mineral exploration or development in, on, or under the Property, and such notice shall include a copy of any documents and information provided to Owner in relation to the notice. Owner and Grantee shall cooperate in good faith and work jointly as to, and each party shall be permitted to participate in, any (i) response to any such notification; (ii) negotiation with any mineral rights holder, including without limitation

acceptance or rejection of any surface use and compensation proposal and/or entry into any surface use and compensation agreement to Grantee's satisfaction; (iii) enforcement of the rights of the surface owner as set forth in the Surface Owner Protection Act, including without limitation recovery of costs and attorneys' fees and (iv) pursuit of compensation for damages associated with mineral exploration and development in, on or under the Property. Grantee shall have the right to trim existing trees to maintain approximately their same height and width as exists as of the date hereof for the purpose of not interfering with the flux of solar energy from any angle upon, across and over the Property. Owner agrees not to develop, co-develop, acquire or otherwise participate in any solar or energy storage related project or projects with an aggregate output in excess of 500 kilowatts within any area that is within five (5) miles of the Project.

7. **Assignment.**

(a) Collateral Assignments. Grantee shall have the absolute right in its sole and exclusive discretion, without obtaining the consent of Owner, to finance, mortgage, encumber, hypothecate, pledge or transfer to one or more Mortgagees any and all of the rights granted hereunder, including the easements granted in Section 2, and/or any or all rights or interests of Grantee in the Property or in any or all of the Facilities.

(b) Non-Collateral Assignments. Grantee shall have the right, without the prior consent of Owner, to sell, convey, assign or transfer (including granting co-easements, separate easements, subeasements) any or all of its rights hereunder in and to any or all of the Property provided such transfer is related to a Project. Grantee shall be relieved of all of its obligations arising under the Agreement, as to all or such portion of its interests in the Property transferred, from and after the effective date of such transfer, provided such rights and obligations have been assumed by such transferee.

(c) Acquisition of Interest. The acquisition of all interests, or any portion of interest, in Grantee by another person shall not require the consent of Owner or constitute a breach of any provision of the Agreement and Owner shall recognize the person as Grantee's proper successor.

8. **Rights of Mortgagee**. Pursuant to the Agreement, any Mortgagee of Grantee or Grantee's assignees has certain rights regarding notice and right to cure any default of Grantee under the Agreement, and the right to take possession of the Property, and to acquire the leasehold estate and the easement interests by foreclosure, as well as other rights as set forth in the Agreement.

9. **Ownership**. Owner shall have no ownership, lien, security or other interest in any Facilities installed on the Property, or any profits derived therefrom, and Grantee may remove any or all Facilities at any time.

10. **Termination Right.**

(a) Grantee shall have the right to terminate the Agreement as to all or any part of the Property at any time and without cause, effective upon written notice to Owner from Grantee.

(b) Upon termination of the Agreement, Grantee shall, as soon as practicable thereafter, but not later than twelve (12) months after the termination, remove above-ground and below-ground (to a depth of three (3) feet below grade) Facilities from the Property (the "Remediation Term"), without additional charge or rental for such entry and removal, and without such entry constituting a holdover. All Property disturbed by Grantee shall be restored to a condition reasonably similar to its original condition as it existed upon the Effective Date.

11. **Miscellaneous.**

(a) This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Agreement, and Owner and Grantee executed and are

recording this Memorandum for the purposes set forth herein and for providing constructive notice of the Agreement and Grantee's rights thereunder and hereunder. The terms, conditions and covenants of the Agreement are set forth at length in the Agreement and are incorporated herein by reference as though fully set forth herein. This Memorandum shall not, in any manner or form whatsoever, alter, modify or vary the terms, covenants and conditions of the Agreement.

(b) This Memorandum shall also bind and benefit, as the case may be, the heirs, legal representatives, assigns and successors of the respective parties hereto, and all covenants, conditions and agreements contained herein shall be construed as covenants running with the land to the extent consistent with applicable law.

(c) This Memorandum may be executed in counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same document.

[signature page to follow]

IN WITNESS WHEREOF, the parties have executed this Memorandum to be effective as of the date of the last signature hereto.

OWNER:

Timothy James Outman

By: _____
Timothy James Outman

Date of Signature: 3/26/2024

GRANTEE:

Reactivate CO Development LLC,
a Delaware limited liability company

DS SG

By: DocuSigned by: Utopia Hill
56EEC48C4F87488...

Name: Utopia Hill

Title: Manager

Date of Signature: 4/8/2024

ACKNOWLEDGMENT OF OWNER

STATE OF COLORADO)
) ss.
COUNTY OF ALAMOSA)

ALICIA PALMER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID# 20244003995
MY COMMISSION EXPIRES 01/29/2028

The foregoing instrument was acknowledged before me this 26 day of 3 2024 by **Timothy James Outman, a single man**.

Witness my hand and official seal.

My commission expires: 1/29/2028

Alicia Palmer
Notary Public

ACKNOWLEDGMENT OF GRANTEE

STATE OF Illinois)
) ss.
COUNTY OF COOK)

Before me, a Notary Public in and for the State of Illinois personally appeared Utopia Hill, as Manager of Reactivate, a Delaware limited liability company, who acknowledged the execution of the foregoing instrument on behalf of said entity.

Witness my hand and Notarial Seal this 8 day of April 2024.

(SEAL)

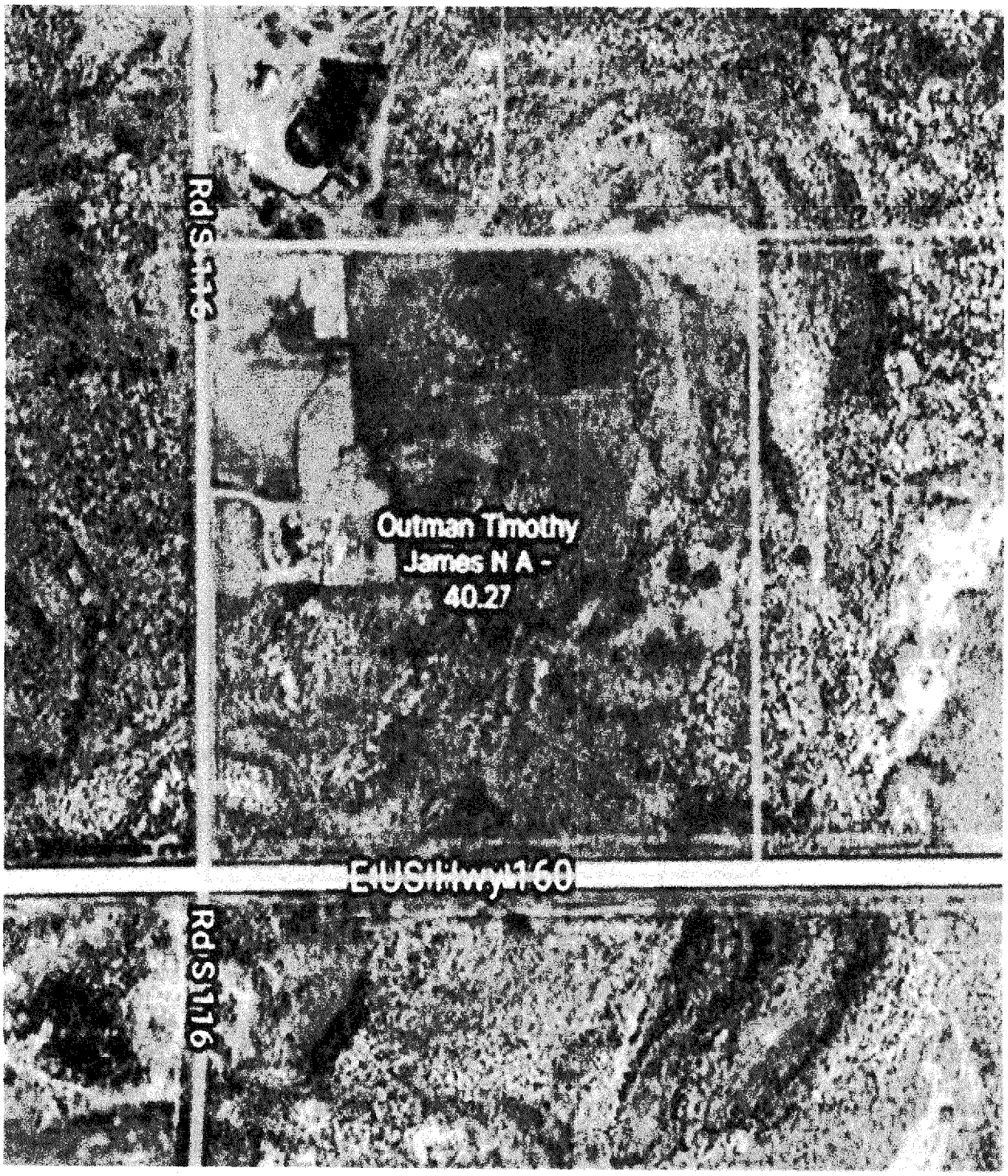
OFFICIAL SEAL
KHARMA L PAIGE
Notary Public, State of Illinois
Commission No. 660127
My Commission Expires September 20, 2027

Kharma L Paige
(signature)

Kharma L Paige
(printed name) Notary Public

EXHIBIT A to the Easement Memorandum
Description of the Property

APN: 541502300147
Southwest Quarter of the Southwest Quarter (SW1/4SW1/4) of Section 2, Township 37 North, Range 11 East, N.M.P.M



Transaction Identification Data, for which the Company assumes no liability as set forth in Commitment Condition 5.e.:
Issuing Agent: First American Title Insurance Company National Commercial Services
Issuing Office: 9255 Towne Center Drive, Suite 200, San Diego, CA 92121
Issuing Office's ALTA® Registry ID: 1104968
Commitment Number: NCS-1221086-NRG
Issuing Office File Number: NCS-1221086-NRG
Property Address: 6860 County Road 116, Alamosa, CO 81101
Revision Number:

SCHEDULE A

1. Commitment Date: May 30, 2024 at 5:00 P.M.

2. Policy to be issued:
   a. 2021 ALTA Policy - Standard Leasehold Owner's Policy
   Proposed Insured: A Lessee To Be Determined
   Proposed Amount of Insurance: $1,000.00
   The estate or interest to be insured: See Item 3 below

3. The estate or interest in the Land at the Commitment Date is:

   A Leasehold Estate created by that certain unrecorded Lease Agreement dated _____, 2024 by and between Timothy James Outman, as Lessor, and _____, as Lessee, and evidenced by that certain Memorandum of Lease recorded _____, 2024 at Reception No. _____, in the records of the Clerk and Recorder of Alamosa County, Colorado.

4. The Title is, at the Commitment Date, vested in:

   Timothy James Outman, as to Fee Simple

5. The Land is described as follows:

   See Exhibit A attached hereto and made a part hereof

Commitment No. NCS-1221086-NRG

EXHIBIT A

The Land referred to herein below is situated in the County of Alamosa, State of Colorado, and is described as follows:

Southwest Quarter of the Southwest Quarter (SW1/4SW1/4) of Section 2, Township 37 North, Range 11 East, N.M.P.M., County of Alamosa, State of Colorado.

For informational purposes only: APN: 541502300147

Commitment No. NCS-1221086-NRG

SCHEDULE B, PART I—Requirements

All of the following Requirements must be met:

1. The Proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.

2. Pay the agreed amount for the estate or interest to be insured.

3. Pay the premiums, fees, and charges for the Policy to the Company.

4. Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records.

5. Payment of all taxes and assessments now due and payable as shown on a certificate of taxes due from the County Treasurer or the County Treasurer's Authorized Agent.

   NOTE: Tax certificate(s) must be ordered by or provided to the Company at least one week prior to closing.

6. Evidence that all assessments for common expenses, if any, have been paid.

7. Final Affidavit and Agreement executed by Owners and/or Purchasers must be provided to the Company.

8. Local ordinances may impose inchoate liens on the Land for unpaid water, sewer, stormwater drainage, or other utilities charges. If this transaction includes a sale of the Land, a Utilities Agreement and/or escrow is required.

9. Receipt by the Company of an ALTA/NSPS Land Title Survey, certified to First American Title Insurance Company, and in form and content satisfactory to the Company. The Company reserves the right to make further requirements and/or exceptions upon review of this survey.

10. Recordation of a Memorandum of Lease satisfactory to the Company, between Timothy James Outman, as Lessor, and A Lessee To Be Determined, as Lessee.

11. Receipt by the Company of the Lease to be insured hereunder, and all amendments and modifications thereto, if any.

    NOTE: This commitment is subject to further requirements and/or exceptions upon review of this lease agreement.

12. Estoppel Affidavit from Timothy James Outman, as Landlord under the Lease, which contains the following:

    (i) consent to the sale/assignment of the leasehold interest,

    (ii) statement that the Lease and all amendments thereto are in full force and effect,

    (iii) statement that there are no existing defaults, or conditions or events that could ripen into default,

    (iv) the remaining lease term (noting extensions or options), and

    (v) affirmation that the lease is still valid and enforceable.

Commitment No. NCS-1221086-NRG

SCHEDULE B, PART II—Exceptions

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This Commitment and the Policy treat any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document will be excepted from coverage.

The Policy will not insure against loss or damage resulting from the terms and conditions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

1. Any facts, rights, interests, or claims that are not shown by the Public Records at Date of Policy but that could be (a) ascertained by an inspection of the Land, or (b) asserted by persons or parties in possession of the Land.

2. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records at Date of Policy.

3. Any encroachment, encumbrance, violation, variation, easement, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records at Date of Policy.

4. Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown in the Public Records.

5. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I—Requirements are met.

   Note: Exception number 5 will be removed from the policy provided the Company conducts the closing and settlement service for the transaction identified in the commitment.

6. Any and all unpaid taxes, assessments and unredeemed tax sales.

7. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof.

8. Any water rights, claims or title to water, in, on or under the Land, whether or not the matters excepted are shown by the Public Records.

9. Any existing leases or tenancies.

10. Right of way for all county roads as currently established and used.

11. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to, ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand and gravel located in, on, or under the Land or produces from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records.

12. Right of way for ditches and canals as constructed by the authority of the United States, as reserved in United States Patent dated August 12, 1891, Certificate No. 2008.

13. Reservation of all mineral rights with right to operate, and reserving right of way for irrigation and drainage as set forth in QuitClaim Deed recorded February 16, 1933 in Book 55 at Page 183.

14. Reservation of a one-half interest in oil, gas and other minerals as reserved in Warranty Deed recorded October 15, 1959 in Book 149 at Page 373, and any and all assignments thereof or interests therein.

15. Reservation of a one-half interest in oil, gas and other minerals as reserved in Deed recorded December 22, 1977 at Reception No. 195568, and any and all assignments thereof or interests therein.

16. Terms, conditions, provisions, obligations, easements and agreements as set forth in the Right Of Way Agreement recorded August 1, 1985 in Book 315 at Page 194.

17. Terms, conditions, provisions, obligations and agreements as set forth in the Manufactured Home Affidavit of Affixation recorded April 29, 2013 at Reception No. 352660.

18. Reservation of oil, gas and other minerals as reserved in Special Warranty Mineral Deed recorded April 23, 2018 at Reception No. 369710, and any and all assignments thereof or interests therein.

19. Deed of Trust from Timothy James Outman to the Public Trustee of Alamosa County for the use of Mortgage Solution of Colorado, LLC, a Colorado limited liability company to secure an indebtedness in the principal sum of $246,000.00, and any other amounts and/or obligations secured thereby, dated July 15, 2022 and recorded August 3, 2022 at Reception No. 385924.

NOTE: Affects Fee Simple.

20. Lease by and between Timothy James Outman, as lessor, and Reactivate CO Development LLC, a Delaware limited liability company, as lessee, as evidenced by Memorandum of Energy Storage Lease and Easement Agreement recorded May 21, 2024 at Reception No. 391841.

21. Terms, conditions, provisions, obligations and agreements as set forth in the Memorandum of Lease by and between Happy Life Farms, LLC, a Colorado limited liability company, as Lessor, and _____, as Lessee recorded _____, 2024 at Reception No. _____.

DISCLOSURE STATEMENT

Pursuant to C.R.S. 30-10-406(3)(a) all documents received for recording or filing in the Clerk and Recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one-half of an inch. The Clerk and Recorder will refuse to record or file any document that does not conform to the requirements of this section.

NOTE: If this transaction includes a sale of the property and the price exceeds $100,000.00, the seller must comply with the disclosure/withholding provisions of C.R.S. 39-22-604.5 (Nonresident withholding).

NOTE: Colorado Division of Insurance Regulations 8-1-2 requires that "Every title insurance company shall be responsible to the proposed insured(s) subject to the terms and conditions of the title commitment, other than the effective date of the title commitment, for all matters which appear of record prior to the time of recording whenever the title insurance company, or its agent, conducts the closing and settlement service that is in conjunction with its issuance of an owner's policy of title insurance and is responsible for the recording and filing of legal documents resulting from the transaction which was closed.

Pursuant to C.R.S. 10-11-122, the company will not issue its owner's policy or owner's policies of title insurance contemplated by this commitment until it has been provided a Certificate of Taxes due or other equivalent documentation from the County Treasurer or the County Treasurer's authorized agent; or until the Proposed Insured has notified or instructed the company in writing to the contrary.

The subject property may be located in a special taxing district. A Certificate of Taxes due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent. Information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor.

C.R.S. 10-11-122 (4), Colorado Notaries may remotely notarize real estate deeds and other documents using real-time audio-video communication technology. You may choose not to use remote notarization for any document.

NOTE: Pursuant to CRS 10-11-123, notice is hereby given:

This notice applies to owner's policy commitments containing a mineral severance instrument exception, or exceptions, in Schedule B, Section 2.

A. **That there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and**
B. **That such mineral estate may include the right to enter and use the property without the surface owner's permission.**

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NOTE: Pursuant to Colorado Division of Insurance Regulations 8-1-2, Affirmative mechanic's lien protection for the Owner may be available (typically by deletion of Exception no. 4 of Schedule B, Section 2 of the Commitment from the Owner's Policy to be issued) upon compliance with the following conditions:

A. **The land described in Schedule A of this commitment must be a single family residence which includes a condominium or townhouse unit.**
B. **No labor or materials have been furnished by mechanics or material-men for purposes of construction on the land described in Schedule A of this Commitment within the past 6 months.**
C. **The Company must receive an appropriate affidavit indemnifying the Company against un-filed mechanic's and material-men's liens.**
D. **The Company must receive payment of the appropriate premium.**
E. **If there has been construction, improvements or major repairs undertaken on the property to be purchased within six months prior to the Date of the Commitment, the requirements to obtain coverage for unrecorded liens will include: disclosure of certain construction information; financial information as to the seller, the builder and or the contractor; payment of the appropriate premium, fully executed Indemnity Agreements satisfactory to the company, and, any additional requirements as may be necessary after an examination of the aforesaid information by the Company.**

No coverage will be given under any circumstances for labor or material for which the insured has contracted for or agreed to pay.

NOTE: Pursuant to C.R.S. 38-35-125(2) no person or entity that provides closing and settlement services for a real estate transaction shall disburse funds as a part of such services until those funds have been received and are available for immediate withdrawal as a matter of right.

NOTE: C.R.S. 39-14-102 requires that a real property transfer declaration accompany any conveyance document presented for recordation in the State of Colorado. Said declaration shall be completed and signed by either the grantor or grantee.

NOTE: Pursuant to CRS 10-1-128(6)(a), It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

Nothing herein contained will be deemed to obligate the company to provide any of the coverages referred to herein unless the above conditions are fully satisfied.

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ALTA COMMITMENT FOR TITLE INSURANCE
issued by
FIRST AMERICAN TITLE INSURANCE COMPANY

NOTICE

IMPORTANT—READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I—Requirements; Schedule B, Part II—Exceptions; and the Commitment Conditions, First American Title Insurance Company, a Nebraska Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Amount of Insurance and the name of the Proposed Insured.

If all of the Schedule B, Part I—Requirements have not been met within six months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

FIRST AMERICAN TITLE INSURANCE COMPANY

By: _____ Kenneth D. DeGiorgio, President

By: _____ Lisa W. Cornehl, Secretary

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COMMITMENT CONDITIONS

1. DEFINITIONS

a. "Discriminatory Covenant": Any covenant, condition, restriction, or limitation that is unenforceable under applicable law because it illegally discriminates against a class of individuals based on personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or other legally protected class.

b. "Knowledge" or "Known": Actual knowledge or actual notice, but not constructive notice imparted by the Public Records.

c. "Land": The land described in Item 5 of Schedule A and improvements located on that land that by State law constitute real property. The term "Land" does not include any property beyond that described in Schedule A, nor any right, title, interest, estate, or easement in any abutting street, road, avenue, alley, lane, right-of-way, body of water, or waterway, but does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.

d. "Mortgage": A mortgage, deed of trust, trust deed, security deed, or other real property security instrument, including one evidenced by electronic means authorized by law.

e. "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.

f. "Proposed Amount of Insurance": Each dollar amount specified in Schedule A as the Proposed Amount of Insurance of each Policy to be issued pursuant to this Commitment.

g. "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.

h. "Public Records": The recording or filing system established under State statutes in effect at the Commitment Date under which a document must be recorded or filed to impart constructive notice of matters relating to the Title to a purchaser for value without Knowledge. The term "Public Records" does not include any other recording or filing system, including any pertaining to environmental remediation or protection, planning, permitting, zoning, licensing, building, health, public safety, or national security matters.

i. "State": The state or commonwealth of the United States within whose exterior boundaries the Land is located. The term "State" also includes the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, and Guam.

j. "Title": The estate or interest in the Land identified in Item 3 of Schedule A.

2. If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.

3. The Company's liability and obligation is limited by and this Commitment is not valid without:

a. the Notice;
b. the Commitment to Issue Policy;
c. the Commitment Conditions;
d. Schedule A;

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e. Schedule B, Part I—Requirements; and
f. Schedule B, Part II—Exceptions; and
g. a counter-signature by the Company or its issuing agent that may be in electronic form.

4. COMPANY'S RIGHT TO AMEND

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company is not liable for any other amendment to this Commitment.

5. LIMITATIONS OF LIABILITY

a. The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
   i. comply with the Schedule B, Part I—Requirements;
   ii. eliminate, with the Company's written consent, any Schedule B, Part II—Exceptions; or
   iii. acquire the Title or create the Mortgage covered by this Commitment.
b. The Company is not liable under Commitment Condition 5.a. if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
c. The Company is only liable under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
d. The Company's liability does not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Condition 5.a. or the Proposed Amount of Insurance.
e. The Company is not liable for the content of the Transaction Identification Data, if any.
f. The Company is not obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
g. The Company's liability is further limited by the terms and provisions of the Policy to be issued to the Proposed Insured.

6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT; CHOICE OF LAW AND CHOICE OF FORUM

a. Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
b. Any claim must be based in contract under the State law of the State where the Land is located and is restricted to the terms and provisions of this Commitment. Any litigation or other proceeding brought by the Proposed Insured against the Company must be filed only in a State or federal court having jurisdiction.
c. This Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or

oral, express or implied, relating to the subject matter of this Commitment.

d. The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.

e. Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.

f. When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

7. IF THIS COMMITMENT IS ISSUED BY AN ISSUING AGENT

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for closing, settlement, escrow, or any other purpose.

8. PRO-FORMA POLICY

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

9. CLAIMS PROCEDURES

This Commitment incorporates by reference all Conditions for making a claim in the Policy to be issued to the Proposed Insured. Commitment Condition 9 does not modify the limitations of liability in Commitment Conditions 5 and 6.

10. CLASS ACTION

ALL CLAIMS AND DISPUTES ARISING OUT OF OR RELATING TO THIS COMMITMENT, INCLUDING ANY SERVICE OR OTHER MATTER IN CONNECTION WITH ISSUING THIS COMMITMENT, ANY BREACH OF A COMMITMENT PROVISION, OR ANY OTHER CLAIM OR DISPUTE ARISING OUT OF OR RELATING TO THE TRANSACTION GIVING RISE TO THIS COMMITMENT, MUST BE BROUGHT IN AN INDIVIDUAL CAPACITY. NO PARTY MAY SERVE AS PLAINTIFF, CLASS MEMBER, OR PARTICIPANT IN ANY CLASS OR REPRESENTATIVE PROCEEDING. ANY POLICY ISSUED PURSUANT TO THIS COMMITMENT WILL CONTAIN A CLASS ACTION CONDITION.

11. ARBITRATION

The Policy contains an arbitration clause. All arbitrable matters when the Proposed Amount of Insurance is $2,000,000 or less may be arbitrated at the election of either the Company or the Proposed Insured as the exclusive remedy of the parties. A Proposed Insured may review a copy of the arbitration rules at http://www.alta.org/arbitration.

Attachment B:

Preliminary Application and Waiver Request

APPLICATION FOR A PERMIT TO CONDUCT A DESIGNATED ACTIVITY OF STATE INTEREST OR TO ENGAGE IN DEVELOPMENT IN A DESIGNATED AREA OF STATE INTEREST

To: Permit Authority, Alamosa County

Re: 1041 Permit Request for Community Solar Facility - RDC CO County Rd 116

From: James Bentley
Project Developer
Reactivate Development

Date Submitted:

Date Received and Accepted as Complete:

1. Matter of State Interest.

   The applicant requests that a permit be issued for each of the items checked below:

   A permit to conduct one or more of the following matters of state interest:

   ( ) Efficient Utilization of Municipal and Industrial Water Projects

   ( ) Development in Areas Containing or Having a Significant Impact upon Natural Resources of Statewide Importance

   ( ) Major New Domestic Water Treatment System or Major Extension of Such Systems

   (X) Major Facilities of a Public Utility

2. Proposed Activity or Development.

   General description of the specific activity or development proposed:

   The RDC CO County Rd 116 Community Solar Energy Facility is a 3.9 MW (17 acre) solar photovoltaic generation facility

3. Project Location.

   Parcel #: 541502300147

   A general, nonlegal description and the popular name, if any, of the tract of land upon which the activity or development is to be conducted:

Latitude: 37.4759960332133 Longitude: -105.746049147946

4. Legal Description.

The legal description, including the acreage, of the tract of land upon which the development or the activity is to be conducted, by metes and bounds or by government survey description: (attach additional sheets if necessary):

SW4SW4 2-37-11 40AC EXC 3/4 INT M/RTS WD REC #323633 10-03-05

5. Owners and Interests.

Set out below the names of those persons holding recorded legal, equitable, contractual and option interests and any other person known to the applicant having an interest in the property described in paragraph 4, above, as well as the nature and extent of those interests for each person, provided that such recorded interests shall be limited to those which are recorded in the Alamosa County Clerk and Recorder's Office, the land office of the Bureau of Land Management for this State, the Office of the State Board of Land Commissioners of the Department of Natural Resources, or the Secretary of State's Office of this State (attach additional sheets if necessary):

- Timothy Outman

6. Additional Information Required.

Attach any additional information required by the Guidelines and Regulations.

Attached: HB1041 Preliminary Application Requirements

7. Duration of Permit.

The Applicant requests a permit for a period of 45 years.

APPLICANT:

By: James Bentley
RDC CO County Rd. 116 LLC

Note: Within ten (10) days following receipt of a completed application for a permit, the Permit Authority shall determine and set a fee in an amount necessary to cover the costs incurred in the review and approval of the permit application, including all hearings conducted therefor, and shall notify the applicant in writing of said fee and its amount. Not later than ten (10) days following receipt of such notice, the applicant shall present to the Permit Authority certified funds in the amount as set. Until the fee is paid to the Permit Authority, the application for a permit shall not be further processed.

Reactivate
An Invenergy Company

HB1041 Preliminary Application Requirements

RDC CO County Rd. 116

1. A completed application form

2. Description of proposed facility and site

The RDC CO County Rd. 116 Community Solar Energy Facility is a 3.9 MW (17 acre) solar photovoltaic generation facility located on a segment of Parcel Number 541502300147, Directly East of Alamosa, Colorado along US 160 at the intersection of US 160 and County Rd. 116. The Project is being developed by Reactivate CO Development LLC ("Reactivate"), which is a wholly owned subsidiary of Reactivate Devco LLC. The Project is seeking a 1041 land use permit to allow a Community Solar Energy Facility at the proposed location.

3. Description of the present use and zoning:

Land use is vacant land with native wild chicory and it is zoned Rural per the Alamosa County Zoning Map.

See Exhibit A – 50 mile buffer map for a location map showing the proposed site and clearly indicating the relationship of the site to the surrounding area within fifty (50) miles from the site if a central office building or power plant is proposed, and within ten (10) miles of the site if another major facility is proposed.

4. Type of facility:

The proposed facility is a Community Solar Energy Facility.

a. Approximate floor space of office building

- N/A

b. Voltage and length transmission line

- Voltage: 13.2kV (distribution line, not transmission)
- Aside from any connection facilities where collection line emerges from the ground to connect to the existing distribution line for a very short distance, there is no new transmission line proposed for this facility. The length of existing transmission line between the point of interconnection and the nearest substation is 49,465 ft.

c. Power source and generating capacity

- Power Source: Solar PV
- Generating Capacity: 3.9MW

d. Function and size of substation

- There is no substation facility proposed. A series of centrally located 28 MVA inverters will step up the voltage to the 13.2 kV distribution level voltage.

e. Service area

- Public Service Company of Colorado

5. Projected development schedule:

- Permitting Q4 2024 – Q3 2025
- Construction Q3 2025 – Q1 2026
- Operation end of Q1 2026

a. Estimate maximum number of employees, number of shifts and employees per shift

during the following phases: construction, operation and maintenance.

- During the operation phase there will be no full or part-time active employees on site. The site will be monitored remotely full-time.

- During the construction phase, Reactivate will employ a combination of full-time staff and specialized contractors for this solar installation project. Our workforce will consist of skilled technicians, electricians, project managers, and support personnel. The exact number of on-site workers will vary widely on any given day with a maximum of 85 workers depending on the project phase, system size, schedule, and contractor. We operate on a single-shift schedule, with work hours typically from 7 AM to 5 PM, Monday through Friday. Weekend work may occasionally be necessary to meet project deadlines or to perform specific tasks that minimize disruption to the property's regular operations. The number of the workforce size adjusting based on the phase of installation. We do not anticipate the need for night shifts or extended hours beyond our standard schedule. Our staffing approach ensures we have the right expertise on-site while maintaining efficiency throughout the project lifecycle.

b. Specify any future phases or extensions of the facility and relationship of the facility (if currently foreseen) to larger programs and plans.

- No future phases planned for this facility

c. Specify timetable for planning (e.g., federal permits, state permits, local zoning, etc.).

- Reactivate expects permitting preparation for full 1041 submittal to be a 2-4 month process with intent to begin construction Q3 2025. This process is heavily dependent on the post pre-application confirmation of project specific requirements.

e. Describe support facilities (e.g. pollution control parking areas, landscaping, etc.) to be provided.

- Improvements to landscaping and buffer areas may be supplied if deemed necessary.
- Reactivate typically provides a 7' deer fence for security purposes.
- Parking facilities are not provided on site as there is no full-time employment on the project. Routine maintenance employees may access the site via the access easement.

f. Describe any feasible "non-structural" alternatives to meet the objectives of the proposed site selection and construction.

- Community solar provides benefits to the community offering renewable energy as an alternative energy source, savings for low-to-moderate income households, and implementation of a work force training program. Our projects consider the local community as we seek to have low impacts to noise, glare, and sightlines. Photovoltaic panels are required to generate solar energy. No clear non-structural alternatives would provide the same outcome.

6. Hazards and emergency procedures:

a. Describe hazards, if any, of fire, explosion and other dangers to the health, safety and welfare of employees and the general public.

- No known hazards are presented to the general public. Glare and noise from the proposed facility are expected to be minimal and not pose any hazards.

b. Describe hazards, if any, of environmental damage and contamination due to materials used at or activities taking place at the proposed facility.

- Environmental damage or contamination are not known hazards for our facilities as we do not utilize any materials that have significant potential for contamination. Our proposed decommissioning plan addresses reclamation of the site at the end of the project's lifecycle.

c. Describe emergency procedures to be used in the event of fire, explosion or other event which may endanger the public health, safety and welfare.

- From Reactivates general "Emergency Response Plan":

1.1. In the event of an incipient stage (beginning, small) fire, employees should notify adjacent individuals of this situation and exit the area. Only employees trained in the use of fire extinguishers should attempt to use an extinguisher. Employees are not expected or authorized to respond to fires beyond the incipient stage (i.e., fires that are beyond the beginning stage and which cannot be extinguished using a hand-held, portable fire extinguisher). If necessary, the fire department should be immediately notified by dialing 911. Site management shall also be immediately notified of any emergency.

1.2. Response to a Fire

1.2.1. The following actions should be taken by area personnel while awaiting the local fire department:

- *Make sure the immediate area of the fire is clear of personnel.*
- *Account for all employees, contractors, and visitors who were working in the area of the fire.*
- *Remove any obstructions (vehicles, material, etc.) that might impede response to the scene.*
- *Station available personnel at road intersections to stop traffic flow into the fire scene.*

In the event of an out-of-control fire, employees are to exit the area as quickly as possible and assemble in a safe area outside of the property for head count.

- *Call the site emergency number immediately.*
- *For a small fire, use the fire extinguisher, if possible, to put out the fire and stop as much oxygen from fueling the fire as possible.*
- *If you can extinguish the fire, maintain a safe distance, and post a fire watch.*
- *If unable to extinguish an incipient stage fire, evacuate the area and maintain a safe distance.*

d. Describe any prevalent natural hazards that will affect or be affected by development, and describe mitigating measures to be taken to reduce danger due to such natural hazards.

- A storm water pollution prevention plan is typically required and Reactivate implements those measures to address erosion and stormwater pollution.
- During construction, water trucks can be used for dust control and fire prevention.

EXHIBIT A

Image Title

Image Description

CO Co Rd. 116

Distributed Energy Resource Interconnection Pre-Application Data Report- Colorado

Date: **7/2/2024**

Requestor Contact Information

Company Name:	Reactivate DevCo, LLC
Contact Name:	Brianna Acheampong
Address:	2045 W Grand Ave Ste B, PMB 52340
Phone #:	7089673280
Email:	acheampong@reactivate.com

Project Information:

Project Name:	RDC CO Co Rd 116		
DER Nampelate Rating(MW):	3.9	DER Type:	Solar PV
Number of phases:	Three Phase	Service Voltage:	Other v/ph
Stand-alone Generator?	Yes	Existing DER?	New DER(s)
Location of Existing DER:			
County of Existing DER:			

Proposed Point of Common Coupling

Street Address:			
City/State/Zip Code:			
County:	Alamosa		
Cross Streets:	E US Hwy 160		
Latitude:	37.47421035		
Longitude:	-105.7479181		
Meter #:		Utility Equipment #:	113270039
Other Identifying Info:			

Xcel Energy has identified the substation/area bus, bank or circuit likely to serve the proposed Point of Interconnection (POI). This selection by Xcel Energy does not necessarily indicate, after application of the screens and/or study, that this would be the circuit the project ultimately connects to.

Pre-Application Reports will only include pre-existing data and do not obligate Xcel Energy to conduct a study or other analysis of the proposed DER in the event that data is not available. If Xcel Energy cannot complete all or some of a Pre-Application Report due to lack of available data, Xcel Energy will provide the Interconnection Customer with a Pre-Application Report that includes the data that is available.

The provision of information on “Available Capacity” does not imply that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process. The distribution system is dynamic and subject to change and data provided in the Pre-Application Report may become outdated at the time of submission of the complete Interconnection Application. Xcel Energy will, in good faith, include data in the Pre-Application Report that represents the best available information at the time of reporting.

The gray highlighted data in the gray highlighted fields below are “Confidential Information”, are non-public, and are subject to the Confidentiality Agreement required for PSCo Pre-Application Data Requests, as well as the confidentiality provisions contained in the signed Pre-Application Report Request Form.

Please refer to the Public DER Queue available at PSCo SRC Developer Resources to review the current queue at the below Feeder. Please note that queues with many projects On Hold may have long duration before any study results will be available.

Substation

Substation Name:	Alamosa Terminal		
Substation Transformer:	ATER_TR2	Existing Front-of-the-Meter Generation (MW):	4.620
Transformer Rating (MVA):	28.000	Queued Front-of-the-Meter Generation (MW):	0.000
Transformer Peak Loading (MVA):	7.244	Aggregate Existing Generation (MW):	5.851
Transformer Daytime Min Loading (MVA):	0.676	Aggregate Queued Generation (MW):	0.147
LTC or Regulator:	LTC	Available Transformer Generation Capacity (MW)*:	21.687

Feeder

Feeder Name:	ATER1365	Feeder Voltage (kV):	13.20
Feeder Rating at head end (MVA):	12.800	Existing Generation on feeder (MW):	5.851
Feeder Peak Loading at head end (MVA):	7.244	Total Queued Generation on feeder (MW):	0.147
Feeder Daytime Min Loading at head end (MVA):	0.676	Available Feeder Generation Capacity at the head end (MW)*:	6.487

*Assumes existing generation operating at 0.95 power factor. Similar to Xcel Energy's planning standards for load, aggregate front of the meter DER export capacity is allowed up to 75% of the limiting equipment continuous rating, which could be at the substation transformer or feeder level. This value does not account for other potential impacts that could be identified with a more detailed review or study.

Point of Interconnection

Nominal Voltage at POI (kV):	13.20	Number of phases:	3
Spot/Grid Network, or Radial Feeder:	Radial	If not 3-phase, circuit distance to 3-phase:	Not Applicable
		Circuit distance from POI to Substation (feet):	49,465

The gray highlighted data in the gray highlighted fields below are “Confidential Information”, are non-public, and are subject to the Confidentiality Agreement required for PSCo Pre-Application Data Requests, as well as the confidentiality provisions contained in the signed Pre-Application Report Request Form.

Protective Devices and Regulators between Site and Substation

Device	Size/Type
Recloser	Unknown
Recloser	280Amp/WVE

Conductor between Substation (Top) and Site (Bottom)

Conductor Type	Rating (Amps)	Total Length, ft**
Double_ML_UG_1000_AL	1060	139.5
ML_UG_1000_AL	590	632
ML_OH_336_ACSR	540	13651
3P_OH_336_ACSR	540	760
3P_OH_2_ACSR	190	1401
3P_OH_1/0_ACSR	250	12717
3P_OH_2_ACSR	190	214
3P_OH_1/0_ACSR	250	198
3P_OH_2_ACSR	190	732
3P_OH_1/0_ACSR	250	2627
3P_OH_2_ACSR	190	16393

***Total length represents the total footage of all instances of a particular conductor size. The presented data is not necessarily in any particular order, nor does it indicate that the conductor is segmented in any particular way. The data represents the overall conductor lengths to be used in determining the overall impedance between the site and the substation.*

Protective Devices and Regulators between Site and Substation

Site Recloser May Be Required	Yes
Feeder Voltage Supervised Reclosing May Be Needed	Yes
Substation 3V0 May Be Needed	No

Other existing or known constraints, including, but not limited to, short circuit interrupting capacity issues, power quality or stability issues, capacity constraints:

Land Use & Building Department
8999 Independence Way Suite 100 • Alamosa, CO 81101
Phone: 719-589-3812 • Fax: 719-589-5888 Email landuse@alamosacounty.org

December 16, 2024

RDC CO County Rd 116 LLC
Attn: James Bentley
2045 W Grande Ave, Ste B
Chicago, IL 60612-1577

bentley@reactivate.com

RE: Comments on preliminary 1041 Application for Major Facilities of a Public Utility

Attached are the comments from our third-party review of your preliminary application. Alamosa County concurs with the recommendations and requests for additional information and asks that you address these items as part of your final application submittal.
Since this property is located at the intersection of Rd 116 and Hwy 160, you will need to coordinate with CDOT Region 5 regarding access and impact from the construction phase traffic, and provide that documentation with your final application.

I would also suggest that you consider submitting the waiver request at this time, as the results of that hearing will likely shape your final application.

If you have any specific questions on these comments, please let me know and we can schedule a conference call with Logan Simpson to discuss.

Sincerely,

Richard Hubler,
Land Use Administrator

cc: email to Jason Kelly, Alamosa County Attorney jtkelly@alamosacounty.org

LOGANSIMPSON

213 Linden Street, Suite 300 | Fort Collins, Colorado 80524
Phone: 970.449.4100 | www.logansimpson.com

Memorandum

To:	Richard Hubler, Alamosa County Director of Land Use and Building
From:	Logan Simpson Inc.
Date:	December 6, 2024
Project Name:	RDC CO County Road 116 Community Solar Energy Facility
Subject:	Preliminary Application Technical Review

We have reviewed the preliminary application of the County Road 116 Community Solar Energy Facility submitted by Reactivate CO Development LLC against the 1041 Guidelines and Regulations.

6.303 Submission Requirements for a Preliminary Application

We have noted that several items below and in the enclosed spreadsheet need to be completed for the final application. If the applicant believes any of the application requirements are not applicable to the project, they can request a waiver of submissions requirement per Section 2.203.

- Code requirement 1.a.ii: Please confirm that neither a Battery Energy Storage System nor maintenance building will be part of the facility. If so, please provide details in the final application.
- Code requirement 1.a.iii.B.7: Please clarify that PSCo owns/operates the interconnection location, would purchase the power, and describe the service area where the electricity will be used (i.e., PSCo's service area) to the extent this information is known. This can be accomplished in narrative or with a map.
- Code requirement 1.a.iii.C.1: Please also state the number, type, and frequency of maintenance employees.
- Code requirement 1.a.iii.C.3: Please list permits other than the 1041 Permit that may be required for the project and the timetable for their approvals.
- Code requirement 1.a.iii.C.5: Please describe the perimeter fence in greater detail. Include compliance with CPW recommendations.
- Code requirement 1.a.iii.D.1: Please describe the potential for fire at the facility.
- Code requirement 1.a.iii.D.4: The information provided does not completely answer the question. Please comment on prevalent natural hazards in the area (e.g., flooding, earthquake, lightning, hail, etc.).
- The final application will need to include maintenance procedures to address establishment and spread of invasive, non-native plant species. Clarify whether chicory is present.
- The final application will need to provide information in greater detail to present a robust analysis of the proposed facility.

Detailed notes regarding each required component can be viewed on the Permitting Process and Requirements for a Solar PV Project table below. Items highlighted in yellow are deemed incomplete

or insufficient for permit determination. The applicant should address these as well as the 6.303 Submission Requirements for a Final Application.

6.304 Action on Permit Application

To assist RDC with the preparation of a complete final 1041 Permit application, Alamosa County provides below the specific approval criteria that will be evaluated in the completeness review and will be considered in the decision of the Board of County Commissioners. Logan Simpson has reviewed the preliminary application for completeness and evaluated the approval criteria for potential risks. These criteria are excerpted from Alamosa County's 1041 regulations, Section 6.304. For each criterion, Logan Simpson provides a suggested approach to achieve positive consideration of the final application by Alamosa County.

1) The Permit Authority shall approve an application for permit for site selection and construction of a major facility of a public utility (with reasonable conditions, if any, in the discretion of the Permit Authority) only if the proposed site selection and construction complies with all of the following criteria:

a) The health, welfare and safety of the citizens of this County will be protected and served.

Suggested approach: Discuss how the project will increase renewable energy production in Alamosa County, supporting electrification projects and policies of Xcel Energy (the power purchaser) and the State of Colorado.

b) The natural and socio-economic environment of this County will be protected and enhanced.

Suggested approach: Please provide detailed description and analyses of the natural environment and the socio-economic environment within the application. Estimate RDC's contribution to Alamosa County's tax base for the length of the project. Describe anticipated expenditures by the project in local businesses. Estimate the number of local employees that could be required for construction, operation, and decommissioning of the project.

c) All reasonable alternatives to the proposed action, including use of existing rights-of-way and joint use of rights-of-way wherever uses are compatible, have been adequately assessed and the proposed action represents the best interests of the people of this County and represents the best utilization of resources in the impact area.

Suggested approach: Please describe the alternatives considered for the project site and layout and the criteria with which they were chosen. Describe the benefits of the proposed site and layout compared to alternative sites.

d) A satisfactory program to mitigate and minimize adverse impacts has been presented.

Suggested approach: Describe potential adverse impacts and RDC's proposed Describe potential environmental impacts and RDC's proposed avoidance, minimization, and mitigation measures and best management practices to protect resources.

e) The nature and location or expansion of the facility complies with all applicable provisions of the master plan of this County, and other applicable regional, metropolitan, state, and national plans.

Suggested approach: Describe whether the proposed site is within the county-identified Area of Influence of the City of Alamosa and the City's adopted 3-mile plan. Identify whether the proposed site is near State Wildlife Areas, U.S. Fish and Wildlife Service National Wildlife Refuges, Fish Hatcheries, Conservation Easements, state lands, or any other type of protected or regulated land use. Policy 6.1.2 of the 2008 Alamosa County Master Plan specifically states that the county should "whenever possible conserve riparian habitat and maintain habitat connectivity" while Policy 8.6.1 directs the county to review energy development projects for "their effects on existing air quality, wildlife habitat and visual resources.".

f) The nature and location or expansion of the facility complements the existing and reasonably foreseeable needs of the service area and of the area immediately affected by the facility.

Suggested approach: Describe how the project will increase local production of clean energy and how or if this energy will benefit the local and larger service area of Xcel Energy.

g) The nature and location or expansion of the facility does not unduly or unreasonably impact existing community services.

Suggested approach: Describe how the project will enhance the provision of electric power to the community without projected impacts on existing services.

h) The nature and location or expansion of the facility will not create an expansion of the demand for government services beyond the reasonable capacity of the community or region to provide such services, as determined by the Permit Authority.

Suggested approach: Specifically state whether the project will require additional police, fire, school, or medical services during construction, operation, or decommissioning.

i) The facility site or expansion area is not in an area with general meteorological and climatological conditions which would unreasonably interfere with or obstruct normal operations and maintenance.

Suggested approach: Present the general meteorological and climatological conditions in the project area. Demonstrate whether these conditions would be expected to interfere with or obstruct normal operations and maintenance. Discuss climate change, if appropriate.

j) The nature and location of the facility or expansion will not adversely affect the water rights of any upstream, downstream, or adjacent communities or other water users.

Suggested approach: If any irrigation canals would be impacted by the project, applicable permits or easements would be required.

k) Adequate water supplies are available for facility needs.

Suggested approach: Discuss how the project would obtain water necessary for construction or operation of the facility. Will potable water or sanitary facilities be provided for employees, and where? Discuss how water would be provided for fire suppression. Engage with the local Fire Protection District and provide that correspondence or result.

l) The nature and location of the facility or expansion will not unduly interfere with any existing easements for or rights-of-way, for other utilities, canals, mineral claims, or roads.

Suggested approach: Describe applicable easements for rights-of-way, utilities, canals, mineral claims, or roads. Provide a map of any setbacks required for the project.

m) The applicant is able to obtain needed easements for drainage, disposal, utilities, access, etc.

Suggested approach: Describe applicable easements for drainage, disposal, utilities, access, or other. Provide a map of any setbacks required for the project.

n) Adequate electric, gas, telephone, water, sewage, and other utilities exist or shall be developed to service the site.

Suggested approach: State whether electricity, gas, telephone, water, or other utilities will be required for the project and if so, how they will be provided.

o) The nature and location for expansion of the facility will not interfere with any significant wildlife habitat or adversely affect any endangered wildlife species, unique natural resource or historic landmark within the impact area.

Suggested approach: Provide a robust analysis of wildlife habitat, including migration or movement corridors, and species with potential to occur in the project area. Conduct a Class I cultural resource inventory. Coordinate with Colorado Parks and Wildlife, U.S. Fish and Wildlife Service, and the Colorado State Historic Preservation Officer, as appropriate. Alamosa County solicits and considers input from cooperating agencies and other stakeholders when evaluating new project proposals.

p) The nature and location or expansion of the facility, including expected growth and development related to the operation and provision of service, will not significantly deteriorate air quality in the impact area;

Suggested approach: Evaluate the current air quality in the project area and region. Estimate whether the project would deteriorate air quality in the impact area. Discuss climate change, if appropriate.

q) The geological and topographic features of the site are adequate for all construction, clearing, grading, drainage, vegetation, and other needs of the facility construction or expansion;

Suggested approach: Provide a Drainage Plan, Grading Plan, Reclamation Plan and any other analyses applicable to project construction and reclamation.

r) The existing water quality of affected state waters will not be degraded below state and federal standards or established baseline levels;

Suggested approach: Discuss any anticipated impacts to water quality of affected state waters. Develop a Stormwater Management Plan and obtain relevant permit(s) from the Colorado Department of Public Health and Environment.

s) The benefits of the proposed developments outweigh the losses of any natural resources or reduction of productivity of agricultural lands as a result of the proposed development.

Suggested approach: Discuss the potential of the project to degrade natural resources in the area. Discuss the potential of the project to reduce productivity of agricultural land. Describe the benefits of the project to natural resources, if any. Consider implementing and describing incorporation of agrivoltaics in project revegetation.

2) The Permit Authority shall deny the permit if the proposed development does not meet all of the criteria in subsection (1) of Section 6.304.

Permitting Process and Requirements for a Solar PV Project

HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility

Code Reference					STEP 1: Preliminary Application	Present in application?	Sufficient?	Suggested Action
(1)	(a)				**Application Form**			
		(i)			**A completed application form**	Yes	Yes	
		(ii)			**Description of proposed facility and site**	Yes	Yes	
		(iii)			**Description of present use and zoning**	Yes	Partially.	Chicory is not native to Colorado or to Alamosa County. If chicory is present on the site, it is not native. Chicory is a List C weed species in Colorado. Please revise the first sentence to be accurate. Please address this invasive, non-native species in Section 2.b.ii of the final application. Is it possible that this species has been mis-identified?
			A		**Location Map showing proposed site and clearly indicating the relationship of the site to the surrounding area within 50 miles from site (power plant) 10 miles for other facility**	Yes	Yes	
			B		**Type of facility: - specify where applicable**			
				1	**Approximate floor space of office building**	N/A	Yes	
				2	**Voltage and length of transmission line**	Yes	Yes	
				3	**Power source and generating capacity**	Yes	Yes	
				4	**Function and size of substation**	N/A	Yes	
				5	**Diameter and length of pipeline**	N/A	Yes	
				6	**Capacity of storage tanks, and type of petroleum derivative to be stored**	N/A	Yes	
				7	**Service area**	Partially.	No	PSCo is the power purchaser? Please describe the service area where the electricity will be used (i.e., PSCo's service area).
				8	**Resource area (e.g. source of power being generated or transmitted, source of petroleum derivative being transported)**	N/A	Yes	
			C		**Proposed Development Schedule**			
				1	**Estimate max number of employees, number of shifts and employees per shift during the following phases: construction, operation and maintenance**	Partially.	No	Please also state the number, type, and frequency of maintenance employees.

Click here and select a date

				2	**Specify any future phases or extensions of the facility and relationship of the factility to larger programs and plans.**	Yes	Yes	
				3	**Specify timetable for planning (e.g. federal permits, state permits, local zoning, etc.)**	No	No	Please list permits other than the 1041 Permit that may be required for the project and the timetable for their approvals.
				4	**Estimate beginning and completion of construction and beginning of operation of facility.**	Yes	Yes	
				5	**Describe support facilities (e.g., pollution control, parking areas, landscaping, etc.) to be provided**	Partially.	Partially.	Please describe the perimeter fence in greater detail. Include compliance with CPW recommendations.
				6	**Describe any feasible "non-structural" alternatives to meet the objectives of the proposed site selection and construction**	Yes	Yes	
			D		**Hazards and emergency procedures**			
				1	**Describe hazards, if any, of fire, explosion and other dangers to the health, safety and welfare of employees and the general public**	Partially.	Partially.	Please describe the potential for fire at the facility.
				2	**Describe hazards, if any, of environmental damage and contamination due to materials used at or activities taking place at the proposed facility**	Yes	Yes	
				3	**Describe emergency procedures to be used in the event of fire, explosion or other event which may endanger the public health, safety and welfare**	Yes	Yes	
				4	**Describe any prevalent natural hazards that will affect or be affected by development, and describe mitigating measures to be taken to reduce danger due to such natural hazards**	Partially.	Partially.	The information provided does not completely answer the question. Please comment on prevalent natural hazards in the area (e.g., flooding, earthquake, lightning, hail, etc.).

Reactivate/RDC CO County Rd 116, LLC
1041 Permit Application
Waiver Request

September 24, 2025 - BOCC 8:30 AM

LIST OF EXHIBITS

1. STAFF REPORT
2. WAIVER CHECKLIST SPREADSHEET
3. LOGAN SIMPSON REVIEW MEMO
4. FINAL REVIEW LETTER DATED AUGUST 18, 2025
5. APPLICANT'S WAIVER REQUEST DATED AUGUST 21, 2025
6. GIS NOTIFICATION AERIAL MAP
7. LIST OF NEIGHBORING PROPERTY OWNERS
8. EXAMPLE LETTER TO NEIGHBORS
9. PUBLIC NOTICE

Alamosa County
Land Use & Building Department
1041 Permit Application from RDC CO County Rd 116

County Commission Meeting

Date: September 24, 2025
RE: Waiver Request for RDC CO County Rd 116, LLC Community Solar Project
Prepared By: Richard Hubler, Land Use & Building Department Director

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Background:

Alamosa County requires a 1041 permit for site selection and construction of major facilities of a public utility. The Applicant, Reactivate CO Development LLC, has submitted a 1041 permit final application for the RDC Co County Rd 116, LLC project to develop a 3.9 MW solar PV generation facility. The project is located on approximately 20 acres of a 40 acre parcel north of US Highway 160 and east of County Rd 116, approximately six miles east of the city of Alamosa.

Staff and third-party review of this application determined that the final application was not complete, as we identified a number of items not addressed in the submittal and which may not be relevant to the proposed project. In our initial review comments, we suggested that the Applicant pursue a waiver request in addition to any other further clarification. We received a request to waive relevant submission requirements on August 21, 2025 that is consistent with our comments and expectations.

Recommendations:

The Applicant has requested our standard pre-considered waivers in addition to some related to site conditions and development plans. There are no aquatic features or aquatic wildlife on the subject property, and the Applicant does not propose support facilities or a water system. We recommend approving these waivers as noted on the attachment, with the exception of 2.a.viii.A on page 2 to "describe and map possible expected noise levels by immediate and future facility operations" since the Applicant has provided a noise study in Attachment P.

Permitting Process and Requirements for a Solar PV Project
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility

SUBMISSION REQUIREMENT WAIVER CHECKLIST FOR SOLAR PV GENERATING FACILITIES.										
Note to Applicant					For your Solar PV Generating Facility, the submission requirements marked as YES in Column A will be waived by the Board of County Commissioners on a consent agenda at a regular meeting. Your attendance at this meeting is not required.					
					If you wish to request that other submission requirements be waived, note those requirements in Column B. The Board of County Commissioners will rule on your request at a regular meeting and your attendance is required.	A	B	C		
Code Citation					Submission Requirement	WAIVER TO BE APPROVED (by County)	Waiver Requested (by Applicant)	Waiver Granted (by County)	Notes	
(1)					**STEP 1: Preliminary Application**					
	(a)				Application Form					
		(i)			A completed application form					
		(ii)			Description of proposed facility and site					
		(iii)			Description of present use and zoning					
			A		Location Map showing proposed site and clearly indicating the relationship of the site to the surrounding area within 50 miles from site					
			B		Type of facility: - specify where applicable					
				1	approximate floor space of office building					
				2	voltage and length of transmission line					
				3	power source and generating capacity					
				4	function and size of substation					
				5	diameter and length of pipeline	YES		RECOMMEND		
				6	capacity of storage tanks, and type of petroleum derivative to be storyed	YES		RECOMMEND		
				7	service area					
				8	resource area (e.g. source of power being generated or transmitted, source of petroleum derivative being transported)	YES		RECOMMEND		
			C		Proposed Development Schedule					
				1	Estimate max number of employees, number of shifts and employees per shift during the following phases: construction, operation and maintenance					
				2	Specify any future phases or extensions of the facility and relationship of the factility to larger programs and plans.					
				3	Specify timetable for planning (e.g. federal permits, state permits, local zoning, etc.)					
				4	Estimate beginning and completion of construction and beginning of operation of facility.					
				5	Describe support facilities (eg pollution control, parking areas, landscaping, etc.) to be provided					
				6	Describe any feasible "non-structural" alternatives to meet the objectives of the proposed site selection and construction					
			D		Hazards and emergency procedures					
				1	describe hazards, if any, of fire, explosion and other dangers to the health, safety and welfare of employees and the general public					
				2	describe hazards, if any, of environmental damage and contamination due to materials used at or activities taking place at the proposed facility.					
				3	Describe emergency procedures to be used in the event of fire, explosion or other event which may endanger the public health, safety and welfare					
				4	Describe any prevalent natural hazards that will affect or be affected by development, and describe mitigating measures to be taken to reduce danger due to such natural hazards					

Code Citation					Submission Requirement	WAIVER TO BE APPROVED (by County)	Waiver Requested (by Applicant)	Waiver Granted (by County)	Notes
(2)					**STEP 2: Final Application**				
	(a)				At the time of making final application, all applicants shall submit 5 copies of the following documents and information:				
		(i)			Delineation of Base Area (that area likely to be subject to land use changes as a result of the project)				
			A		Map of Base Area; describe how the determination was made.				
			B		Map of Special Districts (schools, fire, water sanitation, etc.) affected by the proposal.				
		(ii)			Delineation of impact area (that areas whose physical and socio-economic environment is likely to be impacted, beneficially and adversely, by the site selection and construction of the proposed facility)				
		(iii)			Objectives of the proposed site selection and facility				
			A		Describe the relationship of project to local land use policies and comprehensive plans and to policies and plans adopted or under preparation by federal, state and other affected local government agencies.				
			B		Describe the relationship of the project to other existing and planned utility facilities of similar nature, other communication or energy generation and transmission facilities, local government capital improvement programs, and special district expansion programs.				
		(iv)			Description of need for project				
			A		briefly describe why the public convenience and necessity require the facility of the size and nature proposed be constructed on the site proposed.				
			B		sources of demographic and economic data and method of anlysis				
			C		market function (ie. What user needs and patterns will project fulfill.)				
		(v)			Description of support facilities needed				
			A		Type of water quality control				
				1	Describe proposed sewage treatment facilities and nonpoint source controls.				
				2	describe pollutant loads (point and non-point sources) expected directly from development. Specify seasonal variations.		Yes	RECOMMEND	no point-sources anticipated; non-point sources described qualitatively
			B		Public services and facilities				
				1	Estimate police and fire protection requirements				
				2	Estimate public road maintenance requirements				
				3	Estimate educational and health services requirements				
				4	Estimate facilities and service required to provide adequate water supply and sewage treatment				
		(vi)			Description of employment and economic opportunities				
			A		Describe Capital Investment in facility				
			B		Estimate anticipated revenues to local, state and federal governments, special districts				
			C		Describe employment opportunities				
				1	Types of jobs and number of positions, wage, salary schedule				
				2	Opportunities for employment of local citizens				
				3	Employment opportunities for low income and minority populations				
		(vii)			Description of visual conditions (base area)				
			A		Map area within view of project				
			B		Map access and travel routes, public areas, residential areas that will have a view of the project				
		(viii)			Description of noise conditions(base area)				
			A		Desribe and map possible expected noise levels by immediate and future facility operations	YES		DENY	Noise Study provided in Attachment P
		(ix)			Description of socio-economic environment (impact area)				
			A		Characteristics of the existing population				
				1	Age, income level and distribution, education, social background, family size, etc				
				2	Neighborhood and distinct socio-economic groups				
				3	Migrational trends and seasonal fluctuations				
				4	Anticipated population changes				

			B		Current employment				
				1	Principal employers, type, number of employees				
				2	Unemployment and under employment		Yes	PARTIAL	under-employment data difficult to ascertain - AGREED
				3	Characteristics of local labor pool				
				4	Manpower training and retraining potential				
			C		Inventory local governments and special districts providing services in base area				
				1	Map jurisdiction and type of service				
				2	Capacity and utilization of services				
				3	Operating revenue and expenditures				
				4	Tax Base				
				5	Current level of taxation				
				6	Estimate revenue generating capacity and identify potential new sources of revenue				
			D		Housing				
				1	Current housing inventory				
				2	Projected housing requirements				
			E		Existing Transportation Network				
				1	Access to site				
				2	Circulation within base area and commuting patterns in impact area				
				3	Capacities of arterial streets within impact area				
				4	Maintenance provisions and costs				
			F		Description of historical and archaeological resources				
				1	Describe historical and archeological sites by means of completing state inventory forms and sumbit these to the State Historical Society for Evaluation				
				2	Describe resources individually and as the relate to the community, include photos wherever possible				
		(x)			Description of atmospheric conditions (impact area)	YES		RECOMMEND	
			A		Meteorology (based on worst-case winter conditions)	YES		RECOMMEND	
				1	Wind speed and direction	YES		RECOMMEND	
				2	Inversion height	YES		RECOMMEND	
				3	Atmospheric stability	YES		RECOMMEND	
			B		Topography	YES		RECOMMEND	
				1	Desribe general and outstanding topographic feature in project area (maps and aerials)	YES		RECOMMEND	
			C		Background ambient air quality (TSP, SO2, HC, CO, Nox, O3, etc.)	YES		RECOMMEND	
	(b)				At the time of final application, applicants seeking a permit for the site selection and construction of transmission lines or substations shall submit, in addition to those requirements set forth in Subsection (a) of this Section, 5 copies of the following documents and information:				
		(i)			Description of geologic and pedologic conditions of base area				
			A		Map of Bedrock and surficial geology	YES		RECOMMEND	
			B		Map and describe areas of:				
				1	Avalanches	YES		RECOMMEND	
				2	Mud flows and debris fans	YES		RECOMMEND	
				3	All types of unstable or potentially unstable slope	YES		RECOMMEND	
				4	Special seismic considerations	YES		RECOMMEND	
				5	Areas of high radioactivity	YES		RECOMMEND	
				6	Ground subsidence	YES		RECOMMEND	
				7	Expansive soil and rock	YES		RECOMMEND	
				8	Other geologic conditions which are pertinent	YES		RECOMMEND	
			C		Map extent of 100-year flood plain if present				
			D		Map topography in adequate detail to determine adequacy of design				
			E		Map and evaluate mineral and energy resources				
			F		Map and evaluate agricultural resources				
		(ii)			Description of biotic conditions (impact area)				
			A		Map plant communities				
				1	Characteristics, quantity, productivity of plant types				
				2	Endangered or threatened plant species				
				3	Evidence of past disturbances and current indications of stages in ecological succession				
			B		Wildlife (terrestial)				
				1	Determine species present, seasonal occurrence, status and relative importance				
				2	Map distribution of species				
				3	Map biological features (migration routes, breeding grounds, etc.)				
				4	Identify species included on official federal or state list of endangered or threatened species				
				5	Identify species that are unique in their Colorado distribution				

			C		Wildlife (acquatic)				
				1	Identify species present		Yes	RECOMMEND	project will not impact streams, lakes, or reservoirs - AGREED
				2	Map streams, lakes and reservoirs which provide or have potential for habitat				
				3	Map biological features (spawning runs, spawning beds, etc.)		Yes	RECOMMEND	project will not impact streams, lakes, or reservoirs - AGREED
				4	Identify any endangered species (federal or state) or any which are unique in their Colorado distribution.		Yes	RECOMMEND	project will not impact streams, lakes, or reservoirs - AGREED
	(c)				At the time of final application, applicants seeking a permit for pipelines or storage areas shall submit, in addition to those requirements set forth in subsection (a) and (b) of this Section, 5 copies of the following documents and information:				
		(i)			Description of hydrologic conditions - surface (impact area)	YES		RECOMMEND	
			A		Provide map of all surface water	YES		RECOMMEND	
			B		Describe expected monthly streamflows for typical year, wet year, dry year (include 7 day-10 year low flows where sufficient data exists)	YES		RECOMMEND	
			C		Describe physical stream features (gradiant, velocity, depth, etc.)	YES		RECOMMEND	
			D		Provide data on chemical and biological quality, including BOD, dissoved O2, free CO2, PH, TDS, ph-th alkalinity, MO alkalinity, NH4, heavy metals and other toxic or deleterious substances.	YES		RECOMMEND	
		(ii)			Description of hydrologic conditions - subsurface (impact area)	YES		RECOMMEND	
			A		Map all aquifers that may be affected by project	YES		RECOMMEND	
			B		Provide tables, graphs, map showing permeability, transmissibility, thickness, volume, depth of aquifers.	YES		RECOMMEND	
			C		Describe geology of strata overlying aquifers including percolation rates, travel time to groundwater surface.	YES		RECOMMEND	
			D		Map of all wells using aquifers including diameter, flow rates.	YES		RECOMMEND	
	(d)				At the time of final application, applicants seeking a permit for the site selection and construction of a power plant shall submit, in addition to those requirements set forth in subsections (a), (b), and (c) of this Section, 5 copies of the following documents and information:				
		(i)			map locating and describing resource areas to be utilized as sources of energy	YES		RECOMMEND	
		(ii)			description of water system proposed:		Yes	RECOMMEND	No Water system proposed
			A		Source of supply, volume and rate of flow at full development		Yes	RECOMMEND	No Water system proposed
			B		Water rights owned or utilized		Yes	RECOMMEND	No Water system proposed
			C		Proposed points of diversion and changes of points of diversion		Yes	RECOMMEND	No Water system proposed
			D		Volume of stream flow to remain unused between points of diversion		Yes	RECOMMEND	No Water system proposed
			E		Dependability of supply (physical and legal)		Yes	RECOMMEND	No Water system proposed
			F		Effects on downstream users		Yes	RECOMMEND	No Water system proposed
		(iii)			Description of air pollution control measures		Yes	RECOMMEND	Air pollution unlikey- solar only system
	(e)				At the time of final application, all applicants shall submit an analysis of impacts as follows:				
		(i)			Summarize the major natural and socio-economic environmental constraints as they affect the site selection and construction of the facility as proposed.				
		(ii)			Describe present utilization of land, water, air, biotic, geologic and socio-economic resources within impact area as applicable to submission requirements.				
		(iii)			describe alternative uses for these resources				
		(iv)			Analyze effects of proposed site selection and construction upon the natural and socio-economic environment of the impact area as applicable to submission requirements.				
			A		Provided analysis of hydrologic, atmospheric, geologic, pedologic, biotic, visual and noise impacts				
			B		Provide surface and subsurface drainage analyis				
			C		Provide socio-economic impact analysis				
			D		Provide transportation impact anlysis				
			E		Provided analysis of impacts upon agricultureal productivity and ag resources				
		(v)			Analyze long-term effects of the proposed site selection and construction upon the physical and socio-economic development of the impact area				
		(vi)			Justify the proposed site selection and construction against the present and alternative uses of the resources in the impact area				
		(vii)			Describe a program to minimize and mitigate adverse impacts and to maximize the positive impacts of the proposed site selection and construction.				

			A		Analyze alternatives				
				1	Alternative locations and routes				
				2	Alternative types of facilities				
				3	Use of existing rights-of-way				
				4	Joint use of rights of way with other utilities				
				5	Upgrading of existing facilities				
			B		Analyze non-structural alternatives as applicable		Yes	RECOMMEND	Non-structural alternatives not relevant
				1	Conservation of energy use		Yes	RECOMMEND	Non-structural alternatives not relevant
				2	No development		Yes	RECOMMEND	Non-structural alternatives not relevant
			C		Analyze management alternatives (ie development scheduling, training programs, facility design, land trades, etc.)				
			D		Analyze air and water pollution control alternatives				
			E		Analyze design alternatives (access, landscaping, architectural controls)				
			F		Submit a program to meet "front end" costs of providing necessary services and facilities				
					Other Requirements or Permits prior to Construction				
				1	National Pollutant Disharge Elimination System (NPDES) Permit for storm water management from the CO. Dept. of Health and Environment				
				2	Alamosa County Culvert and Access Permit				
				3	Alamosa County Building Permit				
				4	Alamosa County ROW License for Transmission Lines		Yes	PARTIAL	No new transmission line is planned. A distribution line interconnection is proposed across County Rd 116, which will need to obtain a permit from Road & Bridge before construction.

LOGANSIMPSON

213 Linden Street, Suite 300 | Fort Collins, Colorado 80524
Phone: 970.449.4100 | www.logansimpson.com

MEMORANDUM

To:	Richard Hubler, Alamosa County Director of Land Use and Building
From:	Logan Simpson Inc.
Date:	September 16, 2025
Project Name:	RDC CO County Road 116 Community Solar Energy Facility
Subject:	Applicant Waiver Request Review

We have reviewed the waiver request of the CO County Road 116 Community Solar Energy Facility submitted by Reactivate CO Development, LLC on August 21, 2025.

It is our determination that the suggested waiver requests from our initial review of the final application were fully met by Reactivate in their waiver request submission. Please see below in **Table 1** for the summary of our recommended waivers, confirmed to be sections present in the waiver request table submitted by the Applicant.

Table 1. Permitting Process and Requirements for a Solar PV Project- RDC CO RD 116							
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility							
Code Reference					STEP : Final Application	Recommended Action	Applicant Action
2					STEP 2: Final Application		
	(a)				At the time of making final application, all applicants shall submit 5 copies of the following documents and information:		
		(v)			Description of support facilities needed		
			A		Type of water quality control		
				2	Describe pollutant loads (point and non-point sources) expected directly from development. Specify seasonal variations.	Consider a Waiver Request	Waiver Submitted
	(b)				At the time of final application, applicants seeking a permit for the site selection and construction of transmission lines or substations shall submit, in addition to those requirements set forth in Subsection (a) of this Section, 5 copies of the following documents and information:		
		(i)			Description of geologic and pedologic conditions of base area		
			B		Map and describe areas of:		
				1	Avalanches.	Consider a Waiver Request	Waiver Submitted
				2	Mud flows and debris fans.	Consider a Waiver Request	Waiver Submitted
				3	All types of unstable or potentially unstable slope.	Consider a Waiver Request	Waiver Submitted
				4	Special seismic considerations.	Consider a Waiver Request	Waiver Submitted
				5	Areas of high radioactivity.	Consider a Waiver Request	Waiver Submitted
				6	Ground subsidence.	Consider a Waiver Request	Waiver Submitted
				7	Expansive soil and rock.	Consider a Waiver Request	Waiver Submitted
				8	Other geologic conditions which are pertinent.	Consider a Waiver Request	Waiver Submitted
		(ii)			Description of biotic conditions (impact area)		
			C		Wildlife (aquatic)		
				1	Identify species present.	Consider a Waiver Request	Waiver Submitted
				3	Map biological features (spawning runs, spawning beds, etc.).	Consider a Waiver Request	Waiver Submitted
				4	Identify any endangered species (federal or state) or any which are unique in their Colorado distribution.	Consider a Waiver Request	Waiver Submitted

	(e)				**At the time of final application, all applicants shall submit an analysis of impacts as follows:**		
		(vii)			**Describe a program to minimize and mitigate adverse impacts and to maximize the positive impacts of the proposed site selection and construction.**		
			B		**Analyze non-structural alternatives as applicable.**	Consider a Waiver Request	Waiver Submitted
				1	**Conservation of energy use.**	Consider a Waiver Request	Waiver Submitted
				2	**No development.**	Consider a Waiver Request	Waiver Submitted

Land Use and Building Department
8999 Independence Way #100 • Alamosa, CO 81101
Email: landuse@alamosacounty.org • Phone: 719-589-3812

August 18, 2025

RDC CO Rd 116 LLC
Attn: James Bentley
2045 W Grande Ave, Ste B
Chicago, IL 60612-1577

bentley@reactivate.com

RE: Comments on final 1041 Application for Major Facilities of a Public Utility

Attached are Alamosa County's comments on the final application we received on June 12, 2025. This application is not yet complete, as discussed below. I have also attached an analysis table that provides a review of submission requirements for both the preliminary and final applications pursuant to §6.303. You will notice several items that we identified could be addressed by a waiver request approved by the Permit Authority. Additionally, we noticed that there is no reference section and ask that you cite and reference all data sources. I'd also note that section 7.1.3 as referenced several times in the submittal is not actually included in the narrative, similar to the Stanley Rd application.

I also wanted to recap the items I identified from the preliminary comments for your reference:

1- CDOT access/impact documentation – Attachment N includes a traffic study and Attachment O a road condition survey, but I see no documentation included of discussions or coordination with CDOT yet.
2- Waiver request – This has not yet been submitted and is recommended by county staff and our third-party review agency, unless you plan to address the identified items in an updated final submittal.

The following items need to be completed, or if you believe they are not applicable, they need to be addressed as such in the application or included in the waiver request.

Local / Regional Impacts

- Code requirement 2.a.ii: Please add discussion of the anticipated impact of the Project on the region during construction and operation.
- Code requirement 2.a.iii.A: Please add discussion describing the relationship of the Project to local land use policies and comprehensive plans and to policies and plans adopted or under preparation by federal, state, and other affected local government agencies.
- Code requirement 2.a.iii.B: Please add discussion describing the relationship of the Project to other existing and planned utility facilities of similar nature, other communication or energy generation and transmission facilities, local government capital improvement programs, and special district expansion programs.
- Code requirement 2.a.iv.C: Please address Alamosa County energy patterns and needs in Section 7.1.1. Nationwide statistics are cited; however, the local energy insecurity rate is not discussed.

Associated Costs

- Code requirement 2.a.v.B.1: Please address any anticipated police support for the Project. Also include expected cost of fire department support. If no fire or police services are anticipated, please state so in the narrative.
- Code requirement 2.a.vi.A: Please add Section 7.1.3 to the narrative, as described in the Table on page 8 for discussion of capital investment and Project costs. This appears to be an omission in the application.
- Code requirement 2.a.vi.B: Please add discussion of the impact (if any) to special districts. If no impacts are anticipated, please state so in the narrative.
- Code requirement 2.e.vii.F: Please add Section 7.1.3 to the narrative as described in the Table on page 8 for discussion of capital investment and Project costs. This appears to be an omission in the application.

Visual and Noise

- Code requirement 2.a.vii.A: Consider adding Key Observation Points at each of the five nearby residences in the vicinity of the Project to analyze their views of the Project.
- Code requirement 2.a.viii.A: Please add mapping of the expected noise levels throughout the Project site. There is no Figure 4 present, as referenced in Attachment P: Noise Study. This appears to be an omission in the application.

Socioeconomic Impact

- Code requirement 2.a.ix.A.1: Recommend providing an economic impact assessment using the most current Alamosa County information. Please address average family size and social backgrounds.
- Code requirement 2.a.ix.A.2: Please add discussion of neighborhoods and socio-economic groups.
- Code requirement 2.a.ix.A.3: The Net Migration Map on page 21 ends at Year 2022 and should be updated to 2024 if data is available.
- Code requirement 2.a.ix.B.2: Please address under-employment.
- Code requirement 2.a.ix.B.3: Recommend adding a summary of the local labor pool to Section 7.2, Socioeconomic Review.
- Code requirement 2.a.ix.C.4: Please add a tax base discussion to Section 7.1.2, Statewide and Local Economic Impacts.
- Code requirement 2.a.ix.C.5: Please add current levels of taxation to Section 7.1.2, Statewide and Local Economic Impacts.
- Code requirement 2.a.ix.D.1: Please add current housing inventory to Section 7.0, Financial and Socioeconomic Review.

Traffic and Haul Routes

- Code requirement 2.a.ix.E.2: Recommend adding commuting patterns to Section 9.2, Roads or Attachment N, Conceptual Transportation Plan and Haul Routes.
- Code requirement 2.a.ix.E.3: Recommend addressing arterial streets within the impact area in Section 9.2, Roads or Attachment N, Conceptual Transportation Plan and Haul Routes.

Atmospheric Conditions

- Code requirement 2.a.x.A.1: Please add wind direction to Section 6.3, Atmospheric Conditions.
- Code requirement 2.a.x.A.2: Please add inversion height to Section 6.3, Atmospheric Conditions.
- Code requirement 2.a.x.A.3: Please add atmospheric stability to Section 6.3, Atmospheric Conditions.
- Code requirement 2.a.x.B.1: Please add a general topographical description in the narrative to accompany the map in Attachment E, Maps.
- Code requirement 2.a.x.C: Please add the acceptable range for each air quality parameter (TSP, SO2, etc.) and Alamosa County's current values of these pollutants to Section 6.3, Atmospheric Conditions.

Pedologic and Biotic Conditions

- Code requirement 2.b.i.E: Please add a discussion of energy resources to Section 12.1, Mineral and Energy Resources.
- Code requirement 2.b.ii.A.1: Please add a discussion of characteristics, quantity, and productivity of plant type to Section 6.5, Project Site Study and Analysis Overview. If the Project area is not currently used for agriculture, please address the landcover that is present.
- Code requirement 2.b.ii.A.2: Please add a discussion of the presence or absence of endangered or threatened plants to Section 6.5, Project Site Study and Analysis Overview.
- Code requirement 2.b.ii.A.3: Please add a discussion of past disturbances and indications of stages in ecological succession to Section 6.5, Project Site Study and Analysis Overview.
- Code requirement 2.b.ii.B.3: Please add a map of biological features in Attachment E, Maps.
- Code requirement 2.b.ii.B.5: Please add a discussion of the presence or absence of species that are unique in their Colorado distribution to Section 6.5, Project Site Study and Analysis Overview. Although a Colorado's Conservation Data Explorer (CODEX) report is listed as an acronym, there is no citation in the narrative for this reference. Consider generating a CODEX report for the Project area and a 1.0-mile buffer to inform species likely to occur within and near the Project area.

Construction Impacts

- Code requirement 2.e.iv.A: Please add an analysis (if any) of geologic and pedologic impacts. If none, please state so in the narrative.
- Code requirement 2.e.iv.D: Please add a discussion of current traffic patterns for the Project area.

Utilizations and Alternatives

- Code requirement 2.e.i: Please address the natural and socioeconomic environmental constraints in Section 7.2, Socioeconomic Review and 9.0 Project Impacts and Mitigation.
- Code requirement 2.e.ii: Please add a description of current utilization of resources to Section 6.0, Site Description or Section 9.0, Project Impacts and Mitigation.
- Code requirement 2.e.iii: Please add a description of alternative uses of resources to Section 6.0, Site Description or Section 10.0, Alternatives Analysis.
- Code requirement 2.e.vii.A.1: Please discuss alternative sites or routes that were considered for the Project.
- Code requirement 2.e.vii.A.2: Please discuss alternative facilities that were considered for the Project.
- Code requirement 2.e.vii.A.3: Please discuss alternative ROWs that were considered for the Project (if any). If none, state so in the narrative.
- Code requirement 2.e.vii.C: Please add an analysis of management alternatives for development scheduling, training programs, facility design, land trades, etc.
- Code requirement 2.e.vii.D: Please add an analysis of air and water pollution control alternatives to Section 5.2, Project Support Facilities.
- Code requirement 2.e.vii.E: Please add an analysis of design alternatives (access, landscaping, architectural controls) to Section 10.0, Alternatives.

Other Minor Inconsistencies

We note the following minor inconsistencies:

- The title of Attachments as listed on Page 3 (or in the body) of the narrative does not exactly match the title of the document in the actual attachment. For example, Attachment Q is titled "Emergency Response Plan" but on Page 3 of the Narrative Attachment Q is labeled as "Hazard and Emergency Procedures Report".
- The Narrative has Section 7.2.1 "Alamosa County Socioeconomic Environment" and Section 7.2.3 "Migration Trends" but is missing Section 7.2.2. Either Section 7.2.2 was accidently omitted or the numbering needs to be updated.
- The narrative states on page 16 that "Vegetation consisted of species commonly observed in the Arid West and was dominated (over 20% ground cover) by greasewood *(Sarcobatus vermiculatus)* and rubber rabbitbrush *(Ericameria nauseosa)."* However, the Biotic and Aquatic Conditions Report does not list rubber rabbitbrush in the vegetation section on page I9 of the report.
- There is no List of References or Works Cited in the application. The best available data sources should be cited and referenced.

Detailed notes regarding each required component can be viewed on the Permitting Process and Requirements for a Solar PV Project table below. Items highlighted in yellow are deemed to require further evaluation or discussion in the 1041 Permit application.

The next step in your process is to submit an updated final application that meets all the submittal requirements of §6.303(2). Once it is determined by the county to be complete, I will schedule the public hearing between 30 and 60 days from the available date and publish notice of that BOCC meeting.

Please let me know if you have any questions, or would like to schedule a meeting to review any of these comments.

Sincerely,

Richard Hubler,
Land Use Administrator

cc: email to Anna Lundin, Kimley-Horn Anna.Lundin@kimley-horn.com
email to Hehewutei "Cody" Amakali, Reactivate amakali@reactivate.com
email to Jason Kelly, Alamosa County Attorney jtkelly@alamosacounty.org

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
(2)					STEP 2: Final Application			
	(a)				At the time of making final application, all applicants shall submit 5 copies of the following documents and information:			
		(i)			Delineation of Base Area (that area likely to be subject to land use changes as a result of the project)			
			A		Map of Base Area; describe how the determination was made.	Yes	Yes	Please add "Land Management Consideration Map" to the reference to Attachment E in Section 6.0, Site Description.
			B		Map of Special Districts (schools, fire, water sanitation, etc.) affected by the proposal.	Yes	Yes	Recommend listing all of the maps present in Attachment E in the Table of Contents.
		(ii)			Delineation of impact area (that area whose physical and socio-economic environment is likely to be impacted, beneficially and adversely, by the site selection and construction of the proposed facility).	Partially	Partially	Page 21 of the Narrative refers to "Attachment E Maps, Impact Area"- please ensure this feature appears and is labeled on maps included in Attachment E.
		(iii)			Objectives of the proposed site selection and facility			
			A		Describe the relationship of project to local land use policies and comprehensive plans and to policies and plans adopted or under preparation by federal, state, and other affected local government agencies.	Partially	Partially	Please add discussion describing the relationship of the Project to local land use policies and comprehensive plans.
			B		Describe the relationship of the project to other existing and planned utility facilities of similar nature, other communication or energy generation and transmission facilities, local government capital improvement programs, and special district expansion programs.	No	No	Please add discussion describing the relationship of the Project to other existing and planned utility facilities of similar nature, other communication or energy generation and transmission facilities, local government capital improvement programs, and special district expansion programs.
		(iv)			Description of need for project			

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
			A		**Briefly describe why the public convenience and necessity require the facility of the size and nature proposed be constructed on the site proposed.**	Yes	Yes	
			B		**Sources of demographic and economic data and method of analysis.**	Yes	Yes	
			C		**Market function (i.e., What user needs and patterns will project fulfill?)**	Partially	No	Please address Alamosa County energy patterns and needs in Section 7.1.1, Employment and Economic Opportunities. Nationwide statistics are cited; however, the local energy insecurity rate is not discussed.
		(v)			**Description of support facilities needed**			
			A		**Type of water quality control.**	Yes	Yes	A SWPPP permit will be obtained to ensure water quality control per Section 5.2, Project Support Facilities. Stormwater runoff and water quality impacts are not anticipated per Section 9.4, Water and Air Quality.
				1	**Describe proposed sewage treatment facilities and nonpoint source controls.**	Yes	Yes	A SWPPP permit will be obtained to ensure water quality control per Section 5.2, Project Support Facilities. The Project will not require public facilities or sewage treatment.
				2	**Describe pollutant loads (point and non-point sources) expected directly from development. Specify seasonal variations.**	No	Consider a Waiver request	Grant waiver if no pollutants would be discharged from the Project, as described in Section 9.4, Water and Air Quality.
			B		**Public services and facilities**			
				1	**Estimate police and fire protection requirements.**	Yes	Partially	Please address any anticipated police support for the Project. Also include expected cost of fire department support or police services. If no fire or police services are anticipated, please state so in the narrative.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
				2	Estimate public road maintenance requirements.	Yes	Yes	
				3	Estimate educational and health services requirements.	Yes	Yes	No services are required as stated in Section 9.11, Educational and Health Services.
				4	Estimate facilities and services required to provide adequate water supply and sewage treatment.	Yes	Yes	No services required as stated in Sections 5.2, Project Support Facilities.
		(vi)			Description of employment and economic opportunities			
			A		Describe Capital Investment in facility.	No	No	Please add Section 7.1.3 to the narrative, as described in the Table on page 8 for discussion of capital investment and Project costs. This appears to be an omission in the application.
			B		Estimate anticipated revenues to local, state, and federal governments, special districts.	Yes	Partially	Please add discussion of impact (if any) to special districts. If no impacts are anticipated, please state so in the narrative.
			C		Describe employment opportunities.			
				1	Types of jobs and number of positions, wage, salary schedule.	Yes	Yes	
				2	Opportunities for employment of local citizens.	Yes	Yes	
				3	Employment opportunities for low income and minority populations.	Yes	Yes	
		(vii)			Description of visual conditions (base area)			
			A		Map area within view of project.	Yes	Partially	Consider adding Key Observation Points at each of the nearby residences (4 north, 1 east, and 6 south and west) in the vicinity of the Project to analyze their views of the Project.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
			B		**Map access and travel routes, public areas, residential areas that will have a view of the project**	Yes	Partially	Consider adding Key Observation Points at each of the nearby residences (4 north, 1 east, and 6 south and west) in the vicinity of the Project to analyze their views of the Project.
		(viii)			**Description of noise conditions (base area)**			
			A		**Describe and map possible expected noise levels by immediate and future facility operations.**	Yes	Yes	Page 7 of Attachment P, Noise Study references "Figure 4". This appears to be Figure 3: Operational Sounds Contours, present on page 8. This is a noted third party report error.
		(ix)			**Description of socioeconomic environment (impact area)**			
			A		**Characteristics of the existing population.**			
				1	**Age, income level and distribution, education, social background, family size, etc.**	Yes	Partially	Recommend providing an economic impact assessment using the most current Alamosa County information. Please address average family size and elaborate on the income distributions and social backgrounds.
				2	**Neighborhood and distinct socioeconomic groups.**	No	No	Please add discussion of neighborhoods and socioeconomic groups.
				3	**Migrational trends and seasonal fluctuations.**	Yes	Partially	The Net Migration Map in Section 7.2.3, Migration Trends ends at Year 2022 and should be updated to 2024 if data is available. Please address seasonal fluctuations if that data is available.
				4	**Anticipated population changes.**	Yes	Yes	Minimal, temporary impact is anticipated.
			B		**Current employment.**			
				1	**Principal employers, type, number of employees.**	Yes	Yes	From 2023; Jobs by Sector in Alamosa County.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
				2	**Unemployment and under employment.**	Yes	Partially	Please address under-employment in Section 7.2, Socioeconomic Review.
				3	**Characteristics of local labor pool.**	Partially	Partially	Recommend adding a summary of the local labor pool to Section 7.2, Socioeconomic Review.
				4	**Manpower training and retraining potential.**	Yes	Yes	Discussed for personnel and emergency service providers.
			C		**Inventory local governments and special districts providing services in base area.**			
				1	**Map jurisdiction and type of service.**	Yes	Yes	
				2	**Capacity and utilization of services.**	Yes	Yes	
				3	**Operating revenue and expenditures.**	Yes	Yes	
				4	**Tax Base.**	No	No	Please add a tax base discussion to Section 7.1.2, Statewide and Local Economic Impacts.
				5	**Current level of taxation.**	No	No	Please add current levels of taxation to Section 7.1.2, Statewide and Local Economic Impacts.
				6	**Estimate revenue generating capacity and identify potential new sources of revenue.**	Yes	Yes	
			D		**Housing**			
				1	**Current housing inventory.**	No	No	Please add current housing inventory to Section 7.0, Financial and Socioeconomic Review.
				2	**Projected housing requirements.**	Yes	Yes	The Project will not affect projected housing requirement; no permanent housing will be required.
			E		**Existing Transportation Network**			
				1	**Access to site.**	Yes	Yes	

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
				2	**Circulation within base area and commuting patterns in impact area.**	No	No	Recommend adding commuting patterns to Section 9.2, Roads or Attachment N, Conceptual Transportation Plan and Haul Routes.
				3	**Capacities of arterial streets within impact area.**	No	No	Recommend addressing arterial streets within the impact area in Section 9.2, Roads or Attachment N, Conceptual Transportation Plan and Haul Routes.
				4	**Maintenance provisions and costs.**	Yes	Partially	Please address anticipated costs for road maintenance to Section 9.2, Roads.
			F		**Description of historical and archaeological resources**			
				1	**Describe historical and archeological sites by means of completing state inventory forms and submit these to the State Historical Society for Evaluation.**	Yes	Yes	A Class I Cultural and Paleontological Resources Assessment was performed.
				2	**Describe resources individually and as they relate to the community, include photos wherever possible.**	Yes	Yes	One resource is described (segment of historic-era US Highway 160).
		(x)			**Description of atmospheric conditions (impact area)**			
			A		**Meteorology (based on worst-case winter conditions)**			
				1	**Wind speed and direction.**	Yes	Partially	Please add wind direction to Section 6.3, Atmospheric Conditions
				2	**Inversion height.**	No	No	Please add inversion height to Section 6.3, Atmospheric Conditions
				3	**Atmospheric stability.**	No	No	Please add atmospheric stability to Section 6.3, Atmospheric Conditions
			B		**Topography**			
				1	**Describe general and outstanding topographic features in project area (maps and aerials).**	Yes	Partially	Please add a general topographical description in the narrative to accompany the map in Attachment E, Maps.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
			C		Background ambient air quality (TSP, SO2, HC, CO, Nox, O3, etc.)	Partially	Partially	Please add the acceptable range for each air quality parameter (TSP, SO2, etc.) and Alamosa County's current values of these pollutants to Section 6.3, Atmospheric Conditions.
	(b)				At the time of final application, applicants seeking a permit for the site selection and construction of transmission lines or substations shall submit, in addition to those requirements set forth in Subsection (a) of this Section, 5 copies of the following documents and information:			
		(i)			Description of geologic and pedologic conditions of base area			
			A		Map of Bedrock and surficial geology	Yes	Yes	
			B		Map and describe areas of:			
				1	Avalanches.	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.
				2	Mud flows and debris fans.	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.
				3	All types of unstable or potentially unstable slope.	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.
				4	Special seismic considerations.	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.
				5	Areas of high radioactivity.	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.
				6	Ground subsidence.	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
				7	**Expansive soil and rock.**	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.
				8	**Other geologic conditions which are pertinent.**	N/A	Consider a Waiver request	None of these conditions were mapped as "present" in Section 6.4, Site Geology.
			C		**Map extent of 100-year flood plain if present.**	Yes	Yes	
			D		**Map topography in adequate detail to determine adequacy of design.**	Yes	Yes	
			E		**Map and evaluate mineral and energy resources.**	Yes	Partially	Please add a discussion of energy resources to Section 12.1, Mineral and Energy Resources.
			F		**Map and evaluate agricultural resources.**	N/A	N/A	No current or historic agriculture is onsite.
		(ii)			**Description of biotic conditions (impact area)**			
			A		**Map plant communities.**	Yes	Yes	
				1	**Characteristics, quantity, productivity of plant types.**	Partially	Partially	Please add a discussion of characteristics, quantity, productivity of plant type to Section 6.5, Project Site Study and Analysis Overview. Align narrative summary of vegetation 20% ground cover species with Appendix I, Biotic and Aquatic Conditions report.
				2	**Endangered or threatened plant species.**	No	No	Please add a discussion of the presence or absence of endangered or threatened plants to Section 6.5, Project Site Study and Analysis Overview.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
				3	**Evidence of past disturbances and current indications of stages in ecological succession**.	No	No	Please add a discussion of past disturbances and indications of stages in ecological succession to Section 6.5, Project Site Study and Analysis Overview.
			B		**Wildlife (terrestrial)**			
				1	**Determine species present, seasonal occurrence, status, and relative importance**.	Yes	Yes	
				2	**Map distribution of species.**	N/A	N/A	Per the Biotic and Aquatic Conditions Report, wildlife species and habitats do not pose a constraint to the Project; therefore, no map is required.
				3	**Map biological features (migration routes, breeding grounds, etc.).**	No	No	Please add a map of biological features in Attachment E, Maps.
				4	**Identify species included on official federal or state list of endangered or threatened species**.	Yes	Yes	
				5	**Identify species that are unique in their Colorado distribution**.	No	No	Please add a discussion of the presence or absence of species that are unique in their Colorado distribution to Section 6.5, Project Site Study and Analysis Overview. Although a Colorado's Conservation Data Explorer (CODEX) report is listed as an acronym, there is no citation in the narrative for this reference. Consider generating a CODEX report for the Project area and a 1.0-mile buffer to inform species with likelihood to occur within and near the Project area. Attachment I also references "Appendix J" for the USFWS IPAC report but this is "Appendix I".
			C		**Wildlife (aquatic)**			
				1	**Identify species present.**	N/A	Consider a Waiver request	Grant waiver if the Project area does not contain streams, lakes, and reservoirs.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
				2	Map streams, lakes and reservoirs which provide or have potential for habitat.	Yes	Yes	
				3	Map biological features (spawning runs, spawning beds, etc.).	N/A	Consider a Waiver request	Grant waiver if the Project area does not contain streams, lakes, and reservoirs.
				4	Identify any endangered species (federal or state) or any which are unique in their Colorado distribution.	N/A	Consider a Waiver request	Grant waiver if the Project area does not contain streams, lakes, and reservoirs.
	(c)				At the time of final application, applicants seeking a permit for pipelines or storage areas shall submit, in addition to those requirements set forth in subsection (a) and (b) of this Section, 5 copies of the following documents and information:			
		(i)			Description of hydrologic conditions - surface (impact area)			
			A		Provide map of all surface water.	N/A	N/A	Applicable only for pipeline or storage permitting.
			B		Describe expected monthly streamflows for typical year, wet year, dry year (include 7 day-10 year low flows where sufficient data exists).	N/A	N/A	Applicable only for pipeline or storage permitting.
			C		Describe physical stream features (gradient, velocity, depth, etc.).	N/A	N/A	Applicable only for pipeline or storage permitting.
			D		Provide data on chemical and biological quality, including BOD, dissolved O2, free CO2, PH, TDS, ph-th alkalinity, MO alkalinity, NH4, heavy metals and other toxic or deleterious substances .	N/A	N/A	Applicable only for pipeline or storage permitting.
		(ii)			Description of hydrologic conditions - subsurface (impact area)			
			A		Map all aquifers that may be affected by project.	N/A	N/A	Applicable only for pipeline or storage permitting.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
			B		Provide tables, graphs, map showing permeability, transmissibility, thickness, volume, depth of aquifers.	N/A	N/A	Applicable only for pipeline or storage permitting.
			C		Describe geology of strata overlying aquifers including percolation rates, travel time to groundwater surface.	N/A	N/A	Applicable only for pipeline or storage permitting.
			D		Map of all wells using aquifers including diameter, flow rates.	N/A	N/A	Applicable only for pipeline or storage permitting.
	(d)				At the time of final application, applicants seeking a permit for the site selection and construction of a power plant shall submit, in addition to those requirements set forth in subsections (a), (b), and c of this Section, 5 copies of the following documents and information:			
		(i)			Map locating and describing resource areas to be utilized as sources of energy.	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
		(ii)			Description of water system proposed:			
			A		Source of supply, volume, and rate of flow at full development.	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
			B		Water rights owned or utilized.	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
			C		Proposed points of diversion and changes of points of diversion.	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
			D		Volume of stream flow to remain unused between points of diversion.	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
			E		Dependability of supply (physical and legal).	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
			F		Effects on downstream users.	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
		(iii)			Description of air pollution control measures.	N/A	N/A	Applicable only to permit for the site selection and construction of a power plant.
	(e)				At the time of final application, all applicants shall submit an analysis of impacts as follows:			

Table 1. Permitting Process and Requirements for a Solar PV Project							
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility							
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
		(i)			Summarize the major natural and socio-economic environmental constraints as they affect the site selection and construction of the facility as proposed.	Partially	No	Please address the natural and socioeconomic environmental constraints in Section 7.2, Socioeconomic Review and Section 9.0, Project Impacts and Mitigation.
		(ii)			Describe present utilization of land, water, air, biotic, geologic, and socio-economic resources within impact area as applicable to submission requirements.	No	No	Please add a description of current utilization of resources to Section 6.0, Site Description or Section 9.0, Project Impacts and Mitigation.
		(iii)			Describe alternative uses for these resources.	No	No	Please add a description of alternative uses of resources to Section 6.0, Site Description or Section 10.0, Alternatives Analysis.
		(iv)			Analyze effects of proposed site selection and construction upon the natural and socio-economic environment of the impact area as applicable to submission requirements.			
			A		Provide analysis of hydrologic, atmospheric, geologic, pedologic, biotic, visual and noise impacts.	Yes	Partially	Please add an analysis (if any) of geologic and pedologic impacts. If none, please state so in the narrative.
			B		Provide surface and subsurface drainage analysis.	Yes	Yes	
			C		Provide socioeconomic impact analysis.	Yes	Yes	
			D		Provide transportation impact analysis.	Yes	Partially	Please add a discussion of current traffic patterns for the Project area to Section 9.2, Roads.
			E		Provide analysis of impacts upon agricultural productivity and ag resources.	N/A	N/A	The Project area is not used for agriculture.
		(v)			Analyze long-term effects of the proposed site selection and construction upon the physical and socioeconomic development of the impact area.	Yes	Yes	Addressed throughout Sections 7.2, Socioeconomic Review and Section 9.0, Project Impacts and Mitigation.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
		(vi)			**Justify the proposed site selection and construction against the present and alternative uses of the resources in the impact area.**	Yes	Yes	Addressed throughout Section 9.0, Project Impacts and Mitigation.
		(vii)			**Describe a program to minimize and mitigate adverse impacts and to maximize the positive impacts of the proposed site selection and construction.**			
			A		**Analyze alternatives.**			
				1	**Alternative locations and routes.**	Yes	Partially	Please discuss alternative sites or routes that were considered for the Project in Section 10.0, Alternatives Analysis
				2	**Alternative types of facilities.**	No	No	Please discuss alternative facilities that were considered for the Project in Section 10.0, Alternatives Analysis.
				3	**Use of existing rights-of-way.**	No	No	Please discuss alternative ROWs that were considered for the Project (if any). The Conceptual Site Plan in Attachment N, Conceptual Transportation Plan and Haul Routes, shows an assumed ROW on County Road 116. This ROW is not discussed in the narrative.
				4	**Joint use of rights of way with other utilities.**	Yes	Yes	Section 10.1, Alternatives Analysis states that it is not anticipated that Project access will be shared with another utility or company during construction.
				5	**Upgrading of existing facilities.**	Yes	Yes	There are no existing facilities in the Project area per Section 10.1, Alternatives Analysis.
			B		**Analyze non-structural alternatives as applicable.**	N/A	Consider a Waiver request	Approve waiver if non-structural alternatives are not applicable.
				1	**Conservation of energy use.**	N/A	Consider a Waiver request	Approve waiver if non-structural alternatives are not applicable.

Table 1. Permitting Process and Requirements for a Solar PV Project								
HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility								
Code Reference					STEP : Final Application	Present in application?	Sufficient?	Suggested Action/ Notes
				2	**No development.**	N/A	Consider a Waiver request	Approve waiver if non-structural alternatives are not applicable.
			C		**Analyze management alternatives (i.e. development scheduling, training programs, facility design, land trades, etc.).**	Yes	Partially	Please add an analysis of management alternatives for development scheduling, training programs, facility design, land trades, etc. to Section 10.3, Management Alternative Analysis.
			D		**Analyze air and water pollution control alternatives.**	Yes	Partially	Please add an analysis of air and water pollution control alternatives to Section 5.2, Project Support Facilities.
			E		**Analyze design alternatives (access, landscaping, architectural controls).**	No	No	Please add an analysis of design alternatives (access, landscaping, architectural controls) to Section 10.0, Alternatives.
			F		**Submit a program to meet "front end" costs of providing necessary services and facilities.**	No	No	Please add Section 7.1.3 to the narrative as described in the Table on page 8 for discussion of capital investment and Project costs. This appears to be an omission in the application.
					Other Requirements or Permits Prior to Construction			
				1	**National Pollutant Discharge Elimination System (NPDES) Permit for storm water management from the CO. Dept. of Health and Environment.**	Yes	Yes	Stormwater Pollution Prevention Plan permit is anticipated.
				2	**Alamosa County Culvert and Access Permit.**	Yes	Yes	A CDOT access permit is anticipated for the north leg of CR-116.
				3	**Alamosa County Building Permit.**	Yes	Yes	Targeting Q4 2025- Q1 2026
				4	**Alamosa County ROW License for Transmission Lines.**	N/A	--	No new transmission line is planned for the Project. A distribution line will be part of the Project per Attachment B- Preliminary Application.

Reactivate
An Invenergy Company

August 21, 2025

Richard Hubler
Land Use Administrator
8999 Independence Way #100
Alamosa County, Colorado 81101

RE: 1041 Application Waiver Request for RDC CO Rd 116 LLC and RDC CO Stanley Rd LLC

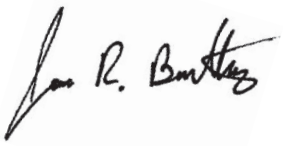
Richard,

Thank you for the County's comments on the 1041 Applications for RDC CO Rd 116 and RDC CO Stanley Rd LLC, dated August 18, 2025, and June 20, 2025, respectively.

At this time, Reactivate would like to formally request Waiver from specific code requirements, per the attached tables. Reactivate and its consultants will work expeditiously to address the balance of the County's comments within the respective 1041 Permit Applications for RDC CO Rd 116 LLC and RDC CO Stanley Rd LLC.

Regards,

James



James Bentley
2045 W Grande Ave, Ste B
Chicago, IL 60612-1577

Permitting Process and Requirements the a Solar PV Project

HB1041 Regulations Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility

SUBMISSION REQUIREMENT WAIVER CHECKLIST FOR SOLAR PV GENERATING FACILITIES.

Note to Applicant	For your Solar PV Generating Facility, the submission requirements marked as YES in Column A will be waived by the Board of County Commissioners on a consent agenda at a regular meeting. Your attendance at this meeting is not required.			
	If you wish to request that other submission requirements be waived, note those requirements in Column B. The Board of County Commissioners will rule on your request at a regular meeting and your attendance is required.	A	B	C

Code Citation					Submission Requirement	WAIVER TO BE APPROVED (by County)	Waiver Requested (by Applicant)	Waiver Granted (by County)	Notes
(1)					STEP 1: Preliminary Application				
	(a)				Application Form				
		(i)			A completed application form				
		(ii)			Description of proposed facility and site				
		(iii)			Description of present use and zoning				
			A		Location Map showing proposed site and clearly indicating the relationship of the site to the surrounding area within 50 miles from site				
			B		Type of facility: - specify where applicable				
				1	approximate floor space of office building				
				2	voltage and length of transmission line				
				3	power source and generating capacity				
				4	function and size of substation				
				5	diameter and length of pipeline	YES			
				6	capacity of storage tanks, and type of petroleum derivative to be storyed	YES			
				7	service area				
				8	resource area (e.g. source of power being generated or transmitted, source of petroleum derivative being transported)	YES			
			C		Proposed Development Schedule				
				1	Estimate max number of employees, number of shifts and employees per shift during the following phases: construction, operation and maintenance				
				2	Specify any future phases or extensions of the facility and relationship of the factility to larger programs and plans.				
				3	Specify timetable for planning (e.g. federal permits, state permits, local zoning, etc.)				
				4	Estimate beginning and completion of construction and beginning of operation of facility.				
				5	Describe support facilities (eg pollution control, parking areas, landscaping, etc.) to be provided				
				6	Describe any feasible "non-structural" alternatives to meet the objectives of the proposed site selection and construction				
			D		Hazards and emergency procedures				
				1	describe hazards, if any, of fire, explosion and other dangers to the health, safety and welfare of employees and the general public				
				2	describe hazards, if any, of environmental damage and contamination due to materials used at or activities taking place at the proposed facility.				
				3	Describe emergency procedures to be used in the event of fire, explosion or other event which may endanger the public health, safety and welfare				
				4	Describe any prevalent natural hazards that will affect or be affected by development, and describe mitigating measures to be taken to reduce danger due to such natural hazards				
(2)					STEP 2: Final Application				
	(a)				At the time of making final application, all applicants shall submit 5 copies of the following documents and information:				
		(i)			Delineation of Base Area (that area likely to be subject to land use changes as a result of the project)				
			A		Map of Base Area; describe how the determination was made.				
			B		Map of Special Districts (schools, fire, water sanitation, etc.) affected by the proposal.				

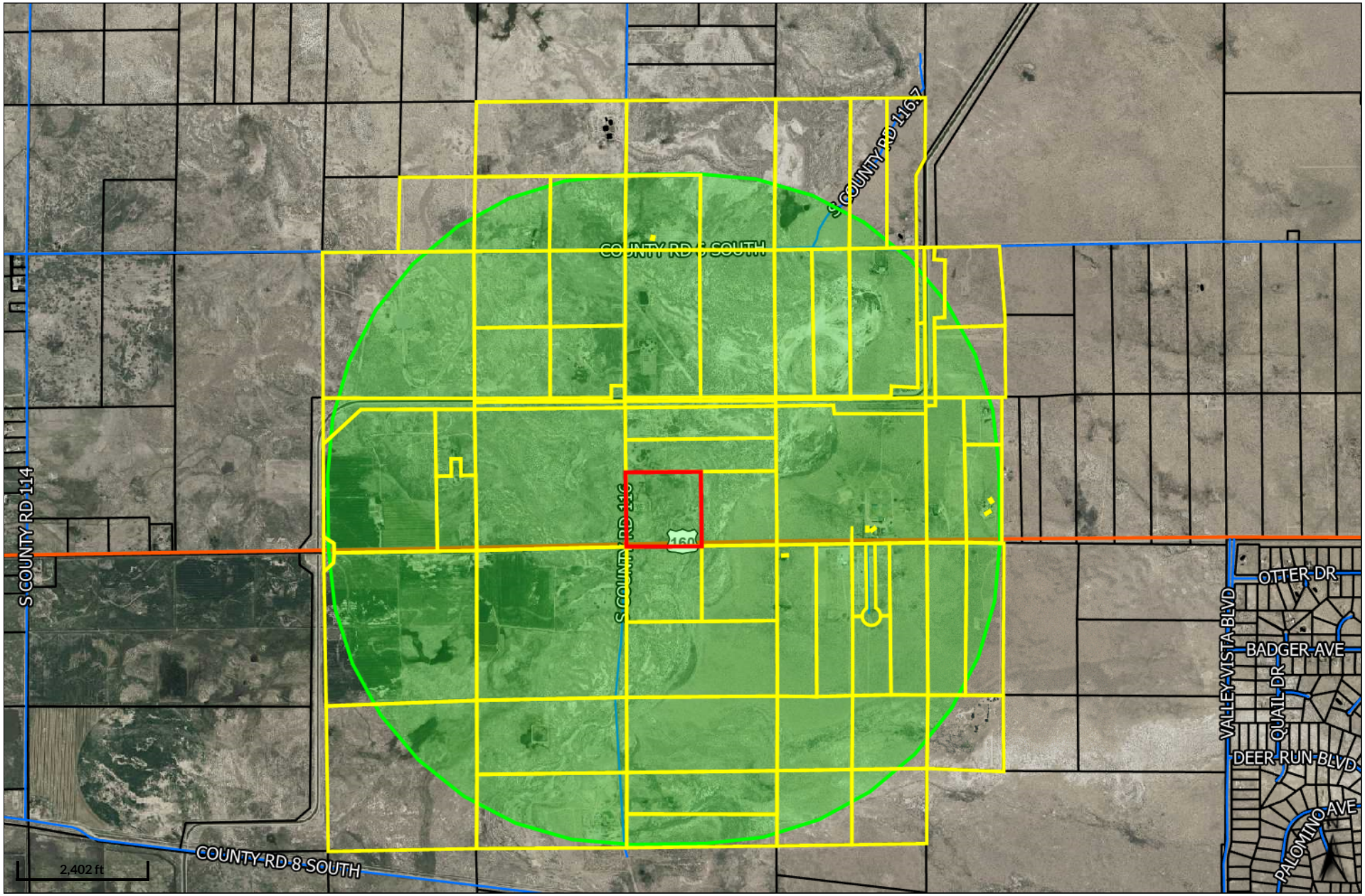
		(ii)			Delineation of impact area (that areas whose physical and socio-economic environment is likely to be impacted, beneficially and adversely, by the site selection and construction of the proposed facility)				
		(iii)			Objectives of the proposed site selection and facility				
			A		Describe the relationship of project to local land use policies and comprehensive plans and to policies and plans adopted or under preparation by federal, state and other affected local government agencies.				
			B		Describe the relationship of the project to other existing and planned utility facilities of similar nature, other communication or energy generation and transmission facilities, local government capital improvement programs, and special district expansion programs.				
		(iv)			Description of need for project				
			A		briefly describe why the public convenience and necessity require the facility of the size and nature proposed be constructed on the site proposed.				
			B		sources of demographic and economic data and method of anlysis				
			C		market function (ie. What user needs and patterns will project fulfill.)				
		(v)			Description of support facilities needed				
			A		Type of water quality control				
				1	Describe proposed sewage treatment facilities and nonpoint source controls.				
				2	describe pollutant loads (point and non-point sources) expected directly from development. Specify seasonal variations.		Yes		No point-sources anticipated; non-point sources described qualitatively
			B		Public services and facilities				
				1	Estimate police and fire protection requirements				
				2	Estimate public road maintenance requirements				
				3	Estimate educational and health services requirements				
				4	Estimate facilities and service required to provide adequate water supply and sewage treatment				
		(vi)			Description of employment and economic opportunities				
			A		Describe Capital Investment in facility				
			B		Estimate anticipated revenues to local, state and federal governments, special districts				
			C		Describe employment opportunities				
				1	Types of jobs and number of positions, wage, salary schedule				
				2	Opportunities for employment of local citizens				
				3	Employment opportunities for low income and minority populations				
		(vii)			Description of visual conditions (base area)				
			A		Map area within view of project				
			B		Map access and travel routes, public areas, residential areas that will have a view of the project				
		(viii)			Description of noise conditions(base area)				
			A		Desribe and map possible expected noise levels by immediate and future facility operations	YES			
		(ix)			Description of socio-economic environment (impact area)				
			A		Characteristics of the existing population				
				1	Age, income level and distribution, education, social background, family size, etc				
				2	Neighborhood and distinct socio-economic groups				
				3	Migrational trends and seasonal fluctuations				
				4	Anticipated population changes				
			B		Current employment				
				1	Principal employers, type, number of employees				
				2	Unemployment and under employment		Yes		Under-employment data difficult to ascertain
				3	Characteristics of local labor pool				
				4	Manpower training and retraining potential				
			C		Inventory local governments and special districts providing services in base area				
				1	Map jurisdiction and type of service				
				2	Capacity and utilization of services				
				3	Operating revenue and expenditures				
				4	Tax Base				
				5	Current level of taxation				
				6	Estimate revenue generating capacity and identify potential new sources of revenue				
			D		Housing				

				1	Current housing inventory				
				2	Projected housing requirements				
			E		Existing Transportation Network				
				1	Access to site				
				2	Circulation within base area and commuting patterns in impact area				
				3	Capacities of arterial streets within impact area				
				4	Maintenance provisions and costs				
			F		Description of historical and archaeological resources				
				1	Describe historical and archeological sites by means of completing state inventory forms and sumbit these to the State Historical Society for Evaluation				
				2	Describe resources individually and as the relate to the community, include photos wherever possible				
		(x)			Description of atmospheric conditions (impact area)	YES			
			A		Meteorology (based on worst-case winter conditions)	YES			
				1	Wind speed and direction	YES			
				2	Inversion height	YES			
				3	Atmospheric stability	YES			
			B		Topography	YES			
				1	Desribe general and outstanding topographic feature in project area (maps and aerials)	YES			
			C		Background ambient air quality (TSP, SO2, HC, CO, Nox, O3, etc.)	YES			
	(b)				At the time of final application, applicants seeking a permit for the site selection and construction of transmission lines or substations shall submit, in addition to those requirements set forth in Subsection (a) of this Section, 5 copies of the following documents and information:				
		(i)			Description of geologic and pedologic conditions of base area				
			A		Map of Bedrock and surficial geology	YES			
			B		Map and describe areas of:				
				1	Avalanches	YES			
				2	Mud flows and debris fans	YES			
				3	All types of unstable or potentially unstable slope	YES			
				4	Special seismic considerations	YES			
				5	Areas of high radioactivity	YES			
				6	Ground subsidence	YES			
				7	Expansive soil and rock	YES			
				8	Other geologic conditions which are pertinent	YES			
			C		Map extent of 100-year flood plain if present				
			D		Map topography in adequate detail to determine adequacy of design				
			E		Map and evaluate mineral and energy resources				
			F		Map and evaluate agricultural resources				
		(ii)			Description of biotic conditions (impact area)				
			A		Map plant communities				
				1	Characteristics, quantity, productivity of plant types				
				2	Endangered or threatened plant species				
				3	Evidence of past disturbances and current indications of stages in ecological succession				
			B		Wildlife (terrestial)				
				1	Determine species present, seasonal occurrence, status and relative importance				
				2	Map distribution of species				
				3	Map biological features (migration routes, breeding grounds, etc.)				
				4	Identify species included on official federal or state list of endangered or threatened species				
				5	Identify species that are unique in their Colorado distribution				
			C		Wildlife (acquatic)				
				1	Identify species present		Yes		project will not impact streams, lakes or reservoirs
				2	Map streams, lakes and reservoirs which provide or have potential for habitat				
				3	Map biological features (spawning runs, spawning beds, etc.)		Yes		project will not impact streams, lakes or reservoirs
				4	Identify any endangered species (federal or state) or any which are unique in their Colorado distribution.		Yes		project will not impact streams, lakes or reservoirs
	c				At the time of final application, applicants seeking a permit for pipelines or storage areas shall submit, in addition to those requirements set forth in subsection (a) and (b) of this Section, 5 copies of the following documents and information:	YES			

		(i)			Description of hydrologic conditions - surface (impact area)	YES			
			A		Provide map of all surface water	YES			
			B		Describe expected monthly streamflows for typical year, wet year, dry year (include 7 day-10 year low flows where sufficient data exists)	YES			
			C		Describe physical stream features (gradiant, velocity, depth, etc.)	YES			
			D		Provide data on chemical and biological quality, including BOD, dissoved O2, free CO2, PH, TDS, ph-th alkalinity, MO alkalinity, NH4, heavy metals and other toxic or deleterious substances.	YES			
		(ii)			Description of hydrologic conditions - subsurface (impact area)	YES			
			A		Map all aquifers that may be affected by project	YES			
			B		Provide tables, graphs, map showing permeability, transmissibility, thickness, volume, depth of aquifers.	YES			
			C		Describe geology of strata overlying aquifers including percolation rates, travel time to groundwater surface.	YES			
			D		Map of all wells using aquifers including diameter, flow rates.	YES			
	(d)				At the time of final application, applicants seeking a permit for the site selection and construction of a power plant shall submit, in addition to those requirements set forth in subsections (a), (b), and c of this Section, 5 copies of the following documents and information:				
		(i)			map locating and describing resource areas to be utilized as sources of energy	YES			
		(ii)			description of water system proposed:		Yes		
			A		Source of supply, volume and rate of flow at full development		Yes		
			B		Water rights owned or utilized		Yes		
			C		Proposed points of diversion and changes of points of diversion		Yes		
			D		Volume of stream flow to remain unused between points of diversion		Yes		
			E		Dependability of supply (physical and legal)		Yes		
			F		Effects on downstream users		Yes		
		(iii)			Description of air pollution control measures		Yes		
	(e)				At the time of final application, all applicants shall submit an analysis of impacts as follows:				
		(i)			Summarize the major natural and socio-economic environmental constraints as they affect the site selection and construction of the facility as proposed.				
		(ii)			Describe present utilization of land, water, air, biotic, geologic and socio-economic resources within impact area as applicable to submission requirements.				
		(iii)			describe alternative uses for these resources				
		(iv)			Analyze effects of proposed site selection and construction upon the natural and socio-economic environment of the impact area as applicable to submission requirements.				
			A		Provided analysis of hydrologic, atmospheric, geologic, pedologic, biotic, visual and noise impacts				
			B		Provide surface and subsurface drainage analyis				
			C		Provide socio-economic impact analysis				
			D		Provide transportation impact anlysis				
			E		Provide analysis of impacts upon agricultureal productivity and ag resources				
		(v)			Analyze long-term effects of the proposed site selection and construction upon the physical and socio-economic development of the impact area				
		(vi)			Justify the proposed site selection and construction against the present and alternative uses of the resources in the impact area				
		(vii)			Describe a program to minimize and mitigate adverse impacts and to maximize the positive impacts of the proposed site selection and construction.				
			A		Analyze alternatives				
				1	Alternative locations and routes				
				2	Alternative types of facilities				
				3	Use of existing rights-of-way				
				4	Joint use of rights of way with other utilities				
				5	Upgrading of existing facilities				

			B		Analyze non-structural alternatives as applicable		Yes		
				1	Conservation of energy use		Yes		
				2	No development		Yes		
			C		Analyze management alternatives (ie development scheduling, training programs, facility design, land trades, etc.)				
			D		Analyze air and water pollution control alternatives				
			E		Analyze design alternatives (access, landscaping, architectural controls)				
			F		Submit a program to meet "front end" costs of providing necessary services and facilities				
					Other Requirements or Permits prior to Construction				
				1	National Pollutant Disharge Elimination System (NPDES) Permit for storm water management from the CO. Dept. of Health and Environment				
				2	Alamosa County Culvert and Access Permit				
				3	Alamosa County Building Permit				
				4	Alamosa County ROW License for Transmission Lines		Yes		

RDC CO County Rd 116- 1 mile neighbors



ParcelId	OwnerName	OwnerAddress1	OwnerCityStZip	Country
528334400114 & 528334400267	HUBER ROBERT K, (BENEFICIARY DEED)	15703 CNTY ROAD 6 SOUTH	ALAMOSA CO 81101	
528335400343	ROCKCASTLE EUGENE & KERRY	321 BELL AVE	ALAMOSA CO 81101	
541501200167	GARDNER COLLIN &, GARDNER NANCY BENEFICIARY DEED	7196 RODEO LANE	ALAMOSA CO 81101	
541501300104	GETZ RHODA A	P O BOX 1746	ALAMOSA CO 81101	
541502100197	SHINER SHERICE LYNN	P O BOX 942	ALAMOSA CO 81101	
541502200203	STRANG JIM &, STRANG LISA	6344 S ROAD 116	ALAMOSA CO 81101	
541502300109	SANDOVAL MARICELA &, MORALES JOEL O RUBIO	6544 CNTY RD 116 SO	ALAMOSA CO 81101	
541502300118	GREEN COLLEEN	6620 CNTY RD 116 SO	ALAMOSA CO 81101	
541502300147	OUTMAN TIMOTHY JAMES	6860 COUNTY ROAD 116 SOUTH	ALAMOSA CO 81101	
541502300148 & 541511200169	CANO EVER &, CANO AMY LYNETTE	16500 E US HWY 160	ALAMOSA CO 81101	
541502400110, 931190001787 & 931190001788	FRANSEN GILBERT & BARBARA E	16855 E HWY 160	ALAMOSA CO 81101	
541503100198	GONZALES ZACHARY MICHAEL &, GONZALES ADA IMELDA	316 HANIVER STREET	ALAMOSA CO 81101	
541503100199	FRIESELL CHISTOPHER ELKIN, KELLY ASHLEY ANN	6393 COUNTY RD 116 SOUTH	ALAMOSA CO 81101	
541503300182 & 541510200103	ZIMMERMAN ROBERT E	15193 HWY 160	ALAMOSA CO 81101	
541503400113	BALLANCE TERRY L &, BALLANCE VIVIAN R	P O BOX 1104	ALAMOSA CO 81101	
541510100030	ZIMMERMAN TREVER DEAN &, ZIMMERMAN CAROLINE ANDREA	15548 E US HWY 160	ALAMOSA CO 81101	
541510300031 541510400032	ALLEN RYAN BLUE &, ALLEN JEANNIE	2137 COUNTY ROAD 12 SOUTH	ALAMOSA CO 81101	
541510400033	WEST GEOFFREY	7900 BACA LANE	ALAMOSA CO 81101	
541511100170	TECOLOTE MILAGRO TRUST, TRUSTEE ERVAN ZAMORA-MARTINEZ	16552 E HWY 160	ALAMOSA CO 81101	
541511400193	LANZONI MICHELLE	P O BOX 145	ALAMOSA CO 81101	
541512200036	VILLALOBOS EUSEBIO &, VILLALOBOS KATHRYN	17230 HWY 160	ALAMOSA CO 81101	
541512300102	BALDWIN TED E JR	17396 HWY 160 E	ALAMOSA CO 81101	
541523000014 & 541523000015	ROGERS JUSTIN & TRACY	15453 HWY 160 E	ALAMOSA CO 81101	
541523000016, 541523000017 & 541523000018	NORRIS MITCH	7240 BASE CAMP ROAD	ALAMOSA CO 81101	
541525100004	COULSON THOMAS M &, COULSON GENEVIEVE M	17395 A HWY 160 E	ALAMOSA CO 81101	
541525100005	SMITH JOANN &, COULSON THOMAS & GEORGE W	17395 A HWY 160 E	ALAMOSA CO 81101	
931190000510	COULSON GEORGE W	17395 A E HWY 160	ALAMOSA CO 81101	
931190001035	TECOLOTE MILAGRO TRUST	16552 E US HWY 160	ALAMOSA CO 81101	
931190001555	SMITH JOHN D & JOANN	17395 B E HWY 160	ALAMOSA CO 81101	
528335400342	CUSTER DANA M &, CUSTER LINDA	16951 CNTY RD 5 SOUTH	ALAMOSA CO 81101	
541501200164	ARMSTRONG ADRIAN MICHAEL &, ARMSTRONG ROICELYNN D	7520 MONTGOMERY BLVD NE, BLDG E12	ALBUQUERQUE NM 87109	
528335400259	ZHAO QUAN BEI	18305 E IDAHO PL	AURORA CO 80017	

RDC CO County Rd 116 LLC - 1 mile neighbor list

ParcelId	OwnerName	OwnerAddress1	OwnerCityStZip	Country
528334400013 & 528335300151	ARROYO RUFUS FUENTES &, ARROYO OLIVE MARGUERITE (ARROYO FAM	714 N FREDERIC	BURBANK CA 91505	
541511100122	MOUNTAIN COUNTRY INVESTMENTS LLC	P O BOX 20230	COLORADO CITY CO 81019	
541503100204 & 541503100205	TOMAS LUIS MATEO &, MATEO BETSABE	P O BOX 304	COLUSA CA 95932	
541511200077	NOLAND DAVID	P O BOX 662	FOUNTAIN CO 80817	
541512200037	LOVETT ROBERT J &, LOVETT RYAN J JR & LOVETT ROBERT J IV	P O BOX 344	HAMPTON BAYS NY 11946	
541511400194	SWISHER CHARLES &, ESTRADA JOY	5279 THIRD ROAD	LAKE WORTH FL 33467	
541511200157	ASHBY KENNETH SHON	3274 JERUSALEM ROAD	LEXINGTON NC 27292	
541502100184	ANDERSON JEROME G, (REVOCABLE TRUST)	P O BOX 156	MANASSA CO 81141	
528335300152 & 931190000700	FARRIS PATRICIA L &, SCHWULST SHEILA K & TOWNSEND TAMERA L	565 EAST COUNTY RD 1 SOUTH	MONTE VISTA CO 81144	
541511300158 & 541511400153	VILLALOBOS RAMON &, VILLALOBOS GABRIELA	1517 SUBLETTE ST	ROCKS SPRINGS WY 82901	
541502200154	BRYANT EDWARD J &, KOOP PETER J	613 MAPLE	ROCKY FORD CO 81067	
528334300143	ANDERSON ROBERT R &, ANDERSON MICHAEL J	11333 BLOOMFIELD DR	S INDIANOPOLIS IN 46259	
541511100076 & 541511400152	GONZALEZ JUAN DE DIOS, GONZALEZ GUILLERMINA	10184 VINE COURT	THORNTON CO 80229	
541502100183	SHIVELEY ERIC C	10391 E THUNDERBOLT DR	TUCSON AZ 85748	
541511300081 & 541511300085	THOMSON PATRICK	7 NOURSE CLOSE	WOODEATEN OXFORD 0X3 9TJ UK XX 00000	

PUBLIC NOTICE

LAND USE OFFICE • 8999 INDEPENDENCE WAY #100 • ALAMOSA, CO 81101
EMAIL: LANDUSE@ALAMOSACOUNTY.ORG • PHONE: 719-589-3812

August 22, 2025

ROCKCASTLE EUGENE & KERRY
321 BELL AVE
ALAMOSA CO 81101

Dear Property Owner(s) of parcel: 528335400343

This letter is to notify you that Reactivate CO Development LLC, has submitted an application to construct and operate a 3.9 MW solar PV generation facility near you.

The Applicant is proposing to develop the RDC CO County Rd 116 LLC Community Solar Energy Facility on approximately 20 acres north of US Highway 160 adjacent to County Rd 116. The back of this letter has an image of the project area, which is a portion of parcel 541502300147.

> The legal description of the property is: The Southwest Quarter of the Southwest Quarter (SW1/4SW1/4) of Section 2, Township 37 North, Range 11 East, N.M.P.M., County of Alamosa, State of Colorado.

The applicant has requested a waiver to certain submittal requirements, which will be heard by the Alamosa County Board of Commissioners during their regular meeting on Wednesday, September 24, 2025, beginning at 8:30am in the Commission Chambers at 8900 Independence Way.

As a neighboring property owner, you are encouraged to participate in the public hearing. This meeting offers an opportunity for public comments, and you are able to attend in person or via Zoom Meeting ID 270-314-6874 https://zoom.us/j/2703146874 or call in 719-359-4580 and use Meeting ID# 270-314-6874.

Details regarding this application are available for public inspection in the Alamosa County Land Use Office at 8999 Independence Way Suite 100 during regular office hours. The full application can be accessed online at https://www.alamosacounty.org/DocumentCenter/Index/243 Questions or comments can be addressed to my office or by email to rhubler@alamosacounty.org.

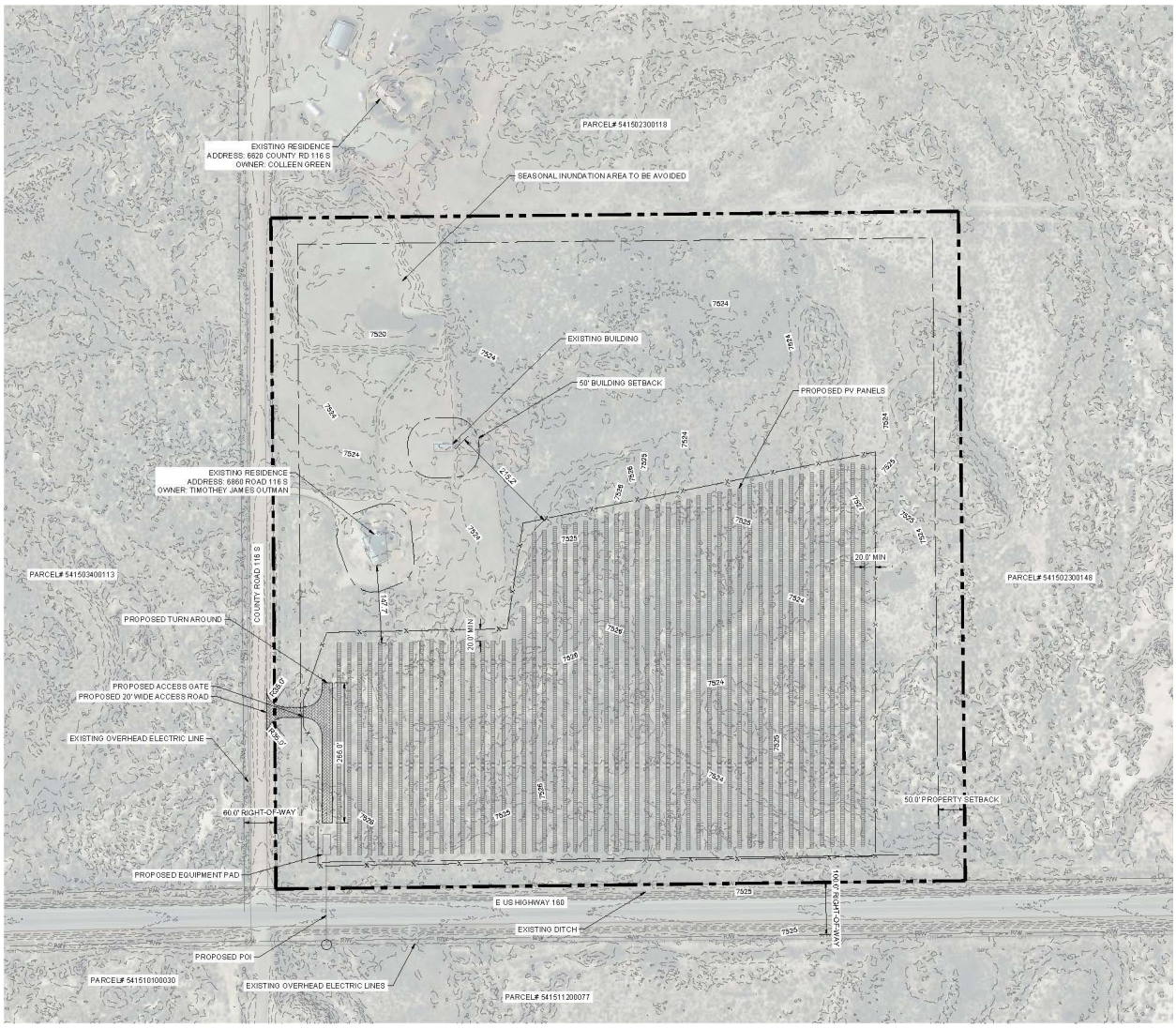
Sincerely,

Richard Hubler

Richard Hubler
Land Use Administrator

RDC CO COUNTY ROAD 116

SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 37 NORTH, RANGE 11 EAST, N.M.P.M., COUNTY OF ALAMOSA, STATE OF COLORADO



ALAMOSA COUNTY NOTICE OF PUBLIC HEARING – RDC CO COUNTY RD 116 1041 SUBMISSION WAIVER REQUEST

NOTICE IS HEREBY GIVEN that a Public Hearing will be held during the Alamosa Board of County Commissioners Regular Meeting on **Wednesday, September 24, 2024** beginning at 8:30 AM, in the Alamosa County Services Center, 8900 Independence Way, Alamosa, Colorado. The purpose of this Public Hearing is to consider a petition to waive certain submission requirements related to an application by Reactivate CO Development LLC to permit the site selection and construction of the RDC CO County Rd 116 LLC Community Solar Energy Facility, a 3.9 MW solar PV generation facility on property identified as parcels 541502300147. This activity is regulated by Alamosa County HB1041 Regulations, Chapter 6: Regulations for Site Selection and Construction of Major Facilities of a Public Utility.

The legal description of the property is: The Southwest Quarter of the Southwest Quarter (SW1/4SW1/4) of Section 2, Township 37 North, Range 11 East, N.M.P.M., County of Alamosa, State of Colorado.

Details regarding this application are available for public inspection in the Alamosa County Land Use Office at 8999 Independence Way Suite 100 during regular office hours. Questions can be addressed to Richard Hubler at 719-589-3812 extension 1541 or by email to rhubler@alamosacounty.org.

Richard Hubler
Land Use Administrator
Alamosa County

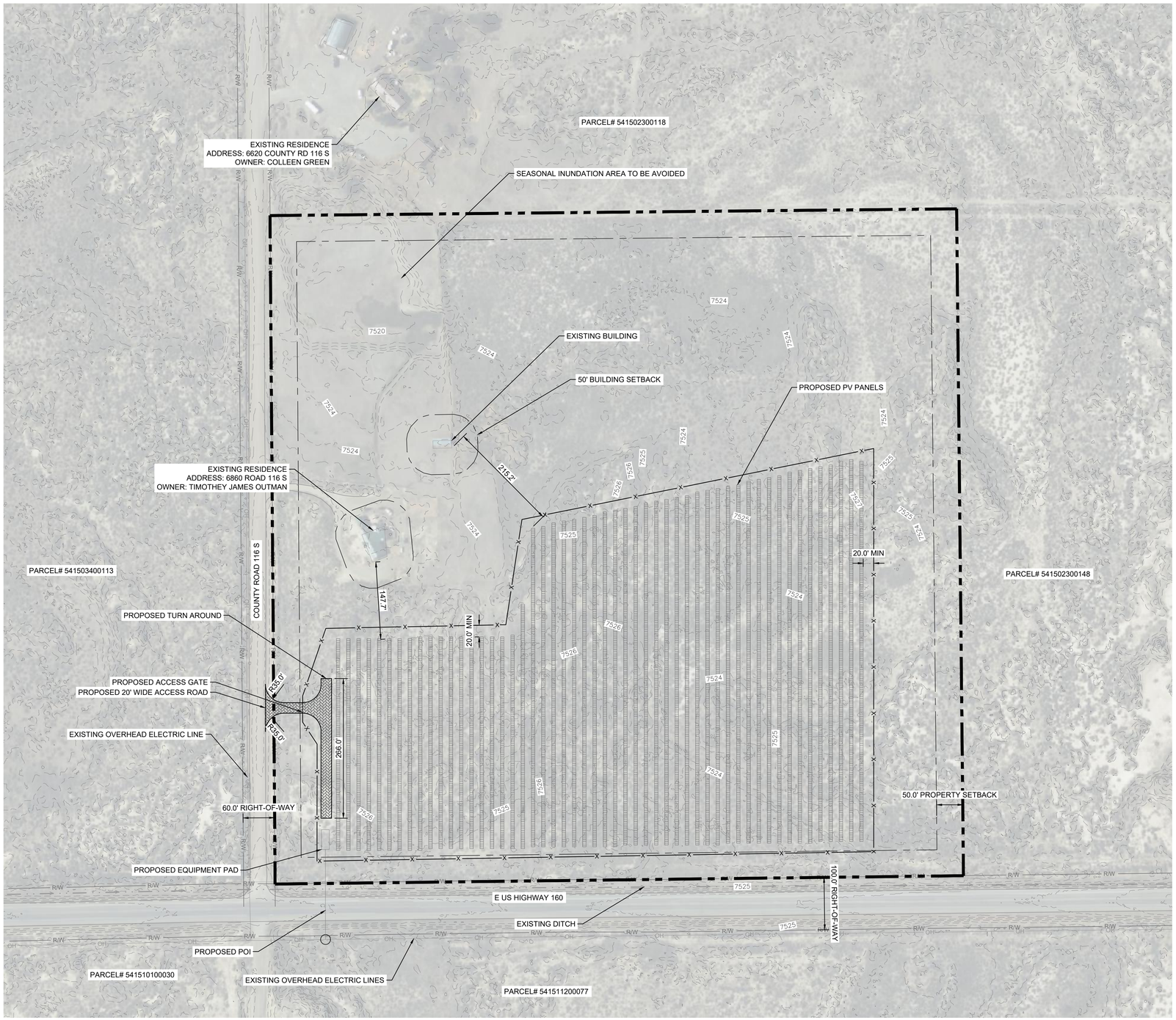
Published in the Valley Courier August 23, 2025

Attachment C:

Preliminary Site Plan

RDC CO COUNTY ROAD 116

SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 37 NORTH, RANGE 11 EAST, N.M.P.M., COUNTY OF ALAMOSA, STATE OF COLORADO



GRAPHIC SCALE IN FEET
0 50 100 200

LEGEND

- SETBACK LINE
- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- PROPOSED FENCE
- EXISTING FENCE
- PROPOSED ELECTRIC
- PROPOSED OVERHEAD ELECTRIC
- EXISTING OVERHEAD ELECTRIC
- PROPOSED SOLAR PANEL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED GRAVEL ACCESS ROAD

SITE STATISTICS	
PARCEL NUMBER	541502300147
PROPERTY OWNER	TIMOTHY JAMES OUTMAN
SITE ADDRESS	6860 COUNTY ROAD 116 S
ZONING	ALAMOSA COUNTY RU
PROPOSED USE	3.90 MWAC PHOTOVOLTAIC SOLAR ENERGY GENERATION FACILITY
PARCEL AREA	40.0 ACRES
PRELIMINARY FENCED AREA	14.9 ACRES
PROPERTY SETBACK	50FT
GROUND COVERAGE RATIO	33%

NOTES

1. THE PURPOSE OF THIS PLAN IS FOR REVIEW AND APPROVAL BY ALAMOSA COUNTY TO CONSTRUCT A SOLAR ENERGY SYSTEM.
2. THIS PLAN WAS PRODUCED UTILIZING GIS RESOURCES AND INFORMATION FROM MULTIPLE SOURCES, INCLUDING DATA PROVIDED BY REACTIVATE SOLAR, GOOGLE EARTH, AND USGS TOPOGRAPHIC INFORMATION.
3. THE LOCATIONS OF PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCING, SOLAR ARRAY RACKING, INVERTER/TRANSFORMER PADS, OVERHEAD POLES AND LINES, ETC., SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MODIFICATION DUE TO SITE CONDITIONS, ADDITIONAL PERMITTING REQUIREMENTS, EQUIPMENT SPECIFICATIONS, AND/OR OTHER CONSTRAINTS DURING FINAL ENGINEERING.
4. PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS TO THE BEST EXTENT POSSIBLE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH GRAVEL. SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
5. ALL DIMENSIONS SHOWN ARE AT 90 DEGREES UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. ADDITIONALLY, CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES.
7. CONTRACTOR SHALL MAINTAIN ACCESS AND UTILITY SERVICES TO ANY REMAINING BUILDING(S) OR ADJACENT BUILDING(S) THROUGHOUT THE DEMOLITION AND CONSTRUCTION PHASES. EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/RESTORED TO THE SATISFACTION OF THE OWNER BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
8. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO PROVIDE SIGNS, BARRICADES, WARNING LIGHTS, GUARD RAILS, AND EMPLOY FLAGGERS AS NECESSARY WHEN CONSTRUCTION ENDANGERS EITHER VEHICULAR OR PEDESTRIAN TRAFFIC. THESE DEVICES SHALL REMAIN IN PLACE UNTIL THE TRAFFIC MAY PROCEED NORMALLY AGAIN.
9. SITE WILL NOT INCLUDE WATER SOURCE OR SEWAGE DISPOSAL.
10. STORMWATER MANAGEMENT FACILITIES TO BE PROVIDED AS REQUIRED BY COUNTY AND/OR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITTING. REQUIREMENTS TO BE DETERMINED DURING FINAL ENGINEERING.
11. SOLAR PANELS WILL BE DESIGNED WITH ANTI-REFLECTIVE COATING TO MINIMIZE GLARE.
12. THERE SHALL BE NO EXTERIOR LIGHTING.
13. ALL NECESSARY PERMITS FOR SOIL EROSION CONTROL AND DRIVEWAY CONSTRUCTION WILL BE OBTAINED AS PART OF FINAL ENGINEERING AND PRIOR TO CONSTRUCTION.
14. INTERCONNECT LINE FOR INFORMATIONAL USE ONLY.
15. FINAL GRADES ARE ANTICIPATED TO MATCH INITIAL GRADES.
16. MAXIMUM HEIGHT OF THE PV PANELS AT FULL TILT (15') AND THE MAXIMUM FENCE HEIGHT (8').

DEVELOPER INFORMATION

CONTACT: JAMES BENTLEY
CONTACT PHONE NUMBER: 1-806-584-5846
CONTACT EMAIL: BENTLEY@REACTIVATE.COM

No.	REVISIONS	DATE

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
WWW.KIMLEY-HORN.COM

PRELIMINARY NOT FOR CONSTRUCTION

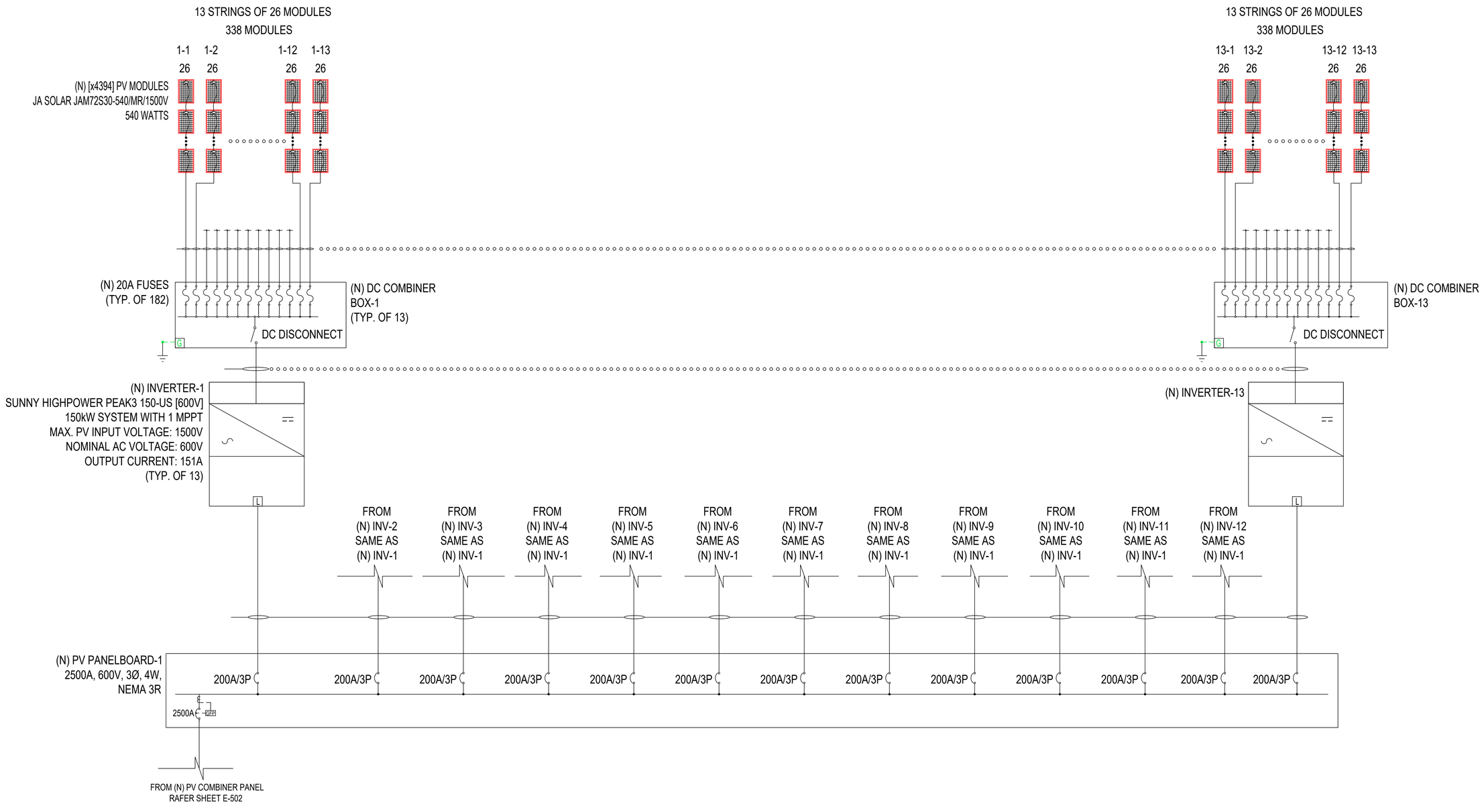
KHA PROJECT		
DATE	05/22/2025	
SCALE	AS SHOWN	
DESIGNED BY	TL	
DRAWN BY	TL	
CHECKED BY	AJH	

SITE PLAN

RDC CO COUNTY RD 116
ALAMOSA COUNTY, CO

SHEET NUMBER
1 OF 1

SYSTEM INFO: 4.68MWDC / 3.90MWAC		
		QUANTITY
MODULE MAKE & MODEL	JA SOLAR JAM72S30-540/MR/1500V (540W)	8658
INVERTER MAKE & MODEL	SUNNY HIGHPOWER PEAK3 150-US [600V] (150kW)	26



01 SINGLE LINE DIAGRAM-1
NOT TO SCALE

PREPARED BY
ENSIGHT ENERGY CONSULTING
1245 CHAMPA ST. DENVER,
CO 80204
PH: (720) 648-6554

PREPARED FOR
Reactivate
2045 W Grand Ave Ste B
PMB 52340
Chicago, IL 60612

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 4.68MWDC / 3.90MWAC

RDC CO COUNTY RD 116

6860 BACA LN,
ALAMOSA, CO 81101
APN: 541502300147

ENGINEER OF RECORD

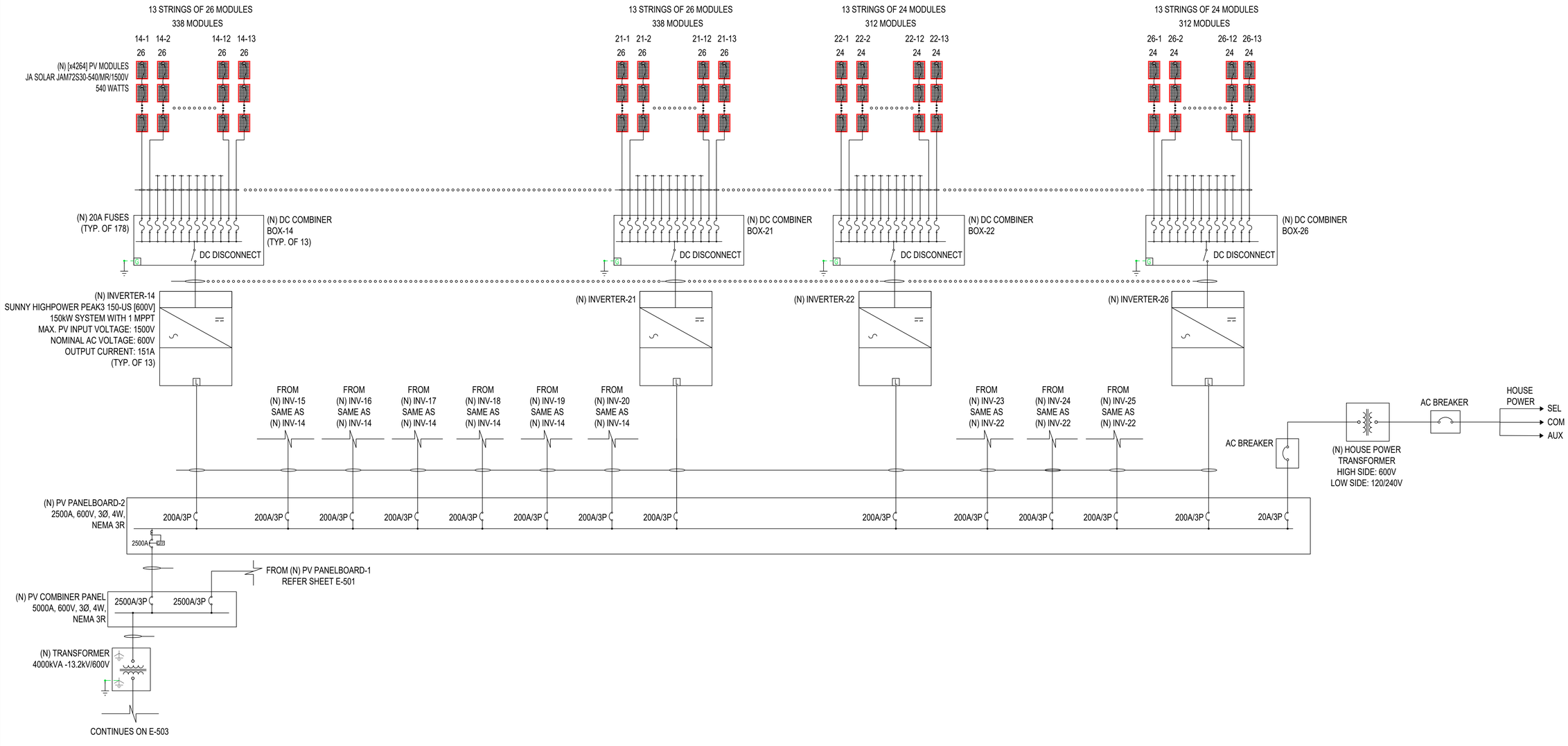
PRELIMINARY NOT FOR CONSTRUCTION

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:
SINGLE LINE DIAGRAM-1
(SHEET 1)

DATE: 1.15.2025
DESIGN BY: M.D.
CHECKED BY: A.N.
SHEET NUMBER:
E-501.00

SYSTEM INFO: 4.68MWDC / 3.90MWAC		
		QUANTITY
MODULE MAKE & MODEL	JA SOLAR JAM72S30-540/MR/1500V (540W)	8658
INVERTER MAKE & MODEL	SUNNY HIGHPOWER PEAK3 150-US [600V] (150kW)	26



01 SINGLE LINE DIAGRAM-2
NOT TO SCALE

PREPARED BY

ENSIGHT ENERGY CONSULTING

1245 CHAMPA ST. DENVER,
CO 80204
PH: (720) 648-6554

PREPARED FOR

Reactivate

2045 W Grand Ave Ste B
PMB 52340
Chicago, IL 60612

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 4.68MWDC / 3.90MWAC

RDC CO COUNTY RD 116

6860 BACA LN,
ALAMOSA, CO 81101
APN: 541502300147

ENGINEER OF RECORD

PRELIMINARY NOT FOR CONSTRUCTION

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

SINGLE LINE DIAGRAM-2

(SHEET 2)

DATE: 1.15.2025

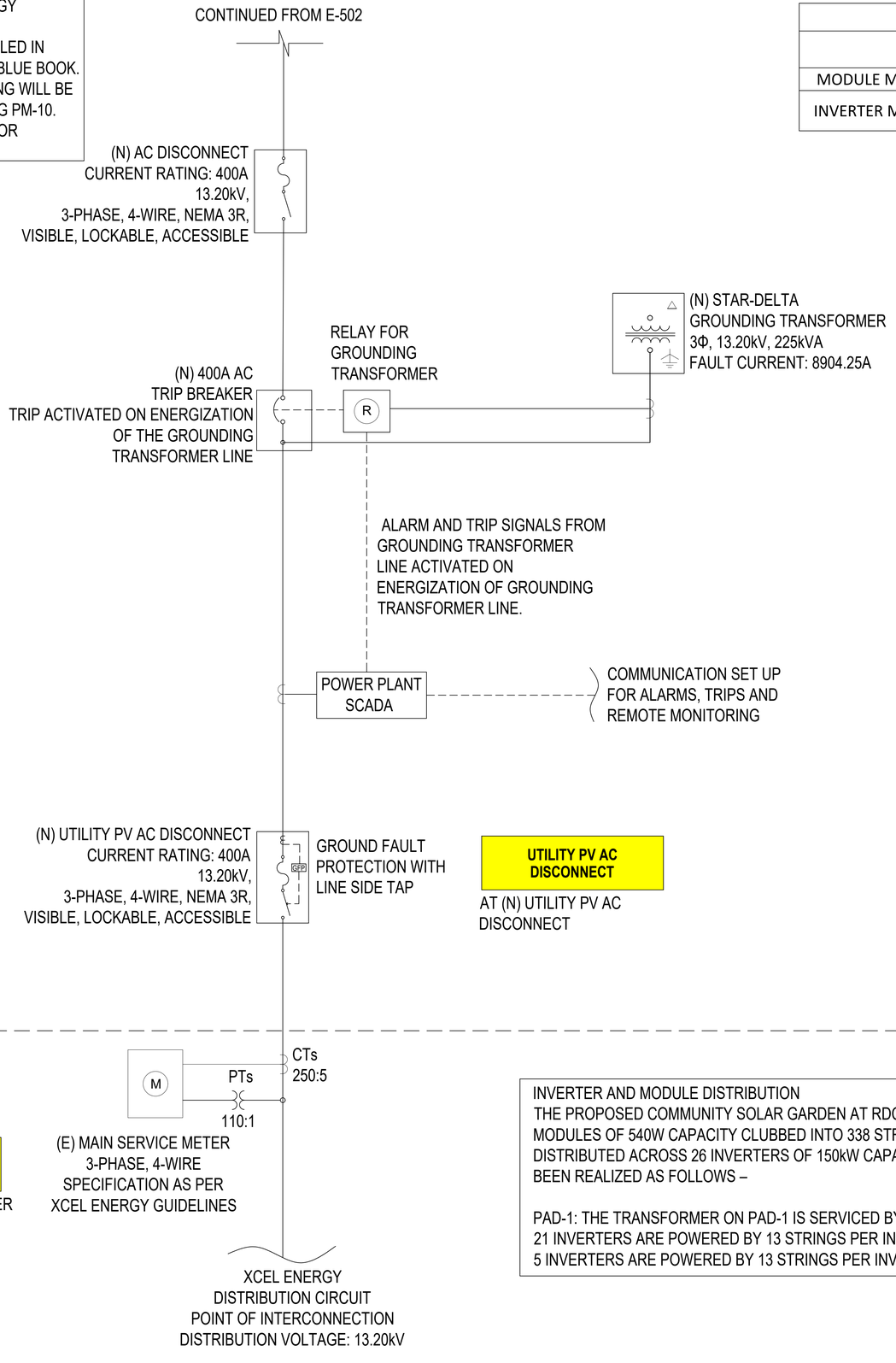
DESIGN BY: M.D.

CHECKED BY: A.N.

SHEET NUMBER:

E-502.00

NOTES (IN ACCORDANCE WITH XCEL ENERGY TECHNICAL REQUIREMENTS FOR DERs):
1. THE PRIMARY METERING WILL BE INSTALLED IN ACCORDANCE WITH SECTION 4.13 OF THE BLUE BOOK.
2. COMPANY-OWNED OH PRIMARY METERING WILL BE INSTALLED IN ACCORDANCE WITH DRAWING PM-10.
3. REFERENCE SECTIONS 4.10.7 AND 4.12 FOR TRANSFORMER-RATED METERING.



SYSTEM INFO: 4.68MWDC / 3.90MWAC		
		QUANTITY
MODULE MAKE & MODEL	JA SOLAR JAM72S30-540/MR/1500V (540W)	8658
INVERTER MAKE & MODEL	SUNNY HIGHPOWER PEAK3 150-US [600V] (150kW)	26

GENERAL NOTES

ELECTRICAL OUTPUT
DC NAMEPLATE CAPACITY: 4.68 MW-DC
AC NAMEPLATE CAPACITY: 3.90 MW-AC
DC TO AC RATIO: 1.198
DC SYSTEM VOLTAGE: 1500V

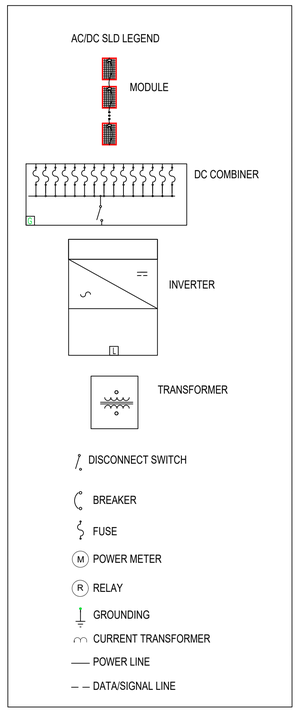
MAJOR EQUIPMENT
MODULE QUANTITY: 8,658
MODULE SPECIFICATION: JAM72S30-540/MR OR SIMILAR
INVERTER QUANTITY: 26
INVERTER MODEL: SUNNY HIGHPOWER PEAK3 150-US OR SIMILAR
INVERTER SPECIFICATION: 600V-AC OUTPUT. 3-Phase (Φ).
INVERTER CERTIFICATION: UL 62109, UL 1998, IEEE 1547, UL 1741

SITE LOCATION
LOCATION: RDC CO COUNTY RD 116
ADDRESS: 6860 BACA LN, ALAMOSA, CO 81101

INTERCONNECTION DETAILS
INTERCONNECTION UTILITY: XCEL ENERGY
INTECONNCTION VOLTAGE: 13.20kV

INVERTER AND MODULE DISTRIBUTION
THE PROPOSED COMMUNITY SOLAR GARDEN AT RDC CO COUNTY RD 116 HAS 8,658 MODULES OF 540W CAPACITY CLUBBED INTO 338 STRINGS, WHICH ARE FURTHER DISTRIBUTED ACROSS 26 INVERTERS OF 150kW CAPACITY EACH. THIS DISTRIBUTION HAS BEEN REALIZED AS FOLLOWS –

PAD-1: THE TRANSFORMER ON PAD-1 IS SERVICED BY 26 INVERTERS. OUT OF THESE 26 INVERTERS, 21 INVERTERS ARE POWERED BY 13 STRINGS PER INVERTER AND 26 MODULES PER STRING.
5 INVERTERS ARE POWERED BY 13 STRINGS PER INVERTER AND 24 MODULES PER STRING.



01 SINGLE LINE DIAGRAM-3
NOT TO SCALE

PREPARED BY
ENSIGHT ENERGY CONSULTING
1245 CHAMPA ST. DENVER, CO 80204
PH: (720) 648-6554

PREPARED FOR
Reactivate
2045 W Grand Ave Ste B
PMB 52340
Chicago, IL 60612

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 4.68MWDC / 3.90MWAC

RDC CO COUNTY RD 116

6860 BACA LN,
ALAMOSA, CO 81101
APN: 541502300147

ENGINEER OF RECORD

PRELIMINARY NOT FOR CONSTRUCTION

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:
SINGLE LINE DIAGRAM-3
(SHEET 2)

DATE: 1.15.2025
DESIGN BY: M.D.
CHECKED BY: A.N.
SHEET NUMBER:
E-503.00

PLANT SUMMARY

1. AC LV CIRCUITS SHALL BE INSTALLED AND INTERCONNECTED WITH XCEL ENERGY, PER XCEL ENERGY SPECIFICATIONS.
2. PV PROJECT SHALL BE INTERCONNECTED/INSTALLED AT APPROVED SECONDARY SERVICE (TO BE DETERMINED PER XCEL ENERGY STUDIES).
3. INSTALLATION TO COMPLY WITH THE VERSION OF THE NEC IN FORCE AT THE TIME OF DESIGN.
4. THE NATIONAL ELECTRICAL CODE SHALL BE THE GOVERNING DOCUMENT ON THE CUSTOMER'S SIDE OF THE UTILITY METER.
5. ALL DC AND AC EQUIPMENT, WHERE APPLICABLE, SHALL BE LISTED AND LABELED PER RECOGNIZED ELECTRICAL TESTING LABORATORY AND INSTALLED PER THE LISTING REQUIREMENTS AND THE MANUFACTURER'S INSTRUCTIONS.
6. LABELS SHALL BE PERMANENTLY MOUNTED ON THE FACE OF THE EQUIPMENT. LABELS SHALL BE REFLECTIVE, AND MEET THE STANDARDS OF THE NEC, ESPECIALLY ARTICLE 690.
7. MAIN SERVICE METER PROVIDED BY XCEL ENERGY. INSTALLED BY CONTRACTOR (METERS LOCATED WITHIN 10 FT.)
8. CT'S PROVIDED BY XCEL ENERGY, INSTALLED BY CONTRACTOR.
9. YELLOW PLACARD WITH BLACK LETTERING DEPICTING THE FOLLOWING - "PHOTOVOLTAIC SYSTEM CONNECTED" WILL BE PROVIDED AT THE MAIN SERVICE METER.
10. THE METER COLLAR ADAPTOR MANUFACTURER NAME AND MODEL NUMBER, APPROVED TYPE FOR PSCO, WILL BE LISTED IN THE ONLINE PORTAL AT THE TIME INTERCONNECTION APPLICATION.
11. CUSTOMER DISCONNECTING MEANS SHALL BE LOCATED "DOWN STREAM" OF THE MAIN SERVICE METER (OPENING DISCONNECT WILL NOT DE-ENERGIZE THE METER). CUSTOMER SHALL INSTALL UTILITY-SUPPLIED METER SOCKET AND INSTRUMENT TRANSFORMERS. CUSTOMER SHALL SUPPLY, OWN, INSTALL, AND MAINTAIN INSTRUMENT TRANSFORMER CABINET.
12. YELLOW PLACARD WITH BLACK LETTERING DEPICTING THE FOLLOWING - "UTILITY PV AC DISCONNECT" WILL BE PROVIDED AT THE UTILITY PV AC DISCONNECT.
13. UTILITY ACCESS TO AC DISCONNECT WILL BE ACCOMMODATED WITH AN ACCESS KEY LOCATED IN A LOCKBOX (LOCATION PLACARDED IN AN AGREED TO UTILITY ACCESSIBLE AREA) SECURED WITH A UTILITY LOCK.
14. REFERENCE POINT OF APPLICABILITY (RPA) IS TO BE LOCATED AT THE CUSTOMER SIDE OF THE UTILITY AC DISCONNECT INDICATING THIS LOCATION AS “RPA FOR WITNESS TEST” WHERE MEASUREMENTS WILL BE TAKEN
15. GROUNDING TRANSFORMER TO BE SPECIFIED AS PER XCEL ENERGY STANDARDS AND PROVIDED WITH LINE VOLTAGE, SYSTEM IMPEDANCE AND FAULT CURRENTS AT POINT OF INTERCONNECTION. SEE GROUNDING TRANSFORMER CALCULATIONS. THE GROUND REFERENCING TRANSFORMER SHALL BE OPERATED AND MAINTAINED TO XCEL ENERGY STANDARDS AND INTERCONNECTION AGREEMENT.
16. LOSS OF GROUND REFERENCING EQUIPMENT SHALL IMMEDIATELY TRIP THE DER SYSTEM OFFLINE
17. SECONDARY FUSES AND BREAKERS TO BE COORDINATED WITH UTILITY TRANSFORMER'S PRIMARY SIDE FUSE.
18. ESTIMATED DEMAND WHEN NOT GENERATING: 5 KVA FOR HOUSE POWER AND INVERTER STANDBY POWER.

GROUNDING TRANSFORMER CALCULATION		
PARAMETER	DESCRIPTION	UNITS
TRANSFORMER TYPE	STAR DELTA TRANSFORMER	TYPE
TRANSFORMER PRIMARY VOLTAGE	13.2	kV
POWER PLANT RATING	4	MVA
ZBASE (BASE IMPEDANCE)	43.56	Ohm
XDG (ZERO SEQUENCE REACTANCE) 0.6 P.U. +/- 10%	26.136	Ohm
Xo/Ro (ASSUMED)	4	Ohm
Ro	6.534	Ohm
IBASE (BASE CURRENT)	174.9597593	A
Io,P.U. (PER UNIT ZERO SEQUENCE CURRENT)	0.066666667	A
Io (ZERO SEQUENCE CURRENT)	11.66398395	A
INCR (NEUTRAL CURRENT RATING)	34.99195185	A
%Z (WYE-GROUND DELTA TRANSFORMER % IMPEDANCE)	6%	%
POWER FACTOR	0.98	
GRID IMPEDANCE ASSUMED: %ZGRID	2.005	%
I5-SEC (5 SECOND FAULT WITHSTAND CURRENT RATING)	8904.257685	A
GROUNDING TRANSFORMER SIZE	203.5727009	kVA
SELECT NEXT SIZE	225	kVA

PREPARED BY
ENSIGHT ENERGY CONSULTING
1245 CHAMPA ST. DENVER, CO 80204
PH: (720) 648-6554

PREPARED FOR
Reactivate
2045 W Grand Ave Ste B
PMB 52340
Chicago, IL 60612

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 4.68MWDC / 3.90MWAC

RDC CO COUNTY RD 116

6860 BACA LN,
ALAMOSA, CO 81101
APN: 541502300147

ENGINEER OF RECORD

PRELIMINARY NOT FOR CONSTRUCTION

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:
PLANT SUMMARY
(SHEET 4)

DATE: 1.15.2025
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CHECKED BY: A.N.
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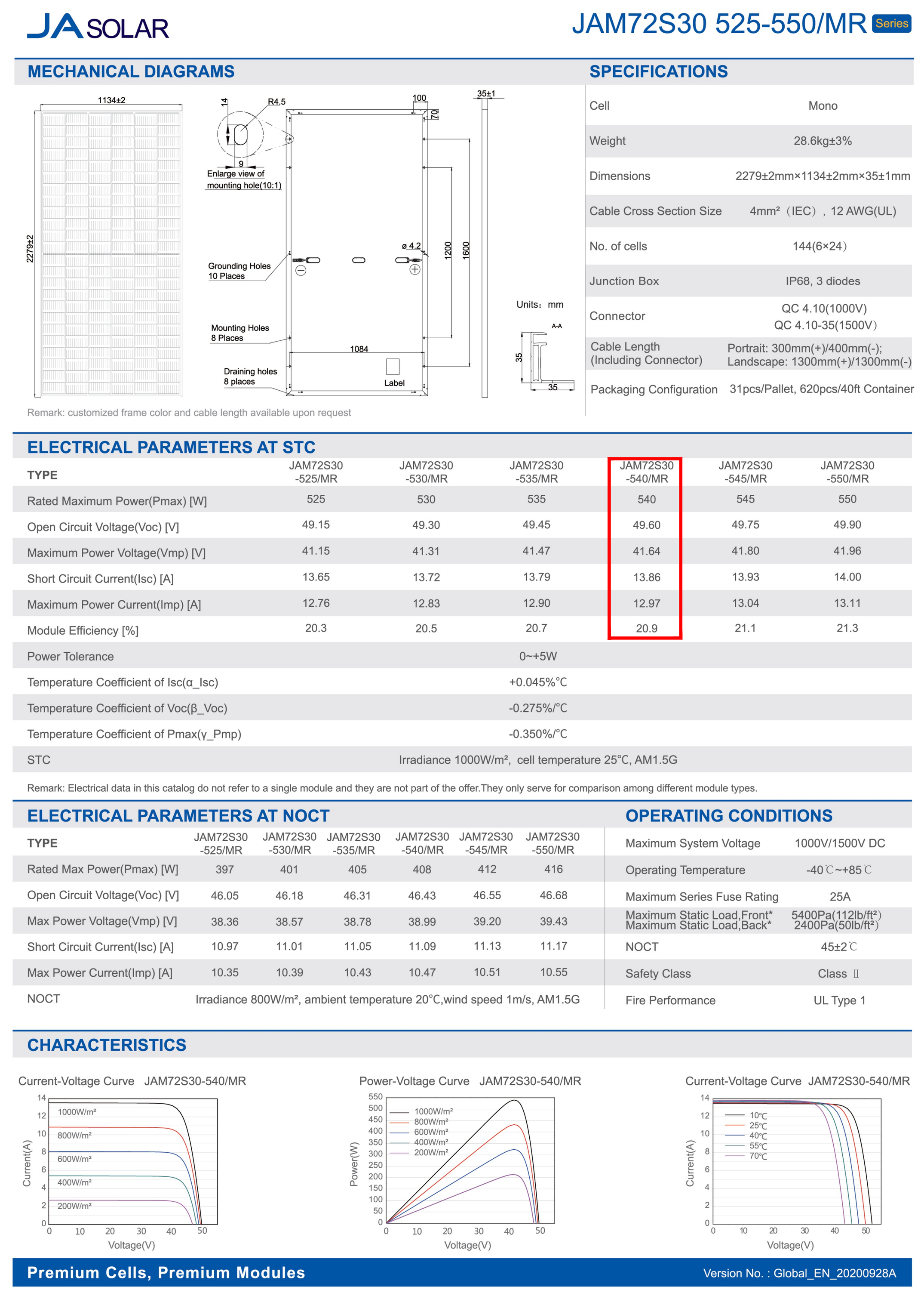
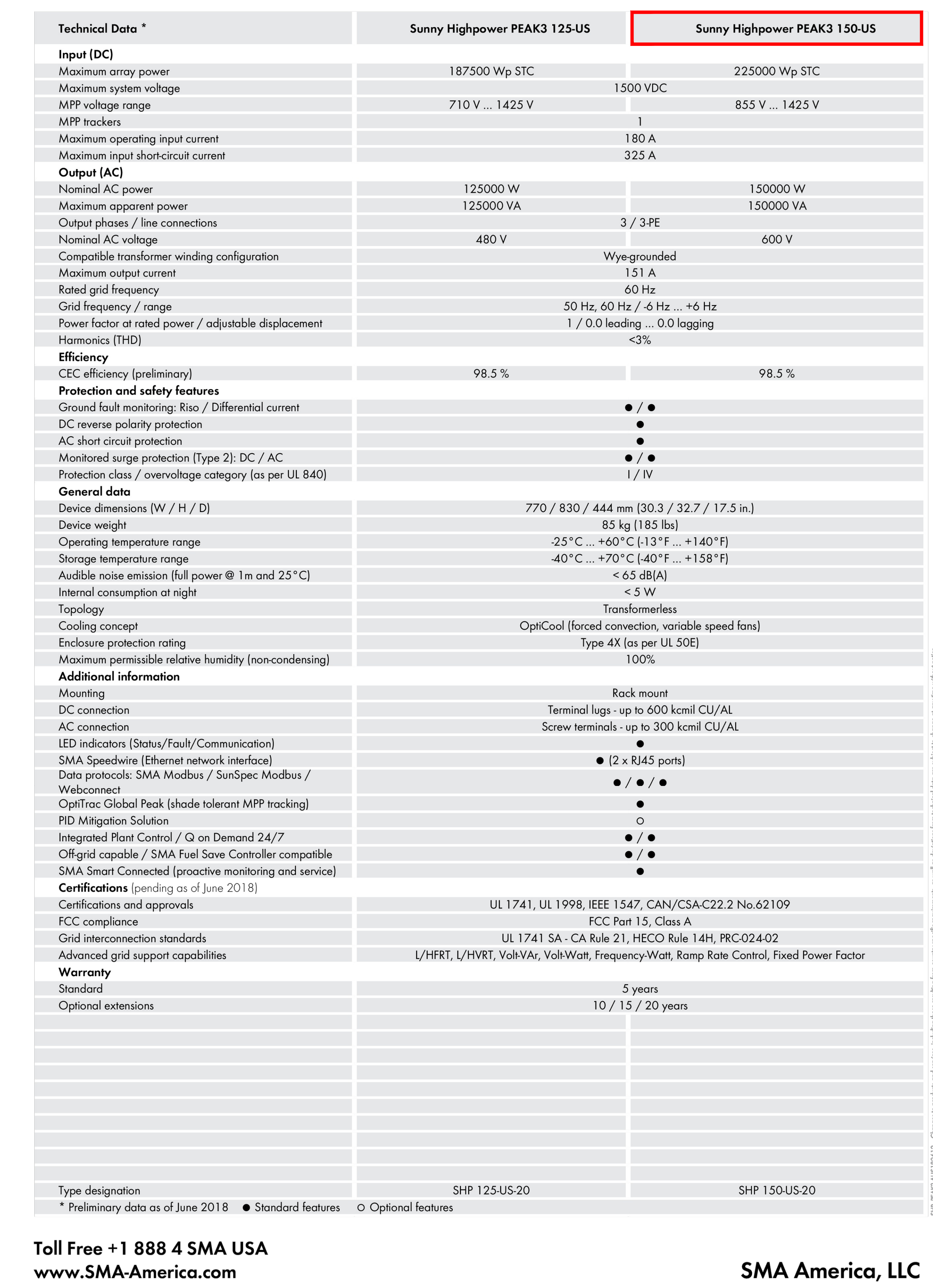
E-504.00





INVERTER NO	MODULES PER STRING	STRINGS	INVERTERS	NUMBER OF MODULES
1	26	13	1	338
2	26	13	1	338
3	26	13	1	338
4	26	13	1	338
5	26	13	1	338
6	26	13	1	338
7	26	13	1	338
8	26	13	1	338
9	26	13	1	338
10	26	13	1	338
11	26	13	1	338
12	26	13	1	338
13	26	13	1	338
TOTAL		182	13	4394

INVERTER NO	MODULES PER STRING	STRINGS	INVERTERS	NUMBER OF MODULES
14	26	13	1	338
15	26	13	1	338
16	26	13	1	338
17	26	13	1	338
18	26	13	1	338
19	26	13	1	338
20	26	13	1	338
21	26	13	1	338
22	24	13	1	312
23	24	13	1	312
24	24	13	1	312
25	24	13	1	312
26	24	13	1	312
TOTAL		178	13	4264

PREPARED BY

ENSIGHT ENERGY CONSULTING

1245 CHAMPA ST. DENVER, CO 80204
PH: (720) 648-6554

PREPARED FOR

Reactivate

2045 W Grand Ave Ste B
PMB 52340
Chicago, IL 60612

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 4.68MWDC / 3.90MWAC

RDC CO COUNTY RD 116

6860 BACA LN,
ALAMOSA, CO 81101
APN: 541502300147

ENGINEER OF RECORD

PRELIMINARY NOT FOR CONSTRUCTION

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:

RESOURCE DOCUMENTS

DATE: 1.15.2025
DESIGN BY: M.D.
CHECKED BY: A.N.
SHEET NUMBER:

E-505.00

Attachment D:

Water Sanitation District
Bulk Water Application

East Alamosa Water & Sanitation District

10 Costilla Blvd · Alamosa, CO 81101 · 719-589-2649

BULK WATER DISPENSER USE APPLICATION

Bulk Water Rate is $5 per 100 gallons

DATE: 3/19/2025

BUSINESS NAME: Reactivate CO Development, LLC

NAME (if for a business, application must be completed by person authorized to make purchases): James Bentley

BILLING ADDRESS: 1 South Wacker Drive, Suite 1800 Chicago, IL 60606

PHONE #: 1(806)-584-5846 E-MAIL ADDRESS: bentley@reactivate.com

WATER DESTINATION: 6860 County Road 116, Alamosa, CO 81101
(Must be within Alamosa County)

WATER USE: Construction water for RDC CO Co RD 116 Solar Project (4,000 gal/month, maximum available)

NOTICE: The Customer herby acknowledges that the East Alamosa Water & Sanitation District is not, in any manner or form liable to the customer for failure to provide water. By signing this application, the customer agrees to abide by all rules and regulations as set forth by the East Alamosa Water & Sanitation District as to the use of the water and is aware that any misuse of water will cause immediate disconnection. Rules and Regulations can be viewed on the District's website at eastalamosaws.org. Furthermore, the Customer agrees to hold harmless the East Alamosa Water & Sanitation District for any and all damage claims, injuries, or demands which may arise out of the use of the bulk water station. Any damage that is caused to the bulk water station by the applicant will result in charges for repair which may be debited from the applicant's water account balance. The applicant may appeal any fees for damage before the East Alamosa Board of Directors. It shall be at the sole discretion of the East Alamosa Water and Sanitation District to sell or distribute water. This application is not assignable or transferrable.

East Alamosa Water District water has been treated and chlorinated to maintain the quality of the water. Be sure your receptacle is clean and free of contaminates. East Alamosa Water District assumes no liability for consumption or use of water. East Alamosa Water District makes no representation as to the potability of the bulk water.

APPLICANT SIGNATURE: _____

FOR OFFICE USE ONLY:
APPROVED: _____ DENIED: _____ DATE: _____

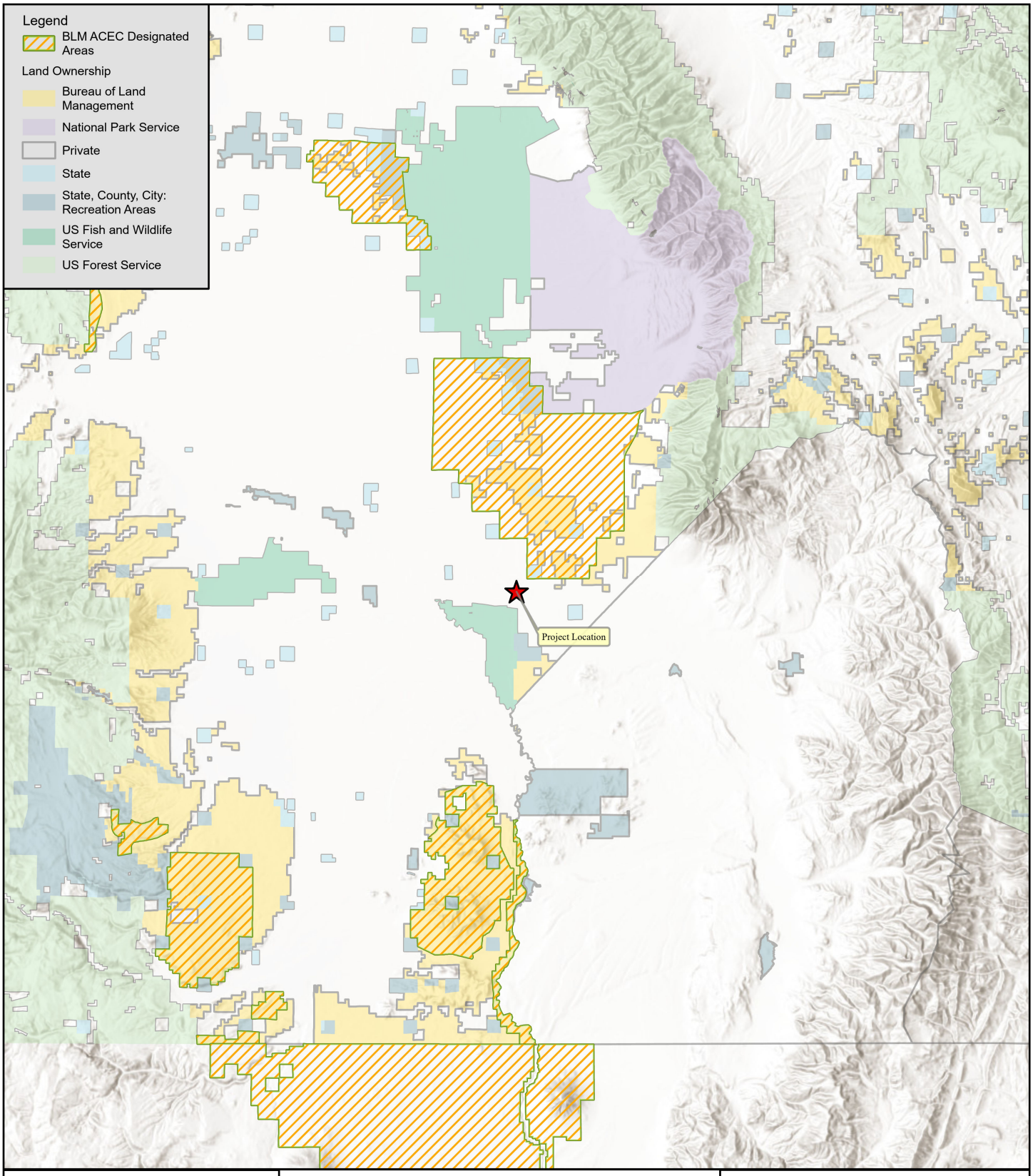
APPROVED BY: _____

ACCOUNT #: _____ PIN #: _____

PAID: _____ CASH: _____ CHECK #: _____

Attachment E:

Maps



Land Management Considerations Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 10 20 40 Miles

N

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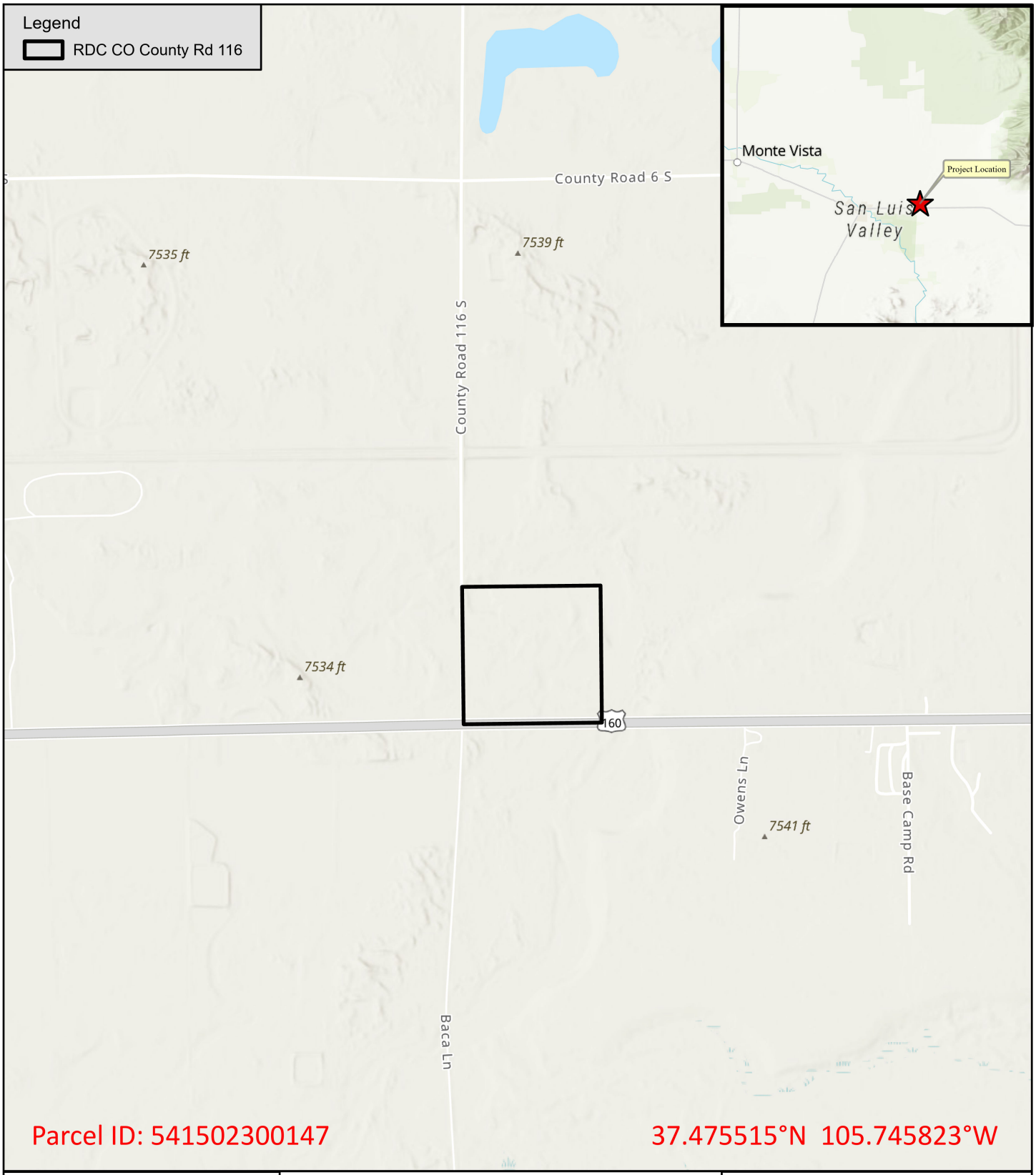

Parcel ID: 541502300147

37.475515°N 105.745823°W

Project Location

RDC CO County Rd 116
Alamosa County, Colorado
March, 2025

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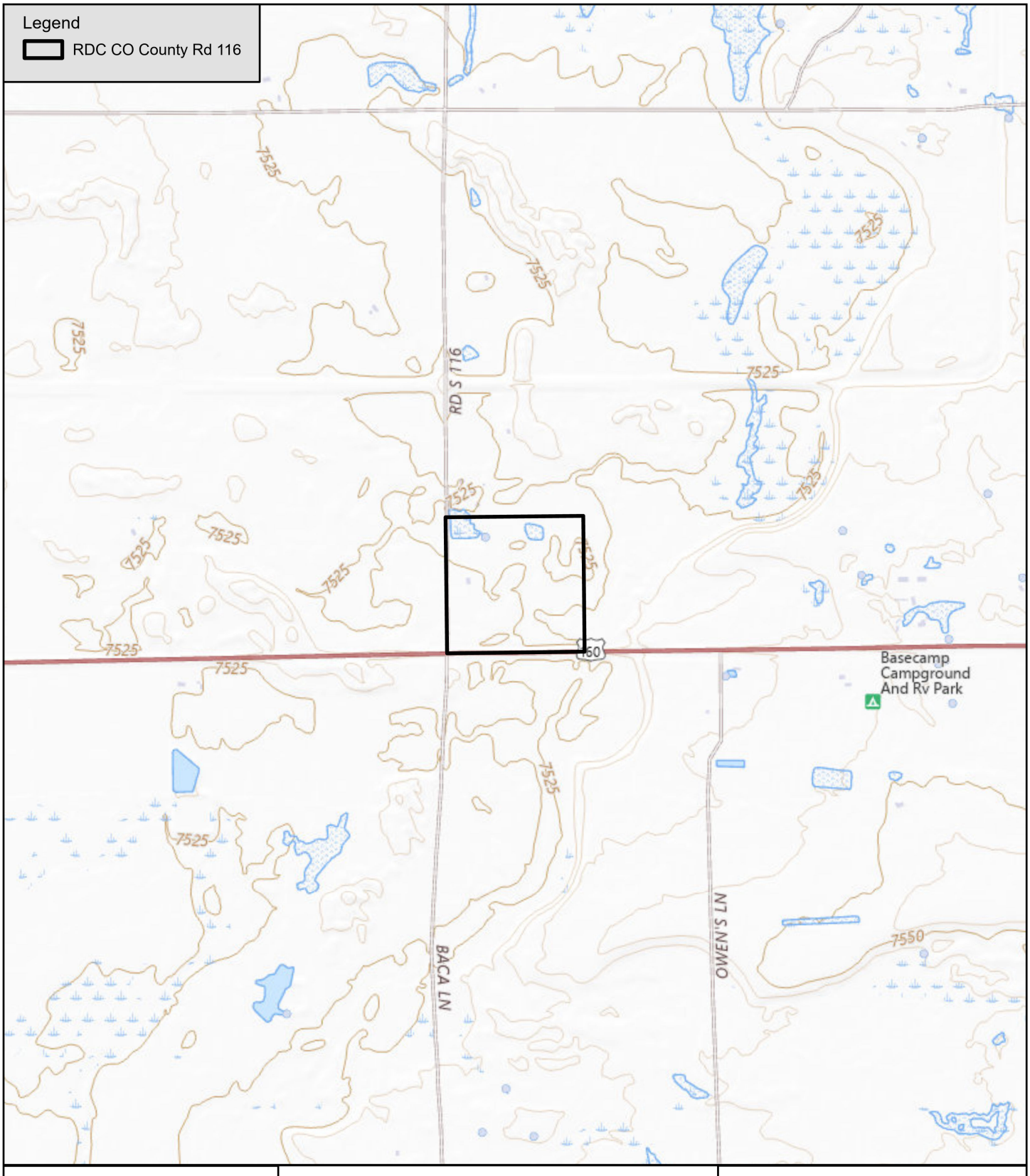
0 0.25 0.5 1 Miles

N



USGS Topographic Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.25 0.5 1 Miles

N

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Project Aerial Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.25 0.5 1 Miles

N

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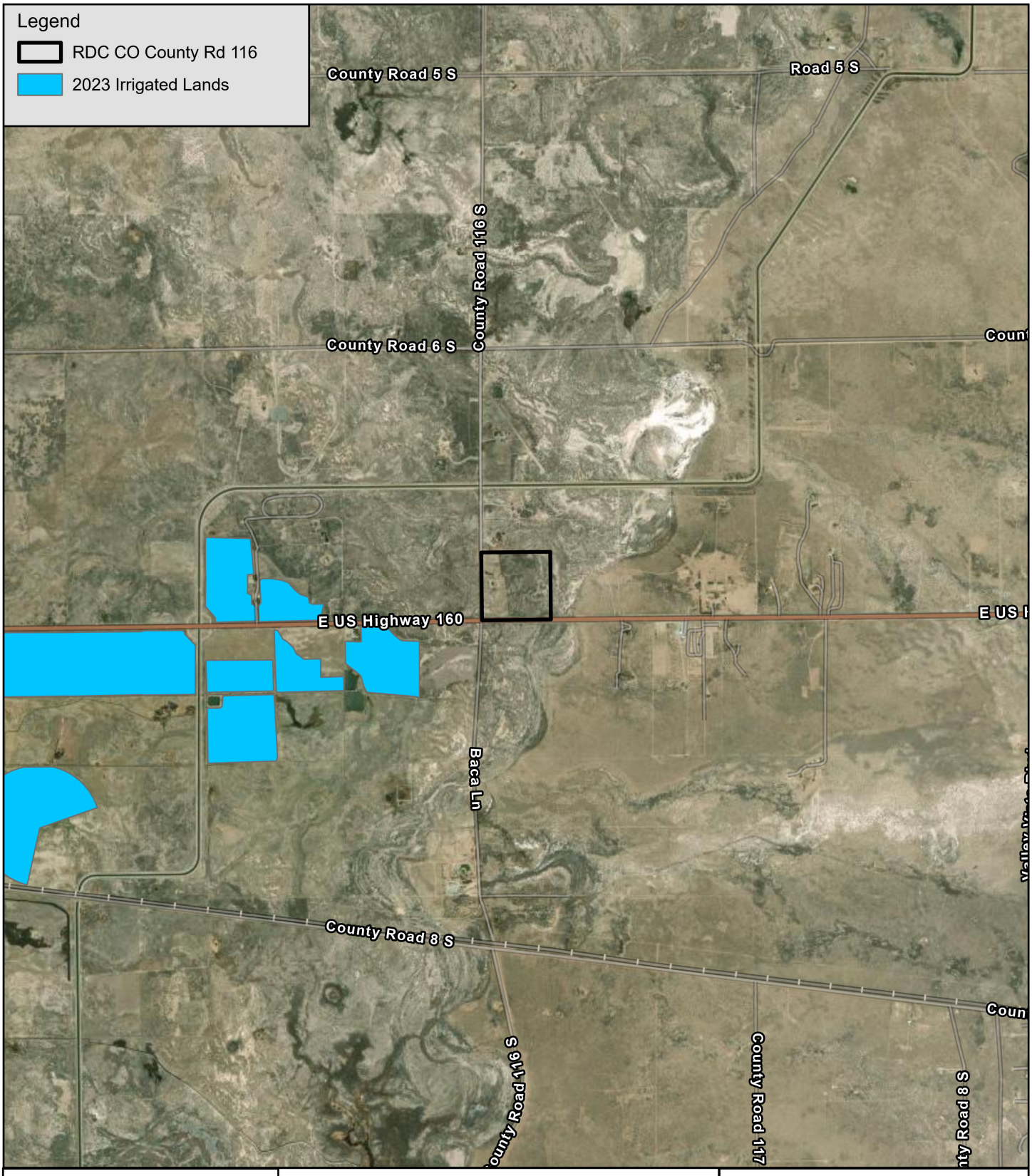

Irrigated Lands Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

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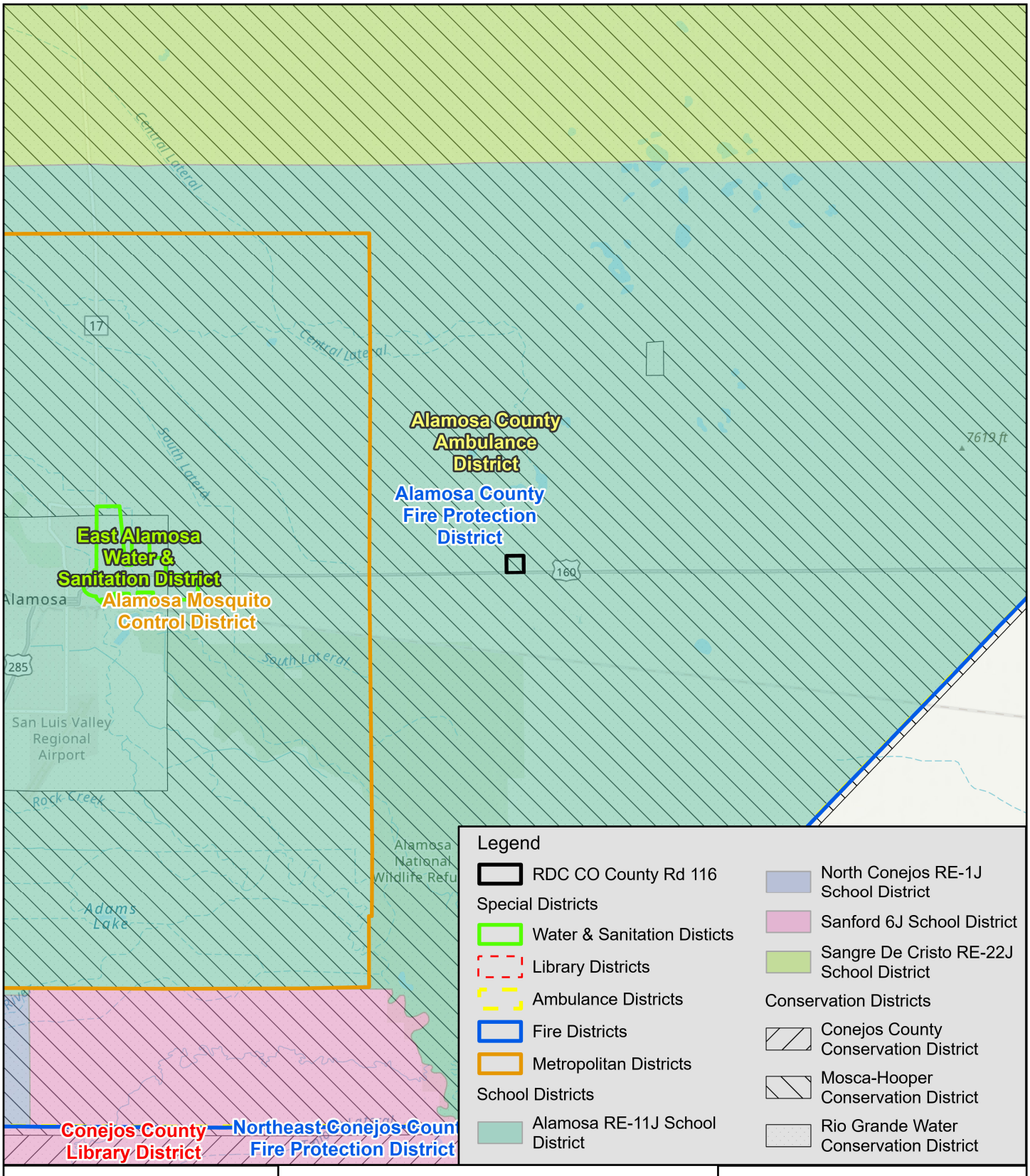
0 0.5 1 2 Miles

N



Special Districts Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 2 4 8 Miles

N

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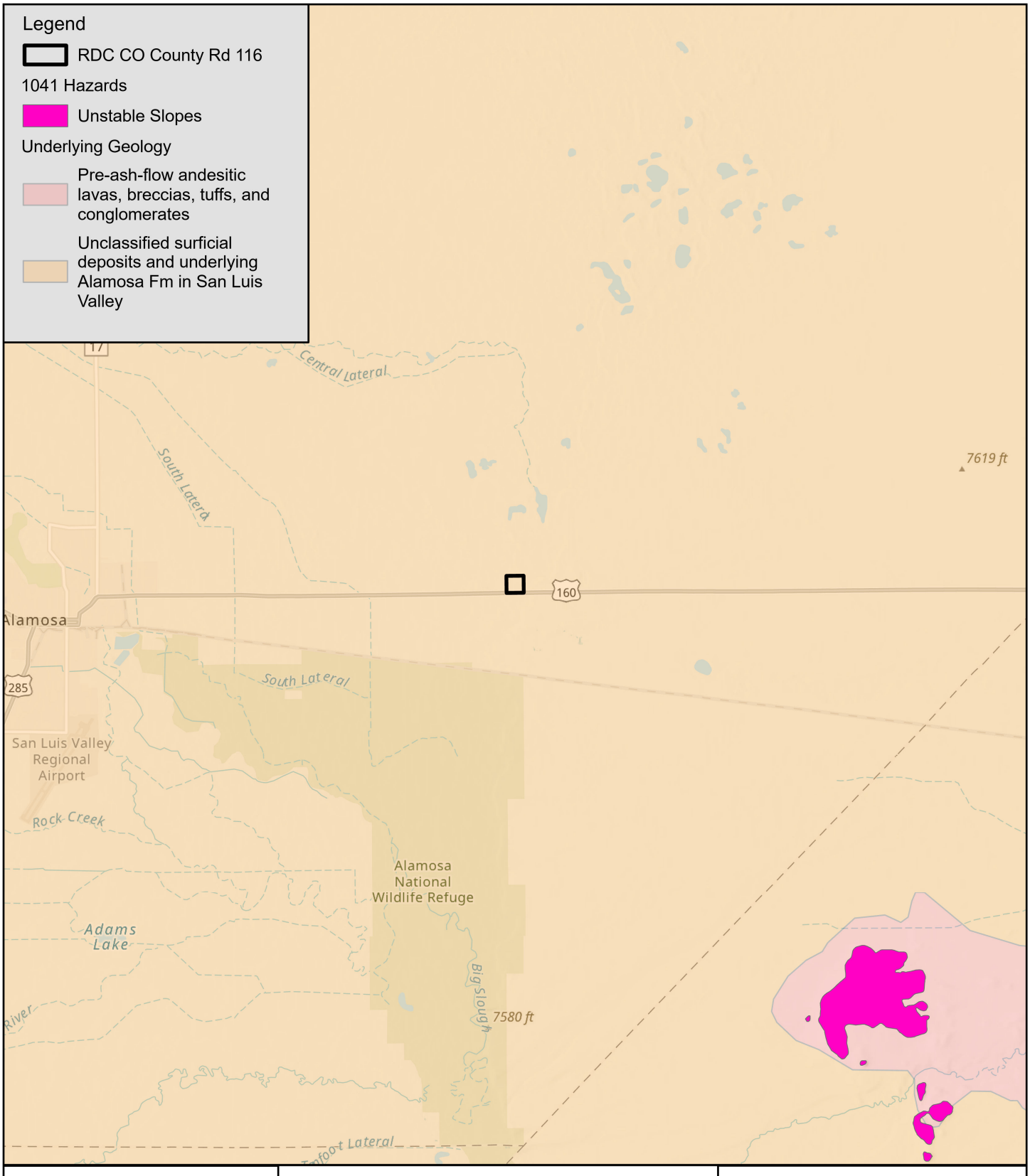

Underlying Geology & 1041 Hazards Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 2 4 8 Miles

N

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National Land Cover Database Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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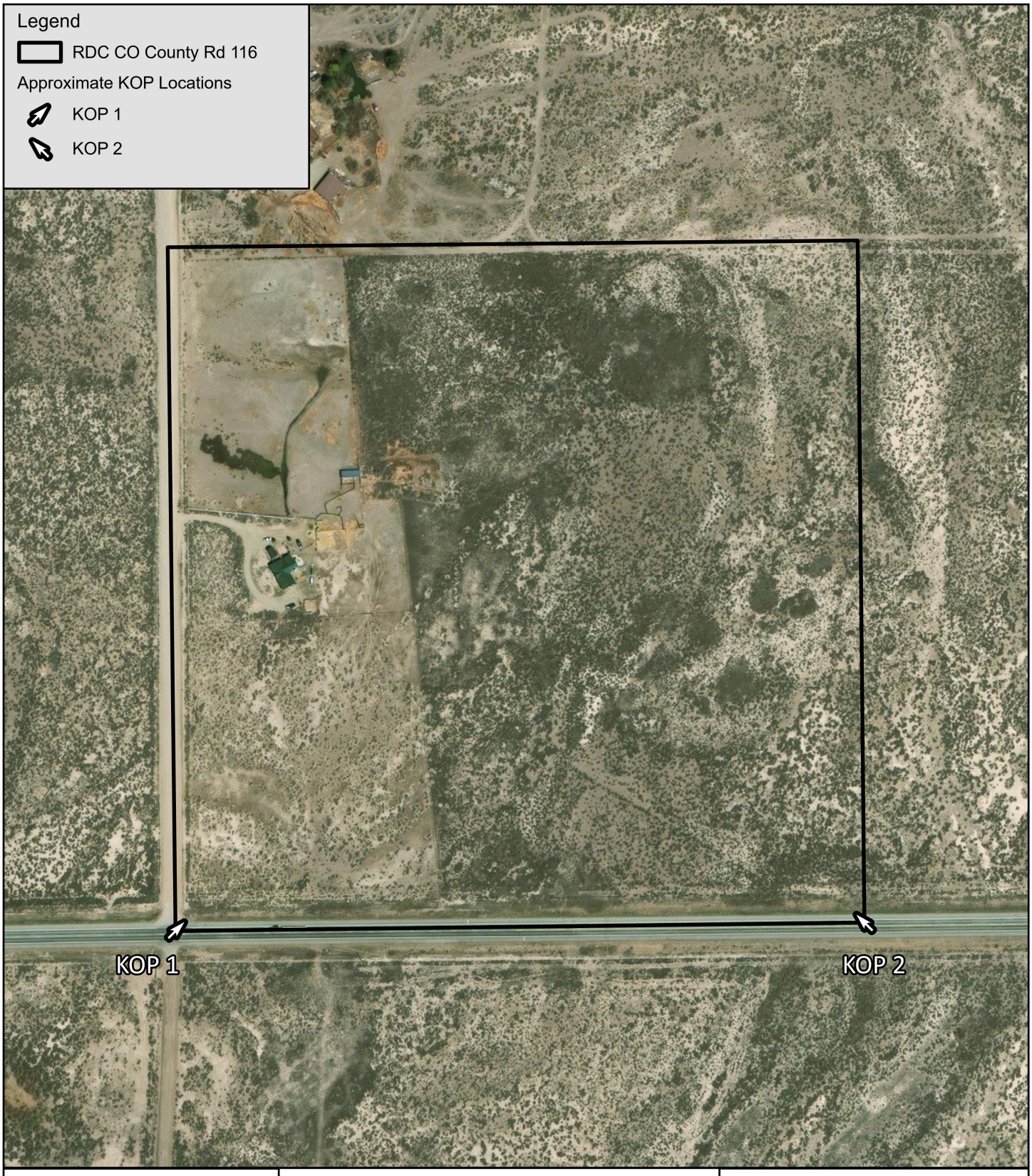

Key Observation Point Photo Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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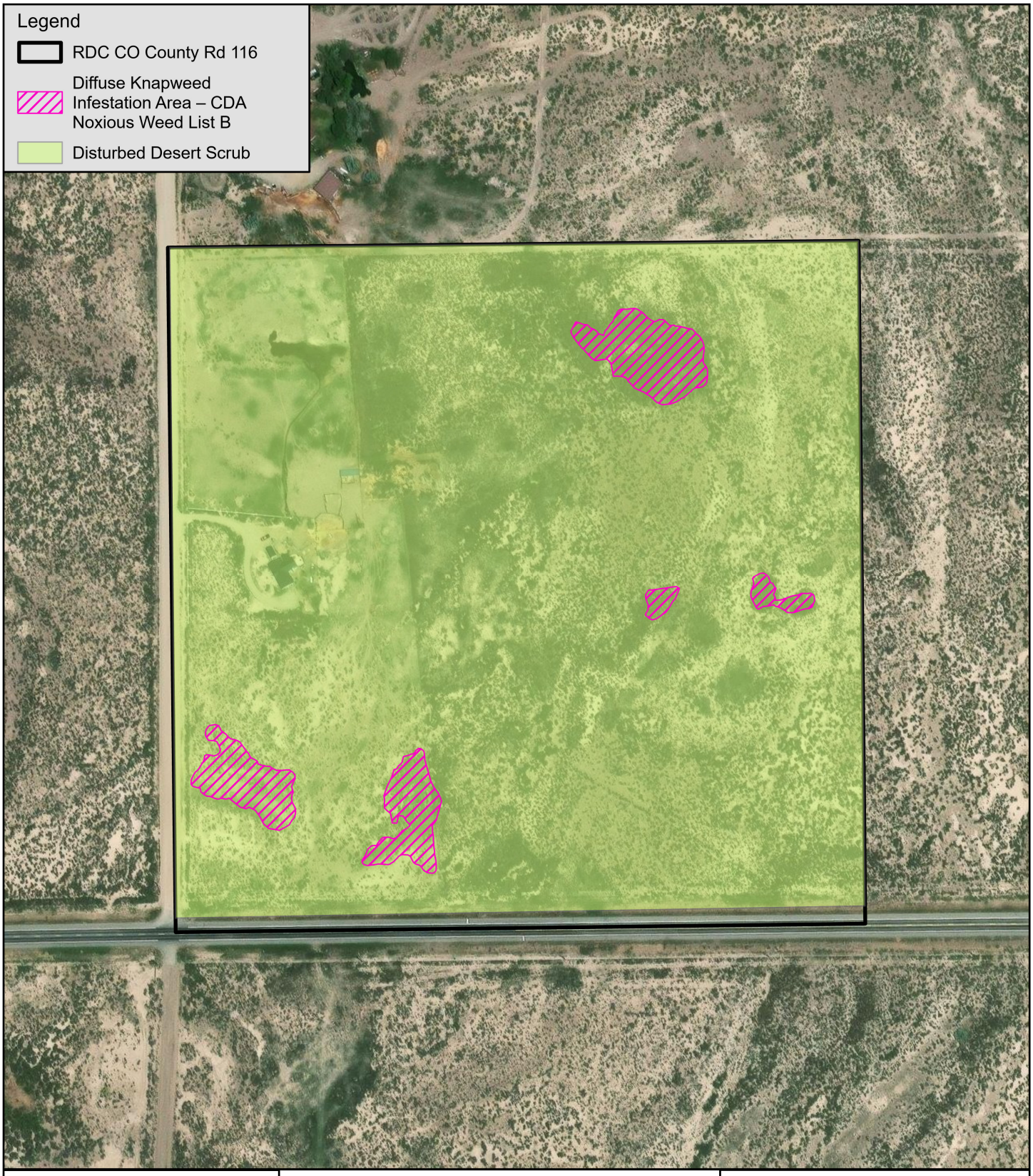

Field Reconnaissance Biological Resources Map

RDC CO County Rd 116
Alamosa County, Colorado
March, 2025

0 0.05 0.1 0.2 Miles

N

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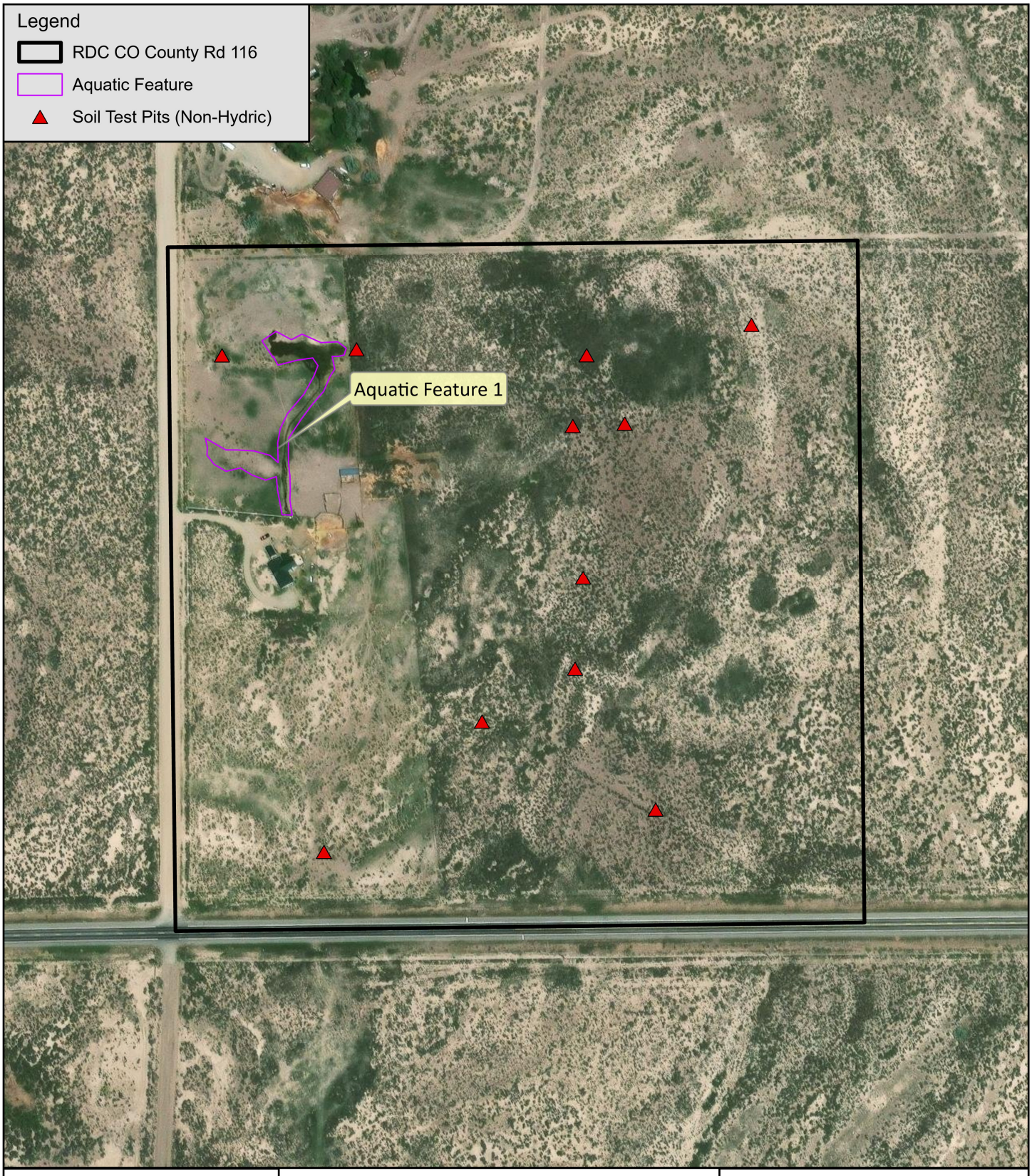

Field Reconnaissance Aquatic Resources Map

RDC CO County Rd 116
Alamosa County, Colorado
March, 2025

0 0.05 0.1 0.2 Miles

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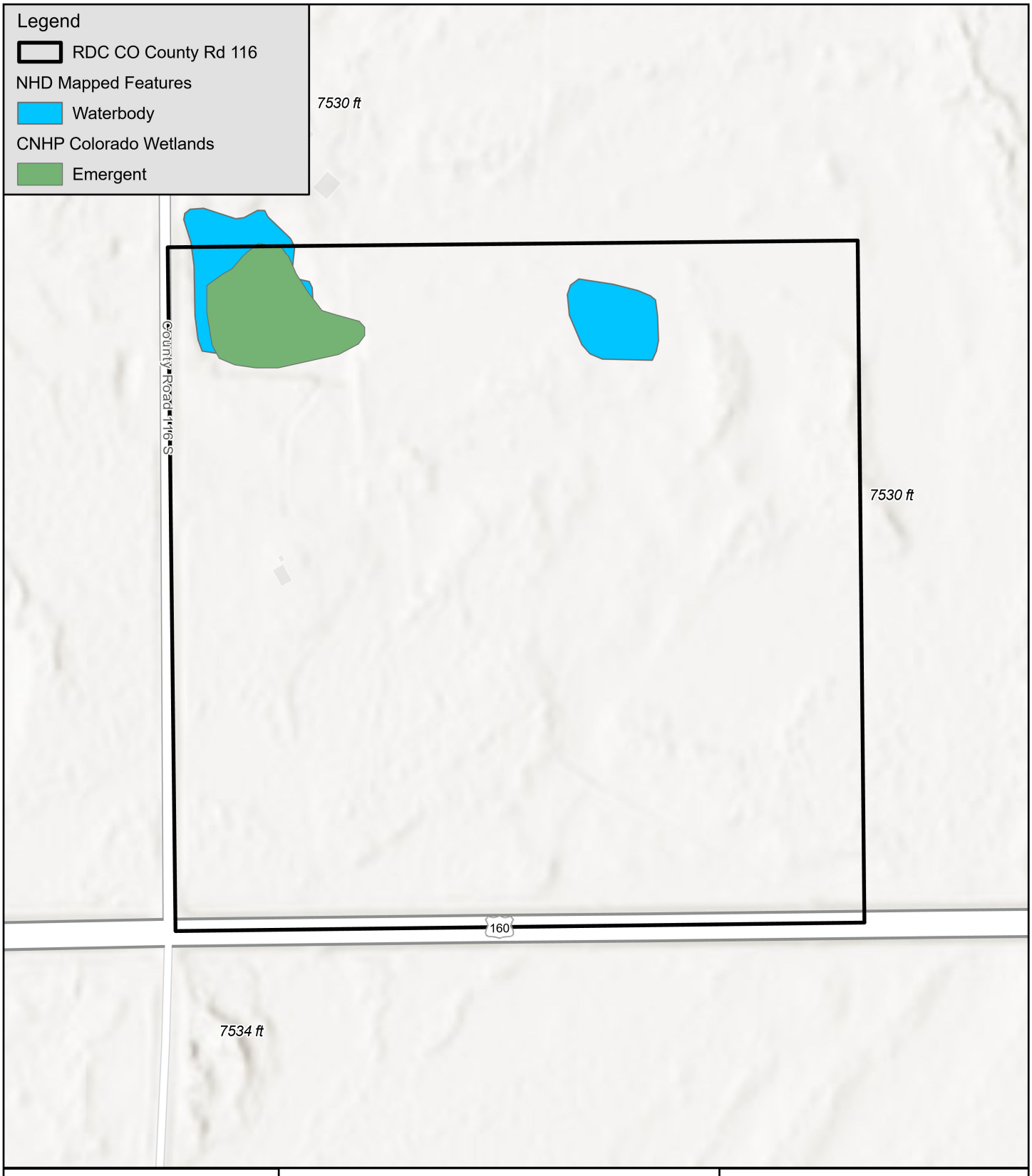

Desktop Hydrology Map

RDC CO County Rd 116
Alamosa County, Colorado
March, 2025

0 0.05 0.1 0.2 Miles

N

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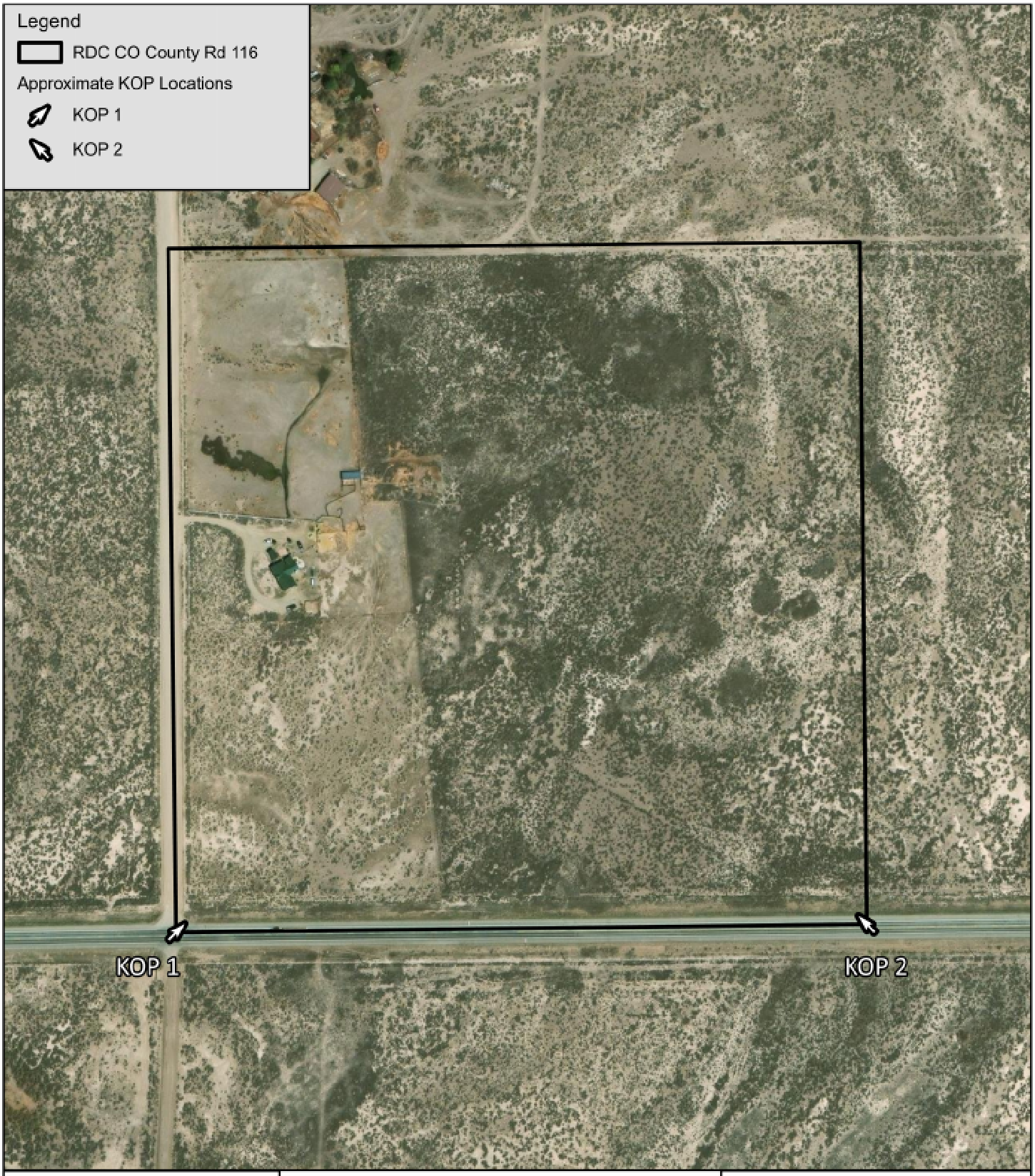
Attachment F:

Visual Impacts Review



Key Observation Point Photo Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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Existing Conditions and Visual Renderings

KOP 1 – Facing northeast at existing conditions.

KOP 1 – Facing northeast, after construction of panels 4 feet above ground.

Existing Conditions and Visual Renderings

KOP 2 – Facing northwest at existing conditions.

KOP 2 – Facing northwest after construction of panels 4 feet above ground.

Key Observation Points – March 4, 2025		
RDC CO County Rd 116 Project **Alamosa County, CO**		
Attachment F	***March, 2025***	***Visual Impacts Review***

Attachment G:

Cultural Resources Review

Class I Cultural and Paleontological Resources Assessment

RDC CO County Road 116 Project
Alamosa County, Colorado

March 2025

Kimley»Horn

© Kimley-Horn & Associates, Inc.
2 N. Nevada Ave, Suite 900
Colorado Springs, CO

Prepared for:

ALAMOSA COUNTY

Alamosa County, Colorado

Table of Contents

1.0 Executive Summary

Kimley-Horn and Associates, Inc. ("Kimley-Horn") was contracted to complete a Class I Cultural and Paleontological Resources Assessment for the proposed 44.08-acre RDC CO County Road 116 Project ("project") located in Alamosa County, Colorado. The project requires a 1041 permit in Alamosa County, and therefore, Kimley-Horn completed the assessment pursuant to applicable Alamosa County regulations. The Master Plan states that Alamosa County will evaluate the needs of "important archeological or historic resources" (i.e. a type of passive open space) as needed (2008: 7.4). The purpose of this Class I Cultural Resources Assessment is to identify any known or potential historical, archaeological, and/or paleontological resources in the project area.

Kimley-Horn conducted a Class I cultural resource file search, paleontological record search, scholarly literature review, database review, and land use research for the entire RDC CO County Road 116 project area. The cultural resource record search results provided by the Colorado Office of Archaeology and Historic Preservation (OAHP) indicated that there is one (1) previously recorded cultural resource and three (3) previous studies within the project area and three (3) previously recorded cultural resources and two (2) previous studies in the vicinity of the project area. Within the project area, the previously recorded cultural resource (5AL.956) is a segment of a historic-era road known as US Highway 160. Within the vicinity, one of the previously recorded cultural resources (5AL.138) is an archaic-era open camp with numerous artifacts found and two of the previously recorded resources (5AL.139, 5AL.389) are prehistoric-era open camps with numerous artifacts found. Kimley-Horn staff did not identify any previously recorded paleontological resources in the project area. Staff determined that the project area has a low sensitivity for subsurface paleontological resources and moderate sensitivity for prehistoric-era archaeological sites. Most of the project area has not been surveyed.

The OAHP did not report if 5AL.956 was previously evaluated, and therefore, it is unknown whether the historic resource is considered historically significant. Additional work would be required to identify if the resource is significant and to identify and address any potential impacts as a result of the project. Kimley-Horn did not identify any known archaeological or paleontological resources in the project area, but most of the project area has not been surveyed before. Therefore, a cultural resources survey would be required to fully inventory the presence of any cultural resources in the project area.

Should a state or federal nexus to the project exist in the future, additional work may be required. Kimley-Horn recommends the following measures to address any potential impacts to historical, archaeological, and/or paleontological resources that may be present in the project area and identified during construction:

- In the event that human remains are inadvertently discovered, Colorado state law 24-80-1302 requires that the county coroner shall be immediately notified.
- Should any inadvertent discovery of cultural resources occur during construction, the developer will halt ground disturbing activities in a 20-foot radius until a State of Colorado permitted archaeologist can evaluate the discovery and make further recommendations.
- Should any inadvertent discovery of paleontological resources occur during construction, the developer will halt ground disturbing activities in a 20-foot radius until a State of Colorado permitted paleontologist can evaluate the discovery and make further recommendations.

2.0 Introduction

This Class I Cultural and Paleontological Resources Assessment presents the results of the research and record searches for the approximately 44.08-acre RDC CO County Road 116 Project ("project"). Kimley-Horn conducted a Class I cultural resource file search, paleontological record search, scholarly literature review, database review, and land use research for the RDC CO County Rd 116 project area in Alamosa County, Colorado. The purpose of this Class I report is to identify any known or potential historical, archaeological, and/or paleontological resources in the project area.

Project Description

The proposed project consists of development of a community scale solar facility. The project area is located on privately held lands approximately 7 miles east of Alamosa, Colorado. The project area is bound by rural residential land to the north, undeveloped shrubland to the east, US Highway 160 to the south, and Road South 116 to the west (**Figure 1 – Project Location Map, Figure 2 – USGS Map**).

3.0 Regulatory Constraints

The proposed project requires a 1041 permit in Alamosa County, Colorado. Therefore, Kimley-Horn cultural resources management staff completed this Class I Cultural and Paleontological Resources Assessment pursuant to applicable Alamosa County regulations, and as such, Kimley-Horn reviewed the Alamosa County Master Plan (2008). Important archeological or historic resources are defined as a type of passive open space in the Master Plan (2008: 7.4). Goal 7.1 of the Master Plan states that Alamosa County and municipalities will evaluate open space needs or options as needed (2008: 7.4). There is no known state or federal nexus to the proposed project. Should a state or federal nexus exist in the future, additional work may be required pursuant to applicable state and/or federal regulations, such as Section 106 of the National Historic Preservation Act (36 Code of Federal Regulations 800), the Colorado State Register Act (Colorado Revised Statutes 34-80.1-104), and/or the Historical, Prehistorical, and Archaeological Resources Act.

If inadvertent discovery of human remains occurs, Colorado state law 24-80-1302 requires that the coroner or medical examiner of the county wherein the remains are located and the sheriff, police chief, or land managing agency official shall immediately be notified. The coroner or medical examiner shall conduct an on-site inquiry within forty-eight hours after such notification to attempt to confirm whether such skeletal remains are human remains and determine if the remains are of forensic or anthropological value. If it is confirmed that the remains are of forensic value (e.g., evidence of a crime), the coroner or medical examiner shall take legal custody of the human remains. If the remains are determined to be of anthropological value (e.g., prehistoric), the coroner or medical examiner shall notify the state archaeologist of the discovery. Prior to further disturbance, the state archaeologist shall cause the human remains to be examined by a qualified archaeologist to determine whether the remains are more than one hundred years old and to evaluate the integrity of their archaeological context. Complete documentation of the archaeological context of the human remains shall be accomplished in a timely manner. The preferred treatment option for all inadvertent discoveries of human remains and associated funerary objects is in situ preservation, if the remains are not under imminent or anticipated threat of disturbance. If the safety of the remains is threatened or if the remains are discovered on private land and the landowner requests that the remains be moved, then the State Archaeologist, the Executive Secretary of Colorado Commission of Indian Affairs (CCIA), and the Chairman or a designated representative of at least one of the two Colorado Ute Tribes will by a

consensus, develop a plan of action for the removal of the human remains and any associated funerary objects.

4.0 Methodology

Kimley-Horn staff conducted the following methodology for the Class I Cultural and Paleontological Resources Assessment to identify any known or potential historical, archaeological, and/or paleontological resources in the project area:

- a Class I cultural resource file search with the Office of Archaeology and Historic Preservation (OAHP),
- paleontological record searches at the Colorado University Museum of Natural History (CUMNH) and the Denver Museum of Nature and Science (DMNS),
- a scholarly literature review,
- a review of geological and soil maps,
- a review of historical maps and images,
- a review of property records, and
- a review of digital cultural and paleontological databases.

.

Definitions

Kimley-Horn staff utilized the following definitions to identify known or potential historical, archaeological, and/or paleontological resources in the project area:

- Archaeological resource: all sites, deposits, structures, or objects which are at least 100 years of age, and which provide information pertaining to the historical or prehistorical culture of people within the boundaries of the state of Colorado.
- Historical resource: all sites, deposits, structures, or objects which are at least 50 years of age, and which provide information pertaining to the culture of people during the historical period. A cultural resource listed in or eligible for listing in the National and/or State Register of Historic Places (NRHP/SRHP) is a "historic property."
- Paleontological resource: fossils and other remains of prehistoric animals, plants, insects, and other objects of natural history within Colorado that do not show evidence of human association (8 CCR 1504-7).

5.0 Project Setting

Environmental Setting

The project area is situated on undeveloped land in the eastern San Luis Valley. Two (2) unnamed aquatic features exist within the project area. The closest major water source is Pioneer Creek, an excavated irrigation channel located 0.22 miles north of the project area. The project area's geomorphic position and soil composition consist of a flood plain on a valley floor with Hapney loam soils and a dune with undulating Corlett-Hooper complex soils (Soil Survey Geographic Database [SSURGO] 2025). There are no geologic fault lines in the immediate vicinity (U.S. Geological Survey 2025; **Figure 3 – Aerial Map**).

Ethnographical Setting

The history of Alamosa County, Colorado, crosses numerous periods of human history. The San Luis Valley is located in the ancestral lands of the Ute who thrived near the Rio Grande River. Though, it is important to note that exact ancestral territories remain imprecise. Native Americans inhabiting this region did not establish precise boundaries of their territories, and territories overlapped, changed over time, and were fluid. Communities interacted through trade and social gatherings, leading to regular visits to the San Luis Valley by more distant communities. Therefore, numerous other Native American communities were neighbors to the Ute and intersected with the San Luis Valley, such as the Diné, Apache, and Pueblos. The arrival of the Europeans in the historic period led to many Native Americans being forcefully displaced from the traditional lands and moving into new territories for survival. Also, horses were traded or raided from European settlements and led to some Tribes increased mobility across expanded territory. Today, there are two federally recognized Tribes with Tribal reservations in Colorado: Ute Mountain Ute Tribe and Southern Ute Tribe.

Ute

The Ute have occupied large portions of the Great Basin, including southern Colorado, and maintained a unique relationship with their environment (Ott 2011). They traveled across their territory in family groups or bands using well-known trail systems, such as the Ute Trail which eventually became known as the Spanish Trail. Ute were connected across their territory by their shared Shoshonean language, a dialect of the Uto-Aztecan language, as well as shared values and sociopolitical practices (Southern Ute Indian Tribe 2024). Ute practiced hunting and gathering, and their main diet consisted of elk, deer, antelope, wild berries, and fruits. The hides of the large game were used for shelter, clothing, and trade. The Ute were experts in the medicinal properties of the native plants. The Ute had a reputation for defending their territory. The Caputa band of Ute lived in the San Luis Valley near the headwaters of the Rio Grande River.

Prehistorical Setting

OAHP cultural resources management (CRM) data for the western San Luis Valley is lacking due to the absence of previous regulatory-driven archaeological surveys. Most previous formal surveys in the San Luis Valley have occurred on federal lands, and therefore, there is little survey data about privately held lands in Alamosa County. However, archaeologists have published data in scholarly journals about numerous sites throughout the San Luis Valley as part of academic research. The archaeological record indicates that humans have occupied the San Luis Valley for at least 11,000 years, as evidenced by sites with Clovis and Folsom artifacts (Cassells 1997; Jodry 1987). Prehistoric chronology for the San Luis Valley follows the framework proposed for the greater southern Colorado region. Renaud (1946) attempted to define the first cultural sequence for this region, but there are two other sequences that have been more widely adopted, the Southwest Archaic (Huckell 1996) and the Oshara Tradition (Irwin-Williams 1973). The Southwest Archaic cultural sequence is reported in Table 1 below. The sequence is based on recognized technology changes in hunting tools.

Table 1: Prehistoric Framework for the San Luis Valley

Phase	Time Period, calibrated years Before Present
Late Archaic	1500-3500
Middle Archaic	3500-5500
Early Archaic	5500-8500

Research has indicated the importance of proximity to water and other natural resources (i.e., flora and fauna). Most of the existing research of San Luis Valley archaeological sites has occurred near the Great Sand Dunes National Park, including a dataset of more than 50 radiocarbon dates. Specifically, the Smithsonian has investigated several Folsom sites the San Luis Valley, such as Reddin, (5SH77), Linger (5AL91), Zapata (5AL90), and Stewart's Cattle Guard (5AL101) near San Luis Lake (Jodry and Stanford 1996). The Great Sand Dunes Eolian System Anthropological Project has reported "a wealth of archaeological data" on the prehistoric and historic occupation of the area, including two sites known as 5AL639 and 5AL640. The sites are located in pinon juniper woodlands in the eastern San Luis Valley, and radiocarbon dates confirmed the sites are associated with Late Archaic and/or Late Prehistoric temporal affiliation (Andrews et al. 2004). The environment experienced a gradual warming and drying trend in the early Holocene. Mitchell and Krall (2020) reported that hunter-gatherer communities became more sedentary during the Holocene epoch and settled near streams, lakes, and springs on the valley floor. During the Late Prehistoric period, Native Americans constructed architectural features known as stone enclosures (Mitchell and Krall 2020). Several stone structures have been recorded in the San Luis Valley.

Historical Setting

Europeans arrived in Colorado in the late 1500s via Spanish expeditions in search of gold. Spain and France both claimed parts of Colorado, leading to territorial disputes. President Thomas Jefferson signed the Louisiana Purchase in 1803, which included eastern Colorado. After the Mexican-American War, western Colorado was ceded to the U.S. through the Treaty of Guadalupe Hidalgo in 1848 (Leonard and Noel 2016). The Colorado Gold Rush led to the quick establishment of the Colorado Territory. White settlers steadily moved into Colorado during the 1850s and began developing frontier towns. Tensions increased between Native Americans and the settlers due to the forced displacement of the Native American communities.

Mining opportunities in the San Juan Mountains led to the construction of the Denver and Rio Grande Railway in the San Luis Valley (Visit Alamosa 2024). The railroad also supported agricultural communities across the San Luis Valley by hauling produce. After the discovery of gold and silver in the mountains, westward expansion exploded throughout the San Luis Valley. Homestead sites from the 1800s have been recorded in the San Luis Valley (Simmons and Martorano 2007). Fort Garland was built in the San Luis Valley in 1858 and operated as a U.S. military outpost until 1883 (History Colorado 2024a). It was constructed to establish the authority of the U.S. in the newly acquired territory, protect the early settlers, and enforce numerous treaties with the southern Ute. Alamosa was incorporated as a city on August 30, 1878 (City of Alamosa 2024). The name for the city is derived from the Spanish word for "cottonwood." The City of Alamosa began a rail center for the Denver and Rio Grande Railroad. Many of the city's first buildings were preconstructed and transported on railroad flat cars.

6.0 Results of Cultural Resource Review

Record Search

Kimley-Horn reviewed previous cultural resource survey reports completed in the project area and within a ¼-mile buffer by conducting a file search with the Office of Archaeology and Historic Preservation (OAHP). The OAHP provided the cultural file search results on March 11, 2025 (File Search Number S-597; see **Attachment 2**).

The OAHP file search identified one (1) previously recorded cultural resource and two (2) previous cultural survey reports in the project area (Tables 1-2; **Figure 5 – Previous Cultural Resource and Survey Map**). The OAHP identified three (3) previously recorded cultural resources and one (1) previous cultural survey report within the ¼-mile buffer. The location of two additional (2) survey reports were not provided by OAHP. Most of the project area has not been surveyed.

Table 1. Cultural Resources Identified within the Record Search Area.

Site No.	Site Name	Age	NRHP and SRHP Eligibility	Location	Recording Institution
5AL.138	*Pig Farm Site*	Archaic	NRHP: Unevaluated SRHP: Unevaluated	Buffer	Bureau of Reclamation – Closed Basin Division
5AL.139	*Closed Basin SW*	Late Prehistoric	NRHP: Unevaluated SRHP: Unevaluated	Buffer	Bureau of Reclamation – Closed Basin Division
5AL.389	*Unnamed*	Late Prehistoric	NRHP: Unevaluated SRHP: Unevaluated	Not Provided by OAHP	Colorado Archaeological Society – San Luis Valley Chapter
5AL.956*	*US Highway 160*	Historic	NRHP: Not Provided by OAHP SRHP: Not Provided by OAHP	Project Area	Not Provided by OAHP

Intersects Project Area

5AL.956

The historic resource 5AL.956 is also known as a segment of US Highway 160. This travel route is portrayed on the earliest historical topographic map in 1954. This segment of US Highway 160 was formerly known as US Highway 450 which was constructed in 1926 and ran from Crescent Junction, UT to Walsenburg, CO (OAHP – Colorado Historical Society 2003). In 1939, US Highway 160 absorbed all of former route US Highway 450 and was likely initially paved in its absorption with a slow-curing oil of low asphaltic content. This highway is currently 1,465 miles long providing access from US 89 in Tuba City, AZ to US 60 in Poplar Bluff, MO. Little information regarding historic resource 5AL.956 was provided by OAHP. As such, the recording date, recording institution, and evaluation status for NRHP and/or SRHP eligibility are unknown.

Table 2. Cultural Surveys Identified within the Record Search Area.

Survey No.	Report Title (Date)	Institution
AL.CH.R1*	An Intensive Cultural Resources Survey Along U.S. Highway 160 East of Alamosa, Alamosa County, Colorado (M5-95-3)	Colorado Department of Transportation (CDOT)
AL.FW.R3	Survey Of Cultural Resources for United States Department of the Interior Fish And Wildlife Service, Alamosa National Wildlife Refuge, Alamosa County, Colorado (PO # 65100-0211)	Alamosa National Wildlife Refuge
AL.R.R5	Archeological Investigations in the Closed Basin of Colorado's San Luis Valley (Wp-Slv-Cri-001)	Bureau of Reclamation - Closed Basin Division
MC.CH.R96	A Cultural Resource Survey of Interstates 25, 70, 225, and 270, U.S. Highways 34 and 160, and State Highways 13 And 470, for the Proposed Adesta Communications Fiber Optic System, Colorado (C SW00-102)	Centennial Archaeology, Inc.
AL.R.R2*	Cultural Resource Survey, Reach A Electrical Transmission Lines, San Luis Valley	Bureau of Reclamation

**Intersects Project Area*

Research

Kimley-Horn reviewed archival and historical data for the project area to identify any present historic built environment resources and determine the extent of previous development. Kimley-Horn reviewed historic aerial images dating from 1955 through 2021 and historic topographic maps from 1954 through 2022 (Historic Aerials 2025). The earliest maps and images indicate that the project area was undisturbed shrubland before 1955. In the 1955 aerial, US Highway 160 existed as a paved road and Road South 116 existed as an unimproved road. From 1955 to 1998, little to no change occurred throughout the site. The 2005 aerial shows the construction of a residential building along the western boundary that still stands in present day. As such, the building is not of historic age. Few other changes have occurred at the project area since that time. The surrounding region is predominantly undisturbed shrubland (**Figure 4 – Historical Aerial Map**).

7.0 Results of Paleontological Resource Review

The DMNS and CUMNH provided the paleontological record search results on March 10, 2025 (see **Attachment 3**). The results of the paleontological records searches at the UMNH and DMNS and the literature search indicate that the project area does not cross any known museum fossil localities. Kimley-Horn staff also reviewed geological maps and digital paleontological repositories, such as the Bureau of Land Management's (BLM) Potential Fossil Yield Classification (PFYC) rankings and the Paleobiology Database (PBDB). The PFYC ranks the geologic units in the project area from very low (PFYC 1) to very high (PFYC 5) resource potential. The majority of the project is located in areas with geologic units having low paleontological potential (PFYC 2). PFYC 2 ranking's management concerns are generally low. The remaining project area consists of unknown paleontological potential (PFYC U). PFYC U rankings are geologic units that cannot receive an informed PYFC assignment due to a lack of information, scientific literature, or reports of paleontological resources in this unit.

The geologic deposits underlying the project area are mapped as Eolian dune sand (Qed) and Younger alluvium (Qay) deposits. (Thompson et al. 2015). These formations date to the Holocene epoch, which has low potential for paleontological resources. In summary, the project area has a low sensitivity for the potential presence of paleontological resources, and there are no previously documented fossil localities.

8.0 Conclusion

Kimley-Horn conducted a Class I Cultural and Paleontological Resources Assessment of the project area via record searches, research, and database reviews. The purpose of this Class I Cultural and Paleontological Resources Assessment is to identify any known or potential historical, archaeological, and/or paleontological resources in the project area.

Historic Resources

The project area intersects one (1) previously recorded historic resource known as 5AL.956 (US Highway 160). The OAHP did not indicate if the historic resource has been previously evaluated for its eligibility for listing on the NRHP or SRHP. Therefore, it is unknown whether the historic resource is considered historically significant. Additional work would be required to identify if the resource is significant and to identify and address any potential impacts as a result of the project.

Archaeological Resources

Kimley-Horn did not identify any previously recorded archaeological resources in the project area during this assessment. However, according to the OAHP, most of the project area has not been surveyed. The project area has a moderate sensitivity for prehistoric-era archaeological sites due to the two (2) sites identified by the file search within the vicinity of the project area, the high concentration of sites within the San Luis Valley, and the Holocene age (i.e., human era) of the subsurface sediments. In summary, there are no previously recorded archaeological sites in the project area, but there is moderate potential for unrecorded archaeological sites to be present. A cultural resources survey would be required to fully inventory the presence of any archaeological resources in the project area.

Paleontological Resources

Kimley-Horn's paleontological record search results indicate that the project area does not cross any known museum fossil localities. There is a low paleontological potential across most of the project area due to the geologic deposits underlying the project area dating to the Holocene epoch. In summary, there are no known fossil localities, and there is low potential for unrecorded paleontological resources to be present.

Recommendations

Kimley-Horn identified one previously recorded cultural resource (5AL.956) in the project area, and most of the project area has not been surveyed. Specifically, the OAHP reported that less than 10 percent of the project area and vicinity have been surveyed for cultural resources. As such, there is potential for unidentified cultural resources to be present in the project area. Any cultural resources inadvertently discovered during construction have the potential to be impacted. The project area has a low paleontological sensitivity and moderate prehistoric-era archaeological sensitivity. This Class I Cultural and Paleontological Resources Assessment was limited to a desktop-level inventory of previously recorded cultural resources, and as such, a cultural resources survey would be required to fully inventory the presence of any cultural resources in the project area. Additional work would be required to determine if the resource is significant and to identify and address any potential impacts as a result of the project.

Should Alamosa County not require any further work, Kimley-Horn recommends the following measures to address any potential impacts to historical, archaeological, and/or paleontological resources that may be present in the project area and identified during construction:

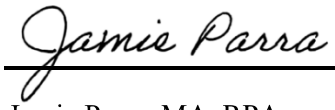
- In the event that human remains are inadvertently discovered, Colorado state law 24-80-1302 requires that the county coroner shall be immediately notified.
- Should any inadvertent discovery of cultural resources occur during construction, the developer will halt ground disturbing activities in a 20-foot radius until a State of Colorado permitted archaeologist can evaluate the discovery and make further recommendations.
- Should any inadvertent discovery of paleontological resources occur during construction, the developer will halt ground disturbing activities in a 20-foot radius until a State of Colorado permitted paleontologist can evaluate the discovery and make further recommendations.

Pursuant to Section 106 of the NHPA and the Colorado State Register Act (CRS 34-80.1-104), any state or federal agency involvement in the Project may require consultation with the State Historic Preservation Office (SHPO) on potential project effects on cultural resources eligible or supporting eligibility for listing in the NRHP/SRHP prior to construction. The agency and/or SHPO may require additional work such as

pedestrian survey of undisturbed areas to identify unknown cultural resources as well as evaluations or reevaluations of the NRHP/SRHP eligibility of all resources within the project area.

9.0 Certification of Results

Alexis Marchando, Environmental Scientist



Jamie Parra, MA, RPA

10.0 Attachments

Attachment 1: Figures 1-5

Attachment 2: OAHP File Search

Attachment 3: CUMNH and DMNS Locality Search

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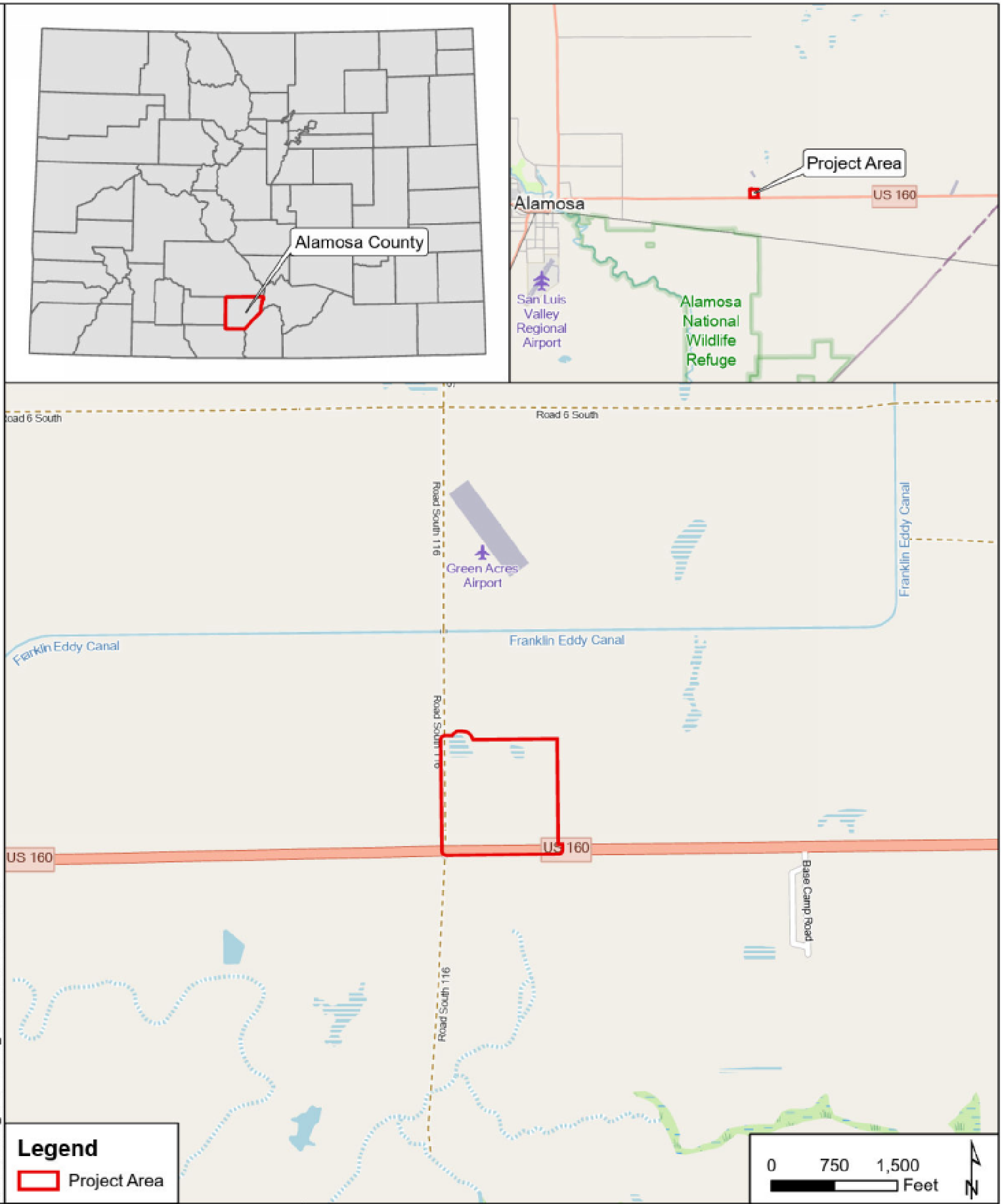

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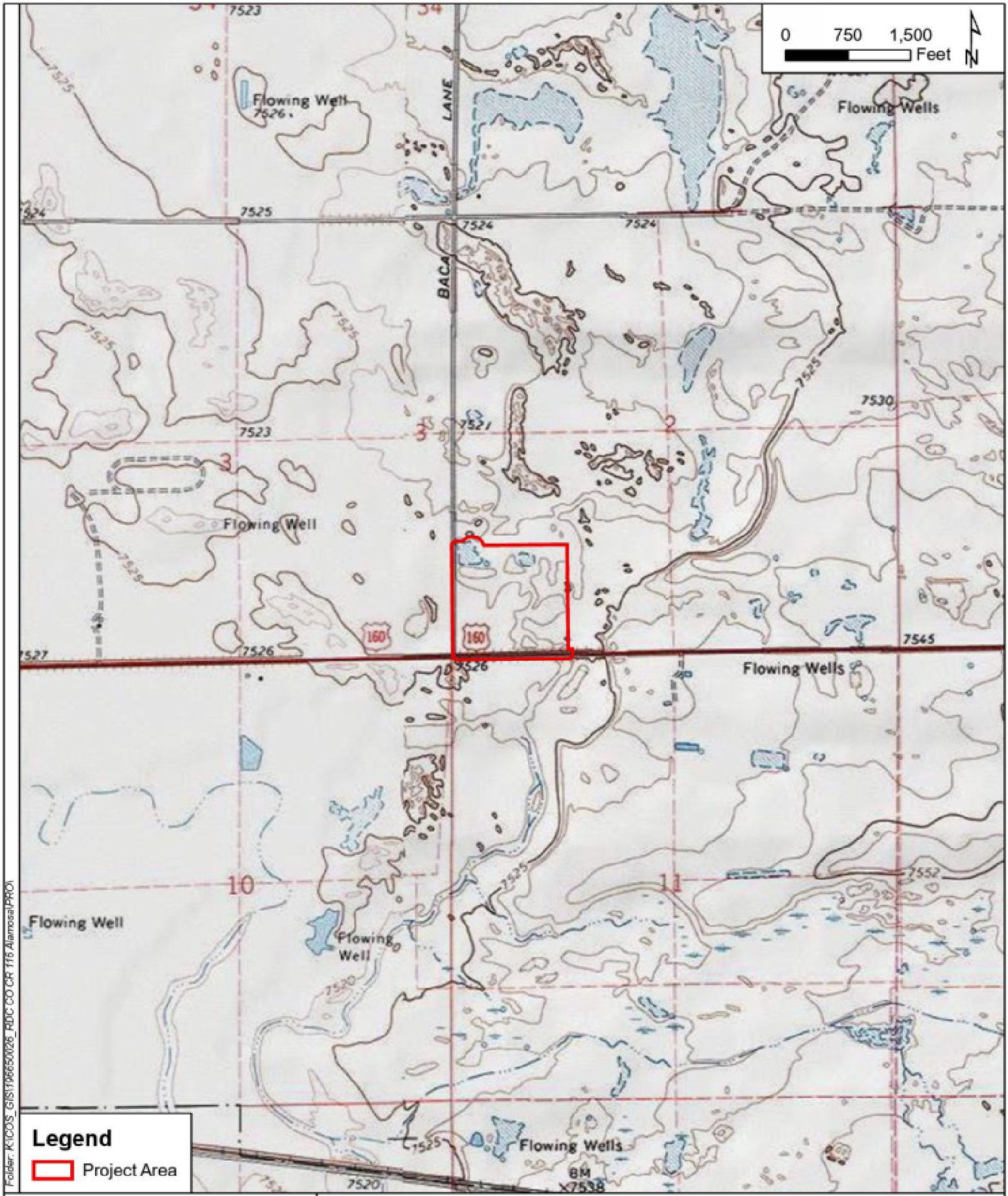
Kimley»Horn

2 N Nevada Ave, Ste 900, Colorado Springs, CO
Phone (719) 453-0180
www.kimley-horn.com

Project Location Map

RDC CO County Road 116
Alamosa County, Colorado

1 IN = 1,500 FT	PROJECT NUMBER: 196650026	MARCH 2025	FIGURE 1



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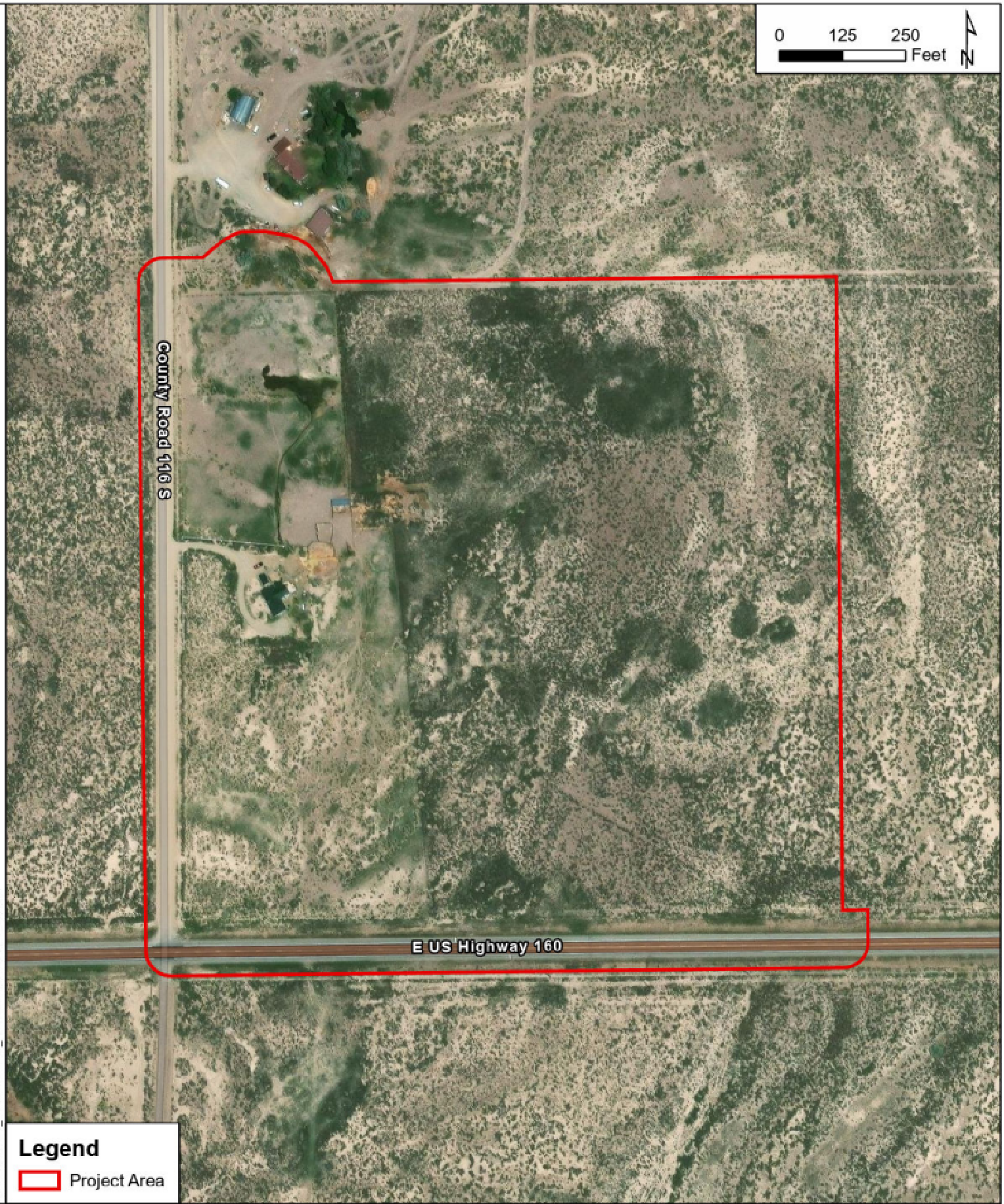
Kimley»Horn

2 N Nevada Ave, Ste 900, Colorado Springs, CO
Phone (719) 453-0180
www.kimley-horn.com

USGS Map

RDC CO County Road 116
Alamosa County, Colorado

1 IN = 1,500 FT	PROJECT NUMBER: 196650026	MARCH 2025	FIGURE 2



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Kimley»Horn

2 N Nevada Ave, Ste 900, Colorado Springs, CO
Phone (719) 453-0180
www.kimley-horn.com

Project Area Aerial Map

RDC CO County Road 116
Alamosa County, Colorado

1 IN = 250 FT	PROJECT NUMBER: 196650026	MARCH 2025	FIGURE 3

Folder: K:\COS_GIS\196650026_RDC CO CR 116 Alamosa\PROJ

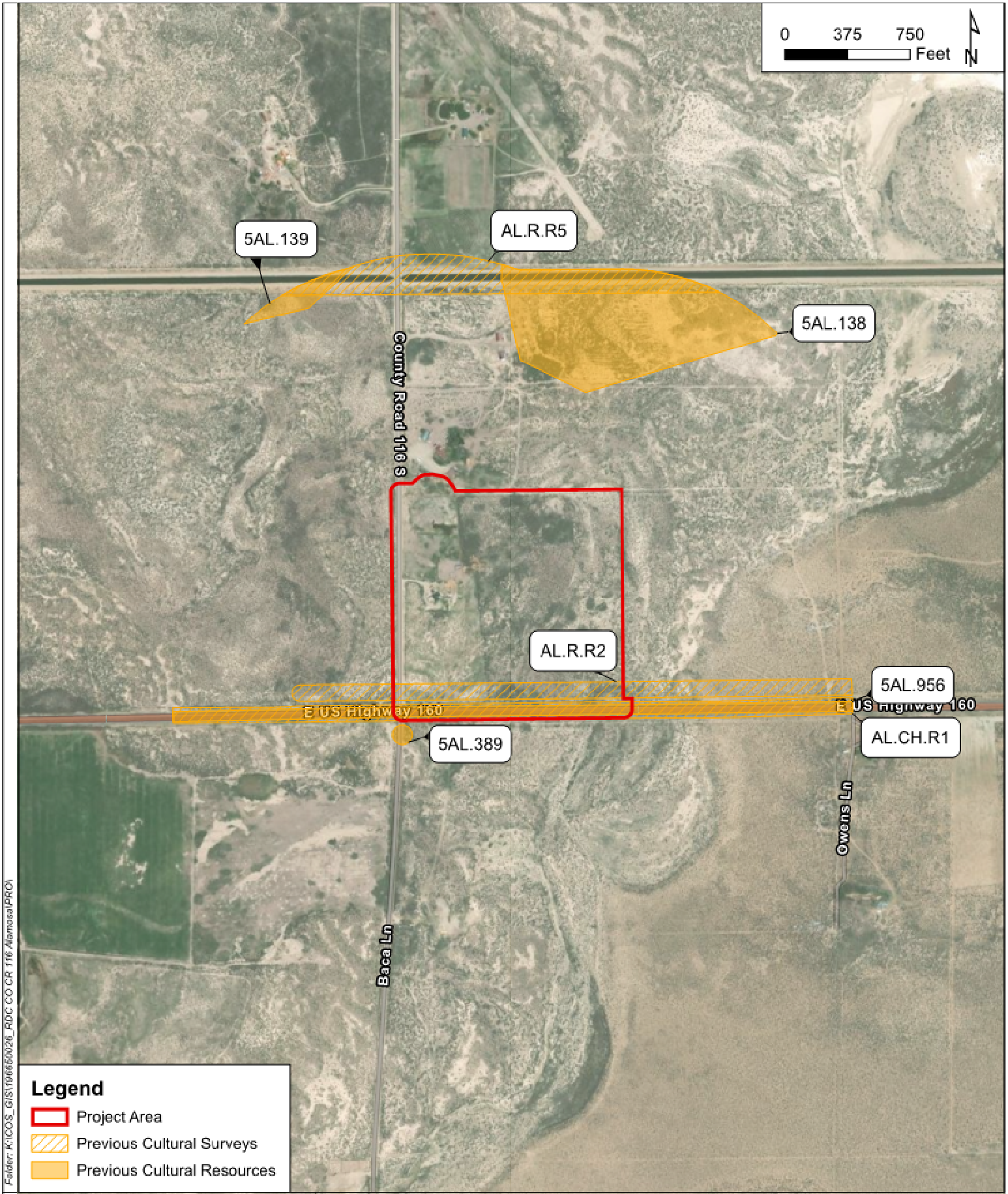
Kimley»Horn

2 N Nevada Ave, Ste 900, Colorado Springs, CO
Phone (719) 453-0180
www.kimley-horn.com

Project Area 1998 Historical Aerial Map

RDC CO County Road 116
Alamosa County, Colorado

1 IN = 250 FT	PROJECT NUMBER: 196650026	MARCH 2025	FIGURE 4



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Kimley»Horn

2 N Nevada Ave, Ste 900, Colorado Springs, CO
Phone (719) 453-0180
www.kimley-horn.com

Previously Recorded Cultural Resource and Survey Map

RDC CO County Road 116
Alamosa County, Colorado

1 IN = 750 FT	*PROJECT NUMBER: 196650026*	*MARCH 2025*	*FIGURE 5*

History Colorado

Alexis Marchando
Kimley-Horn and Associates
2 N. Nevada Ave. Ste 900 Colorado Springs CO 80903

March 11, 2025

Re: RDC CO County Rd 116 - Alamosa
File Search No. 26810

At your request, the Office of Archaeology and Historic Preservation has conducted a search of the Colorado Inventory of Cultural Resources based on your specified search criteria (the area shown in the provided shapefiles), located in the following areas:

PM	T	R	S
NM	37N	11E	2, 11, 10, 3

4 sites and 5 surveys were located in the search area(s).

If any site, district, building, structure, object, or survey area was identified within the search area, a spreadsheet of detailed information* accompanies this letter. Our records may not represent all cultural resources in Colorado, nor can they be considered comprehensive, as most of the state has not been surveyed for cultural resources. There is the possibility that as yet unidentified cultural resources exist within the proposed impact area.

This letter is not considered formal consultation under Section 106 of the National Historic Preservation Act (36 CFR 800) or the Colorado Register of Historic Places (CRS 24-80.1). In the event that there is federal or state agency involvement, please note that it is the responsibility of the agencies to meet the requirements of these regulations.

We look forward to consulting with you regarding the effect of the proposed project on significant cultural resources in accordance with the Advisory Council on Historic Preservation regulations titled “Protection of Historic Properties” or the Colorado Register of Historic Places, as applicable (http://www.historycolorado.org/consultation-guidance).

If you have any questions, please contact the Office of Archaeology and Historic Preservation at (303) 866-3392. Thank you for your interest in Colorado's cultural heritage.

Dawn DiPrince
State Historic Preservation Officer

*Information regarding significant archaeological resources is excluded from the Freedom of Information Act. As such, legal locations of these resources must not be included in documents for public distribution.

Museum of Natural History
UNIVERSITY OF COLORADO BOULDER

Paleontology Section
265 UCB MCOL
Boulder, CO 80309-0265

Locality Search Results

Locality Search #: 25010

Requestor

Name: Alexandra Kotte
Company: Kimley-Horn and Associates
Address: 2 North Nevada Avenue, Sute 900
Colorado Springs, CO 80903

Phone: 719-501-2850 Email: alex.kotte@kimley-horn.com

Project Details

Project Name: RDC CO County Rd 116 Alamosa

Type of Project

☐ Colorado Department of Transportation (CDOT) Project
CDOT Permit Number (if known): _____

☒ Other Project
☐ Project is on Federal Lands
Federal Agency (name): _____
Federal Agency Permit Number (if known): _____

☐ Project is on State Lands
State (name): _____
State Permit Number (if known): _____

Project Location:
See attached KMZ of project site +100 ft. buffer

Paleontological Localities within Project Location: ☐ Yes* ☒ No

*All requestors will receive basic locality information for the localities that are found within their project area. Only requestors with a CDOT, federal, or state permit can receive more detailed locality information for the localities that are found within their project area.

Date of Last Revision: 11/17/2020

DEPARTMENT OF EARTH SCIENCES

DENVER MUSEUM OF NATURE & SCIENCE

REV. 05/2020

Locality Search Request

Requestor Date 3/7/25

Name Alexandra Kotte

Company Kimley-Horn and Associates

Address 2 North Nevada Ave, Suite 900, Colorado Springs, CO 80903

Phone (719) 501-2850 Email Alex.Kotte@kimley-horn.com

Project Details

Project Name RDC CO County Rd 116 Alamosa

Type of Project Other (Please Describe)

Project Description Along Hwy 160, east of Road S 116 in Alamosa, Alamosa County, CO

Permit #

Project Location

Township, Range, Section T 37 North, R 11 East, S 2

.kmz of Project See Attached

Boundaries Project Buffer Zone +100 ft

Please send this form via email to Kristen.MacKenzie@dmns.org

---

To be filled out by Museum staff Invoice #

Paleontological Localities within Project Location:

○ Yes ◉ No

We do not have localities on record within your project area.

Attachment H:

Noxious Weed Mitigation, Vegetation Restoration, and Dust Mitigation Plan

Table of Contents

Appendices

Introduction

Kimley-Horn and Associates, Inc. (Kimley-Horn) was asked to create a noxious weed mitigation, vegetation restoration, and dust mitigation plan for the proposed County Road 116 Solar (project). The proposed project is located on private land in unincorporated Alamosa County, Colorado, approximately 6.8 miles east of the City of Alamosa. US Highway 160 borders the proposed project to the south and County Road 116 S to the west (**Appendix A – Project Location Map**). The project is located within a parcel approximately 40-acres in size (study area). The proposed project consists of the construction of a 3.9-megawatt solar photovoltaic (PV) generation facility on approximately 17 acres within the study area. There is no grading anticipated during construction for the area housing the PV panels.

Current Project Conditions

On March 4, 2025, qualified Kimley-Horn environmental scientists conducted field reconnaissance to document study area conditions. The study area consisted of disturbed desert scrub habitat. Colorado Department of Agriculture (CDA) designated noxious weed species accounted for approximately 10% of ground cover within the study area.

Soils

The study area lies within the Salt Flats (22c) Sub-Region of the Arizona/New Mexico Plateau Ecoregion. There are two (2) different Soil Map Units (SMU) identified within the study area by the National Resources Conservation Service (NRCS) Web Soil Survey. These soils are listed in **Table 1**. Both SMUs of the study area, Corlett-Hooper complex, undulating, and Hapney loam, are dominant soils (over 20 percent) of the study area. Corlett-Hooper complex, undulating, constitutes a total of 53.2%, or 21.4 acres, of the study area, and is characterized as fine sand and sand with a parent material of eolian deposits. Hapney loam constitutes a total of 46.8%, or 18.6 acres, of the study area, and is characterized as loam, clay, sandy clay loam, and loamy sand with a parent material of alluvium. Corlett-Hooper complex, undulating, contains hydric soil components. A complete list of study area soils is shown in **Table 1** below. A map delineating SMUs within the study area is shown in **Appendix B – Natural Resources Conservation Service Web Soil Survey**.

Table 1. Soil Map Units within the Study Area

Map Unit Symbol	Map Unit Name	Acres in Study Area	Percent of Study Area	Hydric Soil Components	Farmland
CpB	Corlett-Hooper complex, undulating	21.4	53.2%	Yes	Not prime farmland
Ha	Hapney loam	18.6	46.8%	No	Not prime farmland

There are no soils within the study area that are characterized as prime farmland, farmland of unique importance, or farmland of state importance. There are no current agriculture activities within the study area.

Current Project Vegetation

The study area consisted primarily of disturbed desert scrub habitat dominated (over 20% ground cover) by greasewood (*Sarcobatus vermiculatus*). CDA-designated noxious weed species and other invasive plants were observed and are listed in **Table 2** below. CDA noxious weeds accounted for approximately 10% of ground cover within the study area.

Table 2. CDA Noxious Weed and Other Invasive Plants within the Study Area

Species	Approximate Percent Coverage within Study Area	CDA Designation	CDA Management Goals
Diffuse Knapweeed (*Cirsium vulgare*)	10	List B	Managed to prevent further spread or designated for eradication in large areas.
Kochia (*Bassia scoparia*)	<1	Unlisted Invasive Species	None
Russian Thistle (*Salsola tragus*)	<1	Unlisted Invasive Species	None

Integrated Weed Management

The Applicant/Operator will manage for noxious weeds included on the CDA List A, List B, and List C. CDA List A plants are designated for statewide eradication. CDA List B plants are managed to prevent further spread and, for selected species, designated for eradication in large areas. CDA List C plants are of more localized concern, but for which the State will provide education, research, and biological control assistance to jurisdictions that choose to manage the species. **Table 3** lists noxious weed species identified by The San Luis Valley Weed Management Association.

Table 3. Weeds of the San Luis Valley

Common Name	Scientific Name	CDA List	Observed within Study area
Black Henbane	*Hyoscyamus niger*	B	No
Canada Thistle	*Cirsium arvense*	B	No
Common Tansy	*Tanacetum vulgare*	B	No
Cypress Spurge	*Euphorbia cyparissias*	A	No
Diffuse Knapweed	*Centaura diffusa*	B	No
Hoary Cress	*Lepidium draba*	B	No

Common Name	Scientific Name	CDA List	Observed within Study area
Houndstongue	*Cynoglossum officinale*	B	No
Leafy Spurge	*Euphorbia*	B	No
Oxeye Daisy	*Chrysantheum leucanthemun*	B	No
Perennial Pepperweed	*Lepidium latifolium*	B	No
Russian Knapweed	*Centaura repens*	B	No
Russian Olive	Elaeagnus angustifolia	B	No
Salt Cedar	*Tamarix* sp.	B	No
Spotted Knapweed	*Centaura maculosa*	B	No
Yellow Toadflax	*Linaria vulgaris*	B	No

An integrated vegetation management approach will be employed to control noxious weeds. A combination of chemical, mechanical, biological, and/or cultural noxious weed treatment methods will be used based upon the most effective method/s for post-construction weed treatment.

Based on field reconnaissance, the study area possessed stressed and disturbed areas that are susceptible to noxious weed infestation, particularly concentrated in areas adjacent to fences and areas with human activity. There is likely a pre-existing noxious weed seed bank within the soil from germinated plants in seasons past, and disturbance of this soil may provide the right conditions for germination of these dormant noxious weed seeds. Migrant noxious weed seeds also have the potential to be introduced to the study area from contaminated construction equipment, imported soil, and adjacent properties.

Control of invasive species requires repeated and on-going control measures. Care will be taken to avoid negatively impacting desirable and native plant communities and inviting infestation by other pioneer invaders. Weed management will be achieved by employing aggressive control early on and persistent control efforts over several growing seasons in conjunction with monitoring efforts. Control efforts include direct treatments, prevention through best management practices, monitoring of treatment efficacy, and subsequent detection efforts. Weed management is often limited to minimizing existing infestations and the prevention of further infestations, rather than complete eradication across the landscape.

Integrated Weed Management Monitoring

Project maintenance staff will monitor noxious weed infestations as a part of regular project operations. Overall project noxious weed status will be recorded each season, as well as each time eradication efforts are completed. Information that will be recorded includes noxious weed species, level of infestation, location of infestation, and dates, methods, and level of effort for eradication activities.

Chemical Treatment

Chemical treatments are vegetation control techniques that involve the use of one or several herbicides to suppress plant growth. There are various formulations of active ingredients that target specific weed

species while still being non-toxic to desirable vegetation. Only herbicides approved for use within the specific project setting will be used, and adherence to local, state, and federal herbicide application laws will be a top priority. Herbicide applications will be conducted only by certified applicators, as licensed by the State of Colorado for herbicide application. All instructions listed on the herbicide label will be followed.

Chemical Treatment Method:
The method of chemical treatment chosen will depend on the level of infestation present post-construction. Chemical treatments will be applied on a plant-by-plant basis or will be applied uniformly across the landscape depending on the size of infestation. If there are several populations of noxious weeds, a vehicle mounted broadcast sprayer system will be used to cover large swaths of ground. If weed populations are small, backpack sprayers operated by applicators on foot will be used to target individual plants or small populations.

Chemical Treatment Frequency and Timing:
There will initially be three chemical treatments per year post-construction. One treatment will occur in early summer to treat early season germinating weeds. Herbicides are most effective on young, freshly germinated plants. Since herbicide rates required for young plants are less than those required for more mature plants, the amount herbicide chemical introduced into the environment is also decreased. A second treatment will occur late summer. This treatment will treat the bulk of noxious weeds that will present itself during the growing season, as well as treating late season germinating weeds. A winter treatment is useful if cool season species, such as cheatgrass (*Bromus tectorum*), are present. A winter treatment also allows the use of a pre-emergent herbicide which penetrates the soil surface and prevents weed seed germination.

Once weed populations are within a manageable level, typically within two or three years of repeated treatments, the frequency of treatments may reduce to a maintenance level when there are only individual plants or small populations of noxious weeds.

Summer treatments will occur between 45° - 90° F while plants are actively growing and able to absorb herbicide. Plants do not actively grow below 45° F. Above 90° F, plant stomates close to prevent water loss and do not absorb herbicide mixes. Post-emergent herbicides will also not be applied prior to a rain or snow event, winds above 10 miles per hour (mph), or when a temperature inversion is occurring. Winter treatments will occur when the ground is free of snow, but prior to a large precipitation event. If there are no major infestations of noxious weeds or if noxious weed populations are sparse, a winter herbicide treatment will not be completed.

Herbicide Types:
Herbicides for broadleaf noxious weeds will be a broadleaf-specific selective mix. This mix will be formulated specifically to treat the noxious weed species currently present. Using a broadleaf selective herbicide mix will prevent the unintended extermination of native grasses.

Two types of herbicides that will be utilized are pre-emergent and post-emergent. Post-emergent chemical treatment is applied directly to the target plant. This method is most effective in the early life

stages of the plant, typically in late spring or summer. Pre-emergent chemical treatment is applied onto the soil, usually in winter or early spring, and prevents the germination of seeds already present in the seed bank. Winter herbicides will be a mix of pre-emergent herbicides to treat dormant seeds, as well as a cool season grass specific herbicide, such as indaziflam. If cheatgrass or other cool season species are not present, indaziflam or other similar active ingredients will not be necessary. Pre-emergent herbicides require at least 0.5 inch of precipitation to properly drive the herbicide below the soil surface. If herbicides remain exposed to the elements, such as excessive sun exposure, potency reduces, and the herbicide becomes ineffective.

Mechanical Treatment

Mechanical treatments involve the physical removal of the plant. This method is effective on plants with parts which can be effectively removed through mechanical means, such as plants with shallow tap roots or plants with seeds that are easily removed. Plants with parts that are far below ground, or plants that reproduce using rhizomatous means, are typically not susceptible to mechanical treatment. Mechanical treatment is labor intensive but reduces the amount of chemicals introduced in the environment.

Mechanical Treatment Method:

Options for mechanical removal include mowing, chopping, cutting, plowing, burning, or hand pulling. The method will be chosen based on site-specific conditions, such as location or species. Broadleaf species will require the removal of the seed heads or entire plant body straight into a receptacle and properly disposed of offsite. Invasive grasses, such as cheat grass, can be mowed in its early life stages and the cuttings do not need to be disposed of offsite since there are no seeds present.

Mechanical Treatment Frequency and Timing:

Timing of mechanical treatment is most effective prior to the seeding stage or at the very beginning before seeds have matured. If mechanical treatment is appropriate, it will occur once a year for broadleaf noxious weeds in late summer when weeds have just started to seed, but prior to seed drop. Mechanical treatment for invasive grasses will occur once a year in the spring, if invasive grasses are present.

Most broadleaf weeds drop seed in late summer or early fall, thus mechanical removal of these species will occur during this time, if applicable. If performed too early, the weed may regenerate. If performed too late, the plant will have dispersed the seed into the environment.

Biological Treatment

Biological treatment is the use of biological control agents which target specific weed species. This treatment method is not effective alone but may be paired with other treatment methods, such as chemical or mechanical treatments. Maintenance staff will evaluate the noxious weed population post-construction and will determine if biological treatments are an effective means of control. This treatment method is a natural solution to weed management, requires minimal labor, and limits the amount of chemicals released into the environment. Maintenance staff will consult with the CDA Palisade Insectary in Palisade, Colorado to discuss potential biological control agents appropriate for the study area prior to the use of biological treatments.

Biological Treatment Methods:
Examples of biological control agents available include pathogenic rust fungus (*Puccinia punctiformis*) which targets Canada thistle (*Cirsium arvense*), musk thistle rosette weevil (*Trichosirocalus horridus*) which targets musk thistle (*Carduus nutans*), and *Aceria malherbae* which targets field bindweed (*Convolvulus arvensis*).

Biological Treatment Frequency and Timing:
Biological control agents like pathogenic rust fungus may need to be applied every year since the fungus is an obligate plant pathogen and requires living plants to survive. Once the Canada thistle dies off for the winter, so does the fungus. Insect biological control methods, on the other hand, may be able to establish a self-sustaining population with just one introduction if the site provides adequate conditions.

Biological control insects can take several seasons to establish a self-sustaining population large enough to be an effective tool in combating weeds. The timing of chemical treatments will be paired with the life cycle of the insect biological control agent to not interfere with insect development.

Cultural Treatment

Achieving effective cultural treatment is the ultimate goal of weed management as it reduces chemicals introduced into the environment, limits the amount of labor required for mechanical treatment, reduces overall budget required to maintain a weed-free area, and is a self-sufficient method requiring minimal management. Planting and/or maintaining a robust native plant community is the most effective means of noxious weed suppression; however, this treatment method is achieved in conjunction with other treatment methods. Native species seeding re-establishes native plant communities while reducing the weed population. A healthy native plant community will out-compete noxious weeds for water, nutrients, and sunlight.

Cultural Treatment Method:
Cultural treatment methods involve seeding of disturbed areas with a native seed mix consisting of grasses, forbs, and shrub species suitable for the project.

Cultural Treatment Frequency and Timing:
Native seeding will occur a minimum of once a year in the fall or winter if there are bare ground or disturbed areas suitable for native plant establishment.

Diffuse Knapweed Specific Recommendation

Chemical treatment will be the most effective initial control method for diffuse knapweed for the first few years of a noxious weed control effort. Chemical control options proven to be effective at controlling diffuse knapweed populations include picloram, clopyralid, aminopyralid or a combination of these active ingredients with the addition of 2,4-D. Once diffuse knapweed populations have been reduced to a management level, cultural treatments can be implemented to achieve a self-sustaining native vegetation population. Annual monitoring of noxious weeds will still be required, and chemical

treatment may be necessary on a plant-by-plant basis.

Vegetation Restoration

Vegetation Restoration Monitoring

Project maintenance staff will monitor native plant revegetation efforts as a part of regular project operations. Overall project revegetation status will be recorded each season, as well as each time revegetation efforts are completed. Information that will be recorded include species used for revegetation, amount of native seed used, location of revegetation efforts, and dates, methods, and level of effort for revegetation activities.

Soil Preparation

Soil decompaction may be required for native seed establishment to allow proper oxygen exchange for plant roots; however, decompaction also increases soil vulnerability to weed infestation, soil erosion, increased dust particles, or cause further damage to surviving native plant rootstocks that may be present. The Applicant/Operator will evaluate soil compaction and employ no treatment, limited treatment, or full treatment. Where soil decompaction is implemented, follow-up measures to control erosion will also be implemented.

Soil Preparation Method:
Soils will be decompacted using hand tools, light harrowing or disking with a tractor, or deeper disking or ripping. Soil conditions will be improved, if necessary, using the addition of various fertilizers and amendments to provide the proper conditions for seed germination and continued vegetative growth. A soil test will be completed to identify the elements lacking or in overabundance within the pre- existing soil profile. The importation of additional soil may be required depending on the condition of existing soil within the study area.

Soil Preparation Frequency and Timing:
Soil preparation will occur prior at every seeding event. Since seeding will occur in the fall or winter, soil preparation will also occur at this time.

Revegetation

The Applicant/Operator will reseed reclaimed areas with a native seed mix chosen for project specific conditions. The determination whether to reseed certain areas and what seeding rates to be used will be determined based on the nature of disturbance and condition of soils post-construction. There will be no reseeding of areas where sufficient native vegetation is present, or where vegetation has recovered to a sufficient level. This process will involve the planting of vegetation species that is appropriate for the setting.

A reference point will be taken of a well-established native community with similar landscape and climatic conditions to the study area and within the same region. The seed mix chosen will mimic this reference area. Soil tests will also be conducted to gather soil nutrient and minerals information required for native vegetation establishment.

The timing of revegetation efforts will occur at an appropriate time in relation to season (light and temperature) and hydrology (soil moisture). If the correct timing is not feasible, supplemental irrigation may be necessary depending hydrologic conditions of the particular year.

Erosion

Erosion reduces soil fertility, native vegetation establishment, and the ability to retain water. Erosion also increases the likelihood of weed infestation, sedimentation, and pollution. Erosion best management practices (BMP) will be employed to limit soil erosion and off-site sediment run-off, as well as retaining current topsoil. Examples of possible BMPs used for this effort include:

- Erosion control blankets
- Straw wattles
- Surface roughening
- Mulch inclusion
- Check dams
- Silt fence

Soil Erosion Factors

Soil K factor indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation and the Revised Universal Loss Equation to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. Factor K does not apply to organic horizons and is not reported for those layers.

Erosion factor Kw (whole soil) indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments. Other factors being equal, the higher the Kw value, the more susceptible the soil is to sheet and rill erosion by water. Using the NRCS Web Soil Survey, soil Kw factor within the study area is shown in **Table 4**.

Table 4. Soil K_w Factor

Map Unit Symbol	Map Unit Name	Rating	Acres in Study Area	Percent of Study Area
CpB	Corlett-Hooper complex, undulating	.28	21.4	53.2%
Ha	Hapney loam	.32	18.6	46.8%
Totals for Area of Interest			**40.0**	**100.0%**

Soil T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. T factor is reported in tons per acre per year. Using the NRCS Web Soil Survey, soil T factor within the study area is shown in **Table 5**.

Table 5. Soil T Factor

Map Unit Symbol	Map Unit Name	Rating (tons of acres per year)	Acres in Study Area	Percent of Study Area
CpB	Corlett-Hooper complex, undulating	2	21.4	53.2%
Ha	Hapney loam	4	18.6	46.8%
Totals for Area of Interest			**40.0**	**100.0%**

Soil drainage class refers to the frequency and duration of wet periods under conditions similar to those under which the soil is formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Using the NRCS Web Soil Survey, soil drainage class within the study area is shown in **Table 6**.

Table 6. Soil Drainage Class

Map Unit Symbol	Map Unit Name	Rating	Acres in Study Area	Percent of Study Area
CpB	Corlett-Hooper complex, undulating	Moderately well drained	21.4	53.2%
Ha	Hapney loam	Well drained	18.6	46.8%
Totals for Area of Interest			**40.0**	**100.0%**

Dust Mitigation

Fugitive dust emissions are expected to result from dust generating activities and soil disturbance activities to be performed including the following: site preparation, grading/excavation activities, on-site and offsite travel on paved and unpaved surfaces, aggregate and soil loading and unloading operations, and wind erosion of areas disturbed during construction activities. Project preparation operations such as vegetation clearing, grading, excavation of footings and foundations, and backfilling operations often result in generating the largest fugitive dust emissions. Other sources of dust will include vehicles and equipment moving rapidly on un-surfaced roads and work areas as well as significant wind action on unprotected soil piles or topsoil storage areas. This plan applies to fugitive dust generated by construction activities and vehicle trips by support equipment on unpaved roads.

Fugitive dust is airborne particulate matter which is suspended in the air by wind or human activities and does not originate from a point source (e.g., stack). These activities are governed by the applicable rules and regulations in Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division Regulation Number 1 and by several mitigation measures developed as part of the 1041 permitting process and/or Mitigation Monitoring and Reporting Plan. This plan depicts methods by which fugitive dust emissions emanating from the proposed solar energy facility will be mitigated and reduced to a minimum possible amount by following regulations.

It would be the responsibility of the Applicant/Operator and its contractors, to obtain all necessary

permits from Alamosa County. The final mitigation plan would include and implement the specific requirements of the CDPHE and the Colorado Air Quality Control Commission as required by Alamosa County.

The study area location in Alamosa County is in attainment with the National Ambient Air Quality Standards for nitrogen dioxide, sulfur dioxide, lead, carbon monoxide, particulate matter (PM) 2.5 24-hour, PM2.5 annual, PM10, 1-hour ozone (O3), and 8-hour O3 according to the Environmental Protection Agency's current Green Book. Best practices during construction activities should be followed to minimize combustion of gas and emissions of hydrocarbons in the atmosphere.

Dust Control Methods

Controlling fugitive dust sources would be accomplished through a range of best available control measures. Reducing vehicle and equipment speeds on unpaved surfaces, minimizing the amount of new exposed soil/surface disturbance, and periodic application of clean water as recommended by the environmental monitors to exposed disturbed surface areas would control fugitive dust during construction. Water trucks will be used to help control dust while construction activities are occurring.

Water application will be used as a control method for limiting visible dust emissions and stabilizing surface areas. Where application of water is not possible, material stockpiles will be enclosed or covered. In addition, open-bodied trucks transporting materials likely to become airborne will be covered. Earth or other materials that may become airborne will promptly be removed from paved roads.

The environmental monitor and dust control coordinator will monitor construction to ensure that dust does not leave the work area and accumulate on adjacent parcels or roadways. Dust control efforts will be monitored on a regular basis to ensure dust is adequately controlled. If visible dust dispersion to off-site locations becomes apparent, the environmental monitor will recommend a maximum speed limit in dust-prone areas, cover stockpiles, and/or apply additional water to access roads and work areas as necessary. Care will be taken not to over-apply water and create mud. BMPs will be exercised to limit fugitive dust from being airborne and traveling beyond the property lines.

General: The Applicant/Operator will maintain the natural topography to the extent possible and will follow a construction schedule specifying the construction of designated parking lots, laydown areas, and stabilized roads first wherever feasible. The contractor will turn off equipment when it is not in use. Mowing and rowing techniques will be used to maintain plant root systems for soil stabilization wherever feasible.

Use of Roads and Parking Areas:

- Unless other limitations apply, traffic speeds on unpaved roads will be limited to 15 mph. Traffic speed signs will be displayed prominently at all project entrances and at egress points from temporary staging and parking areas.
- Traffic on unpaved roads outside the project will be restricted to approved established travel paths or haul routes and approved stabilized parking lots.
- The main access roads through the project shall be either paved or stabilized using soil binders,

or equivalent methods, to provide a stabilized surface that is similar for the purposes of dust control to paving, that may or may not include a crushed rock (gravel or similar material with fines removed) top layer, prior to initiating construction.

- The main vehicular access roads to the solar facility will be maintained to eliminate track-out extending 25 feet or more in cumulative length onto paved roads from the point of origin from an active operation.
- All construction equipment vehicle tires shall be cleaned free of dirt prior to entering paved roadways to prevent track-out from extending 25 feet or more in cumulative length from the point of origin from an active operation.
- All unpaved exits from the construction site shall be graveled, paved or treated to prevent track-out onto public roadways.
- At least the first 500 feet of any paved public roadway exiting the construction site or exiting other unpaved roads to access the construction site or staging areas shall be swept as needed when dirt or runoff resulting from the construction activities is visible on the paved public roadway.
- Magnesium chloride will be used as a dust-control agent on unpaved access roads. Magnesium chloride has hygroscopic properties, meaning it will absorb moisture from the air and limit dust by keeping the road surface damp.

Earth Moving Activities:

- When wind speeds exceed 25 mph, construction contractors will minimize new disturbance to the extent possible and/or mobilize additional water trucks to minimize fugitive dust from exposed surfaces.
- Graded surfaces will be stabilized upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions.

Disturbed Surface Area:

- Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust, will have an application of water at least twice per day to at least 80 percent of the unstabilized area.
- All dust control agents used on county roads will be approved for use by the Alamosa County Public Health Department and the Public Works Department.
- Dust control chemicals will be applied in such a manner that will not contaminate any waters of the United States or waters of the State.
- When feasible, a water truck will be used to maintain moist disturbed surfaces and actively spread water during visible dusting episodes to minimize visible fugitive dust emissions.
- Disturbance areas will be minimized to the maximum extent feasible.

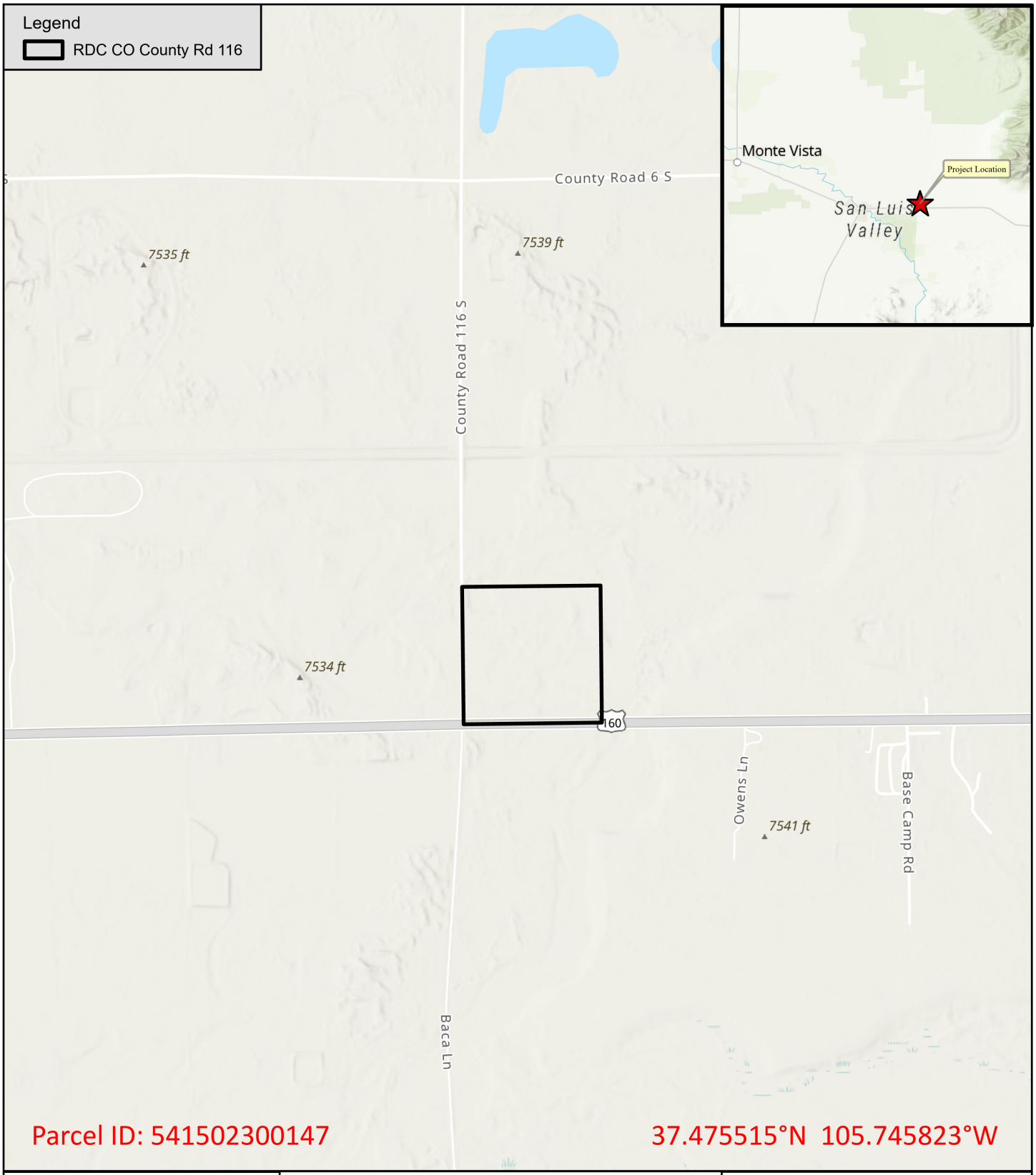
Removing and Hauling Soil, Sand, and Other Loss Materials:

- Material will be stabilized while loading and unloading to reduce fugitive dust emissions.

- Soil loads will be kept below 12 inches of the freeboard of the truck or will be covered.
- Drop heights will be minimized when loaders dump soil into trucks.
- Gate seals will be tight on dump trucks.

Other Unanticipated Sources:
Use of other fugitive dust control measures may be necessary to comply with Alamosa County Rules and Regulations.

Appendix A: Project Location Map



Parcel ID: 541502300147

37.475515°N 105.745823°W

Project Location

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.25 0.5 1 Miles

N

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Appendix B: National Resources Conservation Service Soils Report

Soil Map—Alamosa Area, Colorado
(Shape File condensed)

Map Scale: 1:3,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Alamosa Area, Colorado
Survey Area Data: Version 18, Aug 29, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2020—May 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CpB	Corlett-Hooper complex, undulating	21.4	53.2%
Ha	Hapney loam	18.9	46.8%
Totals for Area of Interest		**40.3**	**100.0%**

Attachment I:

Biotic and Aquatic Conditions Report

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Appendix I: United States Fish and Wildlife Service Information for Planning and Consultation Report
Appendix J: Colorado Conservation Data Explorer (CODEX) High Priority Habitats Report

Introduction

Kimley-Horn and Associates, Inc. (Kimley-Horn) was asked by Reactivate LLC (Applicant) to perform a review of biotic and aquatic conditions for the proposed County Road 116 Solar (project). The proposed project is located on private land in unincorporated Alamosa County, Colorado, approximately 6.8 miles east of the City of Alamosa. US Highway 160 borders the project to the south and County Road 116 S to the west (**Appendix A – Project Location Map**). The project is located within a parcel approximately 40-acres in size (study area). The proposed project consists of the construction of a 3.9-megawatt solar photovoltaic (PV) generation facility on approximately 17 acres within the study area. There is no grading anticipated during construction for the area housing the PV panels. Qualified Kimley-Horn environmental scientists surveyed the entire study area on March 4, 2025, to characterize existing study area conditions and to observe for potential natural resources of concern.

The study area is surrounded by private lands to the north, east, south, and west. A Bureau of Land Management (BLM) Area of Critical Environmental Concern (ACEC) (Blanca Wetlands) is located approximately 1 mile northeast of the study area. A map of the land ownership is shown in **Appendix B – Project Vicinity Map**.

Regulatory Background

Federally Listed Threatened and Endangered Species

The purpose of the federal Endangered Species Act (ESA) is to protect and recover imperiled species and the ecosystems upon which they depend. The United States (U.S.) Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) administer the ESA. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife. Under the ESA, species may be listed as Threatened or Endangered (T&E). "Threatened" means a species is likely to become endangered within the foreseeable future. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. Under the ESA, individual species and their habitats are protected.

USFWS current policy requires that the project proponent determine the potential for impact to a T&E species for each project and then notify the USFWS for formal consultation if a proposed project "may affect" a listed species. The USFWS notes that "a qualified biologist should use the USFWS website and other current information to make this determination". For non-federally funded projects that "may affect" or are likely to adversely affect T&E species or their habitat, a Section 10(a)(1)(B) permit would be required. The USFWS also notes that for those projects with a federal (government) nexus, it is the responsibility of the federal action agency [under Section (7)(a)] to determine if a proposed project "may affect" T&E species or their habitat. Under Section 7, proposed T&E species must be considered in the effects analysis. This would apply if a federal nexus is identified for the project. Section 9 of the ESA prohibits the "take" of endangered species of fish or wildlife. Take is defined as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or an attempt to do the same". Under Section 9 of the ESA, proposed T&E species on private land without a federal nexus are not required to be considered in the effects analysis.

State Listed Threatened and Endangered Species

As directed by Colorado State Statute 33 (State Statute 33; CRS Ann. §§33-2 to 102-106), the Colorado Wildlife Commission issues regulations and develops management programs implemented by Colorado Parks and Wildlife (CPW) for wildlife species not federally listed as threatened or endangered. This includes maintaining a list of state threatened and endangered species. CPW also maintains a list of species of concern, but these species are not protected under State Statute 33. Although State Statute 33 prohibits the take, possession, and sale of a state-listed species, it does not include protection of their habitat.

Species of Greatest Conservation Need

The Department of the Interior and Related Agencies Appropriations Act of 2002, Public Law 107-63, Title 1, created the State Wildlife Grants program (SWG). The SWG provides annual funding for conservation of wildlife and wildlife habitats. To receive SWG funding, states are required to prepare and adopt a State Wildlife Action Plan (SWAP) every 10 years to remain eligible. SWAP are plans which guide the conservation of a state's most vulnerable species and their habitats. Colorado's first SWAP was completed in 2006 and the most recent SWAP was created in 2015. CPW and Colorado Natural Heritage Program are currently working to create a draft 2025 SWAP, due to USFWS on September 30, 2025.

The 2015 SWAP splits Species of Greatest Conservation Need (SGCN) species into Tier 1 and Tier 2. Tier 1 species represents species of highest conservation priority in the state. Tier 2 species are defined as "important in light of forestalling population trends or habitat conditions that may lead to a threatened or endangered listing status, but the urgency of such action has been judged to be less." There are 55 Tier 1 and 104 Tier 2 species identified in the 2015 SWAP.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) makes it illegal for anyone to "take (including killing, capturing, selling, trading, and transport)" of any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations by the USFWS. Typically, if active nests of bird species protected by the MBTA are identified, the USFWS recommends avoiding tree clearing or nest removal until at least the peak of the nesting season (generally March 15 – August 31 in Colorado) has passed or until the nest is abandoned. It should be noted that the permissibility of "incidental take" has been in flux since 2017. "Incidental take" is take that results from an activity but is not the sole purpose of that activity. At the time of this report, it is our understanding that "incidental take" of migratory birds is enforceable under the MBTA.

Bald and Golden Eagles

According to the USFWS, the Bald and Golden Eagle Protection Act (BGEPA) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs. In addition to immediate impacts, this definition also covers "impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree

that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment."

Noxious Weeds

Noxious weeds are a major threat to the natural and agricultural resources of Colorado. In an effort to curb the spread of noxious weeds, the State of Colorado has included The Colorado Noxious Weed Act in Title 35 of the Colorado Revised Statues. The Colorado Noxious Weed Act states that the management of noxious weeds is the responsibility of local governing agencies and has jurisdiction over both public and private lands.

The State of Colorado has developed a State Designated Noxious Weed list by rule of the Colorado Department of Agriculture (CDA). The state has identified 82 plants as Designated Noxious Weeds with an additional 19 species on the Watch List, effective as of May 2023.

To meet the requirements of the Colorado Noxious Weed Act management goals, management techniques for noxious weeds will be implemented for species listed on the CDA Designated Noxious List:

- List A – designated for statewide eradication
- List B – managed to prevent further spread and, for selected species, designated for eradication in large areas
- List C – of more localized concern, but for which the State will provide education, research, and biological control assistance to jurisdictions that choose to manage the species

Waters of the United States

On August 29, 2023, the U.S. Environmental Protection Agency (EPA) and Department of the Army (the agencies) issued a final rule to amend the final "Revised Definition of 'Waters of the United States'" rule, published in the *Federal Register* on January 18, 2023. This final rule conforms the definition of waters of the United States (WOTUS) to the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*. Effective as of September 8, 2023, WOTUS is defined as the following:

"Under the agencies' current rule, traditional navigable waters, interstate waters, and the territorial seas, as well as their tributaries and adjacent wetlands, are waters of the United States. So too are any "[i]ntrastate lakes and ponds, streams, or wetlands" that either have a continuous surface connection to categorically included waters or have a significant nexus to interstate or traditional navigable waters."

The Clean Water Act (CWA) prohibits the discharge of pollutants from a point source into "navigable waters" unless otherwise authorized under the CWA. "Navigable waters" are defined in the CWA as "the waters of the United States, including the territorial seas." Thus, WOTUS is a threshold term establishing the geographic scope of federal jurisdiction under the CWA.

CWA jurisdiction over an adjacent wetland requires that the adjacent body of water constitutes

WOTUS (a relatively permanent body of water connected to traditional interstate navigable waters) and a continuous surface connection between the wetland and that water, making it difficult to determine where the 'water' ends and the 'wetland' begins."

The Supreme Court reviewed the history of judicial interpretations of WOTUS and enforcement by federal agencies, which argued that the significant-nexus test was sufficient to establish jurisdiction over "adjacent" wetlands. Under that test, nearly all waters and wetlands are potentially susceptible to regulation, "putting a staggering array of landowners at risk of criminal prosecution for such mundane activities as moving dirt." The CWA's use of "waters" encompasses only relatively permanent, standing, or continuously flowing bodies, ordinarily called streams, oceans, rivers, and lakes. Wetlands qualify as WOTUS only if "indistinguishable from waters of the United States," having a continuous surface connection to bodies that are WOTUS in their own right, with no clear demarcation between waters and wetlands.

The primary holding is that the Supreme Court limits CWA jurisdiction over "adjacent wetlands" to those having a "continuous surface connection" to bodies that are WOTUS in their own right, with no clear demarcation between the "waters" and "wetlands". A memorandum, released by USACE on March 12, 2025, further narrows the scope of what is considered an "adjacent wetland" and rejects previous broader interpretations based on hydrologic or intermittent connections. The guidance emphasizes that wetlands must have a "continuous surface connection" and directly abuts a jurisdictional water to be considered an "adjacent wetland". Aquatic features separated by berms, dikes, uplands, or indirect hydrologic features no longer qualify as adjacent according to this memo.

Waters of the State

Colorado House Bill (HB) 24-1379- Colorado Dredge and Fill Program Implementation directs the Water Quality Control Division to implement a dredge and fill authorization program and the Water Quality Control Commission to establish rules for individual permitting and mitigation by December 31, 2025. Until permitting and mitigation rules are established, Clean Water Policy 17 (Enforcement of Unpermitted Discharges of Dredged and Fill Material into State Waters) remains in effect until January 1, 2025. Under Clean Water Policy 17, Colorado's Water Quality Control Act (WQCA) compliments the CWA, defining "state waters" as "any and all surface and subsurface waters which are contained in or flow through the state," along with certain enumerated exclusions. Although Section 404 permits have never covered all waters of the state (WOS), Colorado has historically concluded that the traditional scope of federal WOTUS jurisdiction and associated federal 404 permitting were sufficiently protective of Colorado's water quality such that projects occurring in the small subset of WOS that were outside the scope of federal jurisdiction did not require state oversight or enforcement for impacts of discharges of dredged or fill material. Thus, although there have been some unpermitted discharges of dredged or fill material into the relatively small subset of WOS not covered by federal 404 permits, historically the division has exercised enforcement discretion to allow projects involving this narrow subset of WOS to move forward, rather than pursuing enforcement against such discharges, even though they might violate the WQCA's prohibition against unpermitted discharges.

On May 25, 2023, the Supreme Court issued a decision in Sackett v. EPA that reinterprets the scope of federal jurisdiction under the CWA (the Sackett decision). The Court's description of "waters of the United States" as including only relatively permanent bodies of water connected to traditional interstate navigable waters will likely result in all ephemeral and many intermittent waters, which constitute the majority of Colorado's stream miles, being outside the scope of federal CWA jurisdiction. This Supreme Court decision will result in less water quality protections for Colorado. WCQA is intended to continue protecting Colorado's waters to the same extent as they were protected prior to the Sackett decision. Sackett Gap Waters (State waters) are waters that were under the jurisdiction of the federal 404 permitting program as WOTUS pursuant to the pre-2015 federal regulations and the 2008 Guidance, but that are no longer considered WOTUS because of the change in the scope of federal jurisdiction resulting from the Sackett v. EPA decision. Sackett Gap Waters do not include the subset of WOS that were outside the scope of federal jurisdiction under the pre-2015 federal regulations and the 2008 Guidance.

This policy applies to unpermitted point source discharges of dredged or fill material into WOS that occur on or after the date of the Sackett decision. Discharges of dredged or fill material include both the direct placement of materials into WOS (e.g., stream crossings, realignment, and filling wetlands) and the redeposit of materials in WOS that may result from excavation and other activities that can move pollutants within WOS (e.g., excavations or dredging, driving construction equipment in a channel, and bank stabilization). Dredged and fill materials are pollutants, and their discharge into WOS is subject to oversight under the WQCA. The division does not intend to take enforcement action for unpermitted discharges of dredged or fill material into WOS if the discharge would have been eligible for coverage under a Corps nationwide or general permit that was in effect prior to the date of the Sackett decision and was included in the scope of federal jurisdiction that was in effect prior to the date of the Sackett decision. The division strongly encourages owners and operators to notify the division of any unpermitted discharge of dredged or fill material into WOS for which, as of July 6, 2023, a federal 404 permit is not required.

Resource Review and Field Methodology

Kimley-Horn personnel conducted field reconnaissance with the objective of identifying potential natural resources of concern on March 4, 2025. Representative photographs to document general conditions were also taken (**Appendix C – Representative Study Area Photographs**). During the field visits, the approximate temperature was 40-45° Fahrenheit, with partly cloudy skies and winds approximately 20-30 mph. Vehicle access to the study area was provided via US Highway 160 and County Road 116 S. Existing conditions as determined by field reconnaissance is available in **Appendix D – Field Reconnaissance - Biological Resources Map**.

Background Information

The biotic and aquatic conditions survey was completed using a combination of existing information obtained from readily available public sources including public and private databases, published literature, reports, Geographic Information System data, and field reconnaissance.

Database Review

The following data sources were used to complete this study:

- Colorado Conservation Data Explorer (CODEX)
    - CODEX database includes information from:
        - Bird Conservancy of the Rockies (BCR)
        - Colorado Natural Heritage Program (CNHP)
        - CPW
        - National Land Cover Database (NLCD)
        - NatureServe
        - USFWS
- CPW Mapped Raptor Nest Database (Public Access Restricted)
- CPW Species Activity Mapping (SAM) Database
- CPW High Priority Habitat (HPH) Database
- USFWS Information for Planning and Consultation (IPaC)
- National Wetlands Inventory (NWI)
- National Hydrography Dataset (NHD)
- CNHP Colorado Wetlands Inventory Mapping Tool (CWIMT)
- Federal Emergency Management Agency (FEMA)
- San Luis Valley Habitat Conservation Plan (HCP)

Mapping Information

Prior to performing field reconnaissance, selected maps were reviewed to assist with identifying potential natural resources in the study area. The selected resources are described below.

Aquatic Resource Databases

NWI data is published by the USFWS and depicts suspected wetland areas and waterbodies based on stereoscopic analysis of high-altitude aerial photographs. NHD is published by the U.S. Geological Survey and depicts suspected wetland areas and waterbodies at a coarse scale (1:24,000 or larger). NWI and NHD are not regularly updated and have not been validated in the field. CWIMT incorporates federal, state, and local datasets and provides only potential and approximate locations of the features mapped. Datasets incorporated into the CWIMT are sourced from NWI, CPW, BCR, Playa Lakes Joint Venture, as well as datasets internal to CNHP itself.

One NHD and CNHP-mapped freshwater emergent wetland feature is located in the northwest portion of the study area. One NHD-mapped feature is located in the north-central portion of the study area. **Appendix E – Desktop Hydrology Map** delineates the boundaries of potential wetlands and waters within the study area as recorded by the NWI, NHD, and CNHP databases.

Federal Emergency Management Agency

The study area lies within FEMA FIRM Map #0800090040A (effective 01/19/1978). According to FEMA's National Flood Hazard Layer, there is no modernized data to determine the flood hazard for the selected location.

National Land Cover Database

NLCD provides nation-wide data on land cover and land cover change at the Landsat Thematic Mapper 30-meter resolution. NLCD provides spatial reference and descriptive data for characteristics of the land surface such as thematic class (e.g., urban, agriculture, and forest), percent impervious surface, and percent tree canopy cover. Based on the NLCD, the study area consists almost entirely of the shrub/scrub land cover type with smaller areas of developed – low intensity, developed – medium intensity, developed – high intensity, and woody wetlands (**Appendix F – National Land Cover Database Map**). Field reconnaissance determined that NLCD land cover type locations were generally accurate to field observations.

Literature Review

Federal and State Natural Resource Agencies

Information on sensitive wildlife habitat was identified by reviewing suitable habitat criteria provided by federal and state natural resource agencies such as USFWS and CPW. The USFWS Environmental Conservation Online System publishes information for federal T&E species, including for species identified in the IPaC report (USFWS 2025). Information typically provided by this system includes habitat requirements, food habits, current range, critical habitat locations, listing status, and federal register documents.

CPW provides Species Profiles as an online resource for sensitive species within Colorado (CPW 2025). Species information includes state listing status, physical characteristics, range, habitat, diet, and reproduction.

San Luis Valley Regional Habitat Conservation Plan

The San Luis Valley Regional Habitat Conservation Plan (HCP), published in October of 2012, "provides for the long-term protection and conservation of the covered species while allowing for the continuation of ongoing and routine agriculture, community infrastructure, and riparian conservation and restoration activities..." (ERO 2012). The HCP is administered by the Rio Grande Water Conservation District on behalf of the six counties encompassing the San Luis Valley (Valley) floor. These counties are Alamosa, Conejos, Costilla, Rio Grande, Mineral and Saguache counties.

The HCP covers two avian species listed under the ESA. Southwestern willow flycatcher (*Empidonax traillii extimus*) is federally endangered, and the western U.S. distinct population segment of yellow-billed cuckoo (*Coccyzus americanus*) is federally threatened. The entire Colorado portion of the flycatcher recovery area is covered within the scope of the HCP.

The HCP also focuses on approximately 250 stream miles within the Valley and the associated riparian communities. Riparian communities within the Valley consists of woody trees and shrubs, wetlands, grasslands, and open water. The woody canopy includes stands of coyote willow (*Salix exigua*), peachleaf willow (*Salix amygdaloides*), crack willow (*Salix fragilis*), and cottonwood trees (*Populus* spp.). Other vegetation types found within the riparian communities of the Valley include native and introduced grasses, sedges, rushes, greasewood (*Sarcobatus* spp.), and rabbitbrush (*Chrysothamnus* spp.).

Field Methodology

Kimley-Horn environmental scientists surveyed the entire study area on March 4, 2025. Field reconnaissance focused on identifying aquatic features, as well as suitable habitat for sensitive plant and wildlife species.

Aquatic Resource Field Methodology

Aquatic features were evaluated using the *U.S. Army Corps of Engineers* (USACE) *1987 Wetland Delineation Manual and Regional Supplement: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE 2010) and *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (USACE 2025). Aquatic feature surveys were conducted on foot within the study area. The examination of wetlands involved the observation of vegetation, soil, and hydrology. Wetlands are considered present if they possess hydrophytic vegetation, hydric soils, and suitable hydrology, as these are the three wetland characteristics required by USACE. Soil test pits were collected to determine the presence of hydric soils. Soil test pit efforts were focused primarily within NWI, NHD, and CNHP-mapped features, areas of potential inundation, areas containing hydrophytic vegetation, and locations within the project impact area itself.

Biological Resource Field Methodology

Vegetation species identification in support of sensitive wildlife habitat suitability were identified to the Genus taxonomic rank, at minimum, with a focus on identification down to Species taxonomic rank, when possible. Biological surveys were conducted on foot within the study area, and within a vehicle on publicly accessible roads within a 0.5-mile radius of the study area when in search of raptor nests. Observations were conducted with the naked eye and was also aided with binoculars, when appropriate.

Summary of Results

Soils

The study area lies within the Salt Flats (22c) Sub-Region of the Arizona/New Mexico Plateau Ecoregion. There are two (2) different Soil Map Units (SMU) identified within the study area by the National Resources Conservation Service (NRCS) Web Soil Survey.

The study area soils are listed in **Table 1.** Both SMUs of the study area, Corlett-Hooper complex, undulating, and Hapney loam, are dominant soils (over 20 percent) of the study area. Corlett-Hooper complex, undulating, constitutes a total of 53.2%, or 21.4 acres, of the study area, and is characterized as fine sand and sand with a parent material of eolian deposits. Hapney loam constitutes a total of 46.8%, or 18.6 acres, of the study area, and is characterized as loam, clay, sandy clay loam, and loamy sand with a parent material of alluvium. Corlett-Hooper complex, undulating, contains hydric soil components. A complete list of study area soils is shown in **Table 1** below. A map delineating SMUs within the study area is shown in **Appendix G – NRCS Soils Map**.

Table 1. Soil Map Units within the Study Area

Map Unit Symbol	Map Unit Name	Acres in Study Area	Percent of Study Area	Hydric Soil Components	Farmland
CpB	Corlett-Hooper complex, undulating	21.4	53.2%	Yes	Not prime farmland
Ha	Hapney loam	18.6	46.8%	No	Not prime farmland

Prime farmland, as defined by the U.S. Department of Agriculture (USDA), is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses (USDA 2012). There are no soils within the study area that are characterized as prime farmland.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has a special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yield of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. There are no soils within the study area that are characterized as farmland of unique importance or farmland of state importance. There are no current agriculture activities within the study area. Soils are likely not a constraint to project development at the time this report was written.

Vegetation

The study area is comprised primarily of disturbed desert scrub habitat. Vegetation consisted of species commonly observed in the Arid West and was dominated (over 20% ground cover) by greasewood (*Sarcobatus vermiculatus*). CDA-designated noxious weed species and other invasive plant species were observed within the study area. Diffuse knapweed (*Centaurea diffusa*), a CDA List B species, accounted for approximately 10% of ground cover within the study area (**Table 2**). Invasive plant species not listed by CDA accounted for less than 1% of total ground cover

Table 2. CDA Noxious Weeds and Other Invasive Plants within the Study Area

Species	Approximate Percent Coverage within Study Area	CDA Designation	CDA Management Goals
Diffuse Knapweed (*Centaurea diffusa*)	10	List B	Managed to prevent further spread or designated for eradication in large areas

Species	Approximate Percent Coverage within Study Area	CDA Designation	CDA Management Goals
Kochia (*Bassia scoparia*)	<1	Unlisted – Invasive Species	None
Russian Thistle (*Salsola tragus*)	<1	Unlisted – Invasive Species	None

Control of invasive species is a difficult task and requires on-going control measures. Care must be taken to avoid negatively impacting desirable plant communities and inviting infestation by other pioneer invaders. Weed management will be achieved by employing aggressive control early on, with persistent control efforts over several growing seasons, including direct treatments, prevention through best management practices, monitoring of treatment efficacy, and subsequent detection efforts. Weed management is often limited to controlling existing infestations and prevention of further infestations, rather than total eradication. A Noxious Weed Mitigation, Vegetation Restoration, and Dust Mitigation Plan is available as **Attachment H** of the 1041 application. Vegetation is likely not a constraint to project development at the time this report was written.

Aquatic Resources

Kimley-Horn conducted field reconnaissance to observe aquatic features within the study area on March 4, 2025. One aquatic feature (Aquatic Feature 1), an artificially irrigated surface water approximately 0.45 acres in size, was observed within the northwest portion of the study area (**Appendix H – Field Reconnaissance - Aquatic Resources Map**). This feature was isolated in uplands and had no downstream connections. There are NHD and CNHP-mapped features within the same location as Aquatic Feature 1 (**Appendix E – Desktop Hydrology Map**). Under 2023 Rule as amended, tributaries to Traditionally Navigable Waters, the territorial seas, or interstate waters must be connected to a (a)(1) or (a)(3) water and must be a relatively permanent, standing or continuously flowing body of water. Aquatic Feature 1 does not qualify as a (a)(3) tributary because it terminates within the study area and does not exhibit a downstream connection to a (a)(1)-(a)(3) WOTUS. Thus, Aquatic Feature 1 is likely not federally jurisdictional.

The Colorado HB 24-1379 defines excluded water features in section 25-8-205.1(2)(8)(d). Artificial lakes, lagoons, or ponds that are created entirely by excavating or diking upland to collect and retain water and that are used exclusively for livestock watering are not regulated as WOS. Aquatic Feature 1 was excavated in uplands for the primary purpose of livestock watering for the existing livestock on-site. Thus, Aquatic Feature 1 is likely not state jurisdictional.

The NHD-mapped waterbody feature located in the north-central portion of the study area was entirely not present. Soil test pits were taken at 11 locations (**Appendix H – Field Reconnaissance - Aquatic Resources Map**). No hydric soils were observed. A BLM ACEC (Blanca Wetlands) is located

approximately 1 mile northeast of the study area (**Appendix B – Project Vicinity Map**).

The proposed panel area and associated development will not intersect any NWI, NHD, CNHP, or field reconnaissance observed aquatic features (**Attachment C – Site Plan**), including Aquatic Feature 1, and no impacts to these feature are anticipated. Thus, WOTUS and WOS permitting, consultation, and/or coordination are not required as project development will not impact aquatic features. Aquatic features are likely not a constraint to project development at the time this report was written if impacts to identified aquatic features are avoided.

This jurisdictional evaluation is based on the best available science and regulations at the time of the field reconnaissance and report creation but is in no way meant to replace formal coordination with USACE and/or the state regulatory body responsible for impacts to aquatic resources.

Federally Listed Threatened and Endangered Species

Kimley-Horn obtained an official species list from the USFWS IPaC system for the study area on February 11, 2025 (**Appendix J – USFWS IPaC Report**). The report includes five (5) species. A qualified biologist reviewed the report to determine species that may occur in the study area **Table 3**. This project will have no effect on the species listed in **Table 3**. Southwestern willow flycatcher and yellow-billed cuckoo, identified in the San Luis Valley Regional HCP, are not listed in the IPaC report generated for this study area and suitable habitat for these species were not observed during field reconnaissance. Additionally, there are no federally designated critical habitats within the project vicinity. Federally listed T&E species are likely not a constraint to project development at the time this report was written.

Table 3. Endangered Species Act Species Exclusion Table

Species	USFWS Status	Habitat Requirements	Exclusion Justification	Likelihood of Occurrence
Mammals				
Gray Wolf (*Canis lupus*)	Experimental Population/ Non-essential	Habitat generalist adapted to a variety of landscapes (USFWS 2025a).	The study area is not within the range of wolf repopulation efforts by CPW. This species is likely not a constraint to development.	Low
Birds				
Mexican Spotted Owl (*Strix occidentalis lucida*)	Threatened	Inhabits old growth and mature forests with complex structural components such as riparian or conifer communities (USFWS 2025b).	The study area does not possess the vegetation required to support this species.	Low
Insects				
Monarch Butterfly (*Danaus plexippus*)	Proposed Threatened	Requires milkweed (*Asclepias* spp.) for survival. Adult monarchs feed on the nectar of flowering milkweed, and larvae require milkweed as a	Proposed threatened species have no current statutory protections but may warrant future protections under the	Low

Species	USFWS Status	Habitat Requirements	Exclusion Justification	Likelihood of Occurrence
		host plant (USFWS 2025c).	ESA if the status changes from proposed threatened to threatened.	
Suckley's Cuckoo Bumble Bee *(Bombus suckleyi)*	Proposed Endangered	Can reside in a variety of habitats, including prairies, grasslands, and meadows (USFWS 2025d).	Proposed endangered species have no current statutory protections but may warrant future protections under the ESA if the status changes from proposed endangered to endangered.	Low
Silverspot (*Speyeria Nokomis Nokomis*)	Threatened	Moist, open meadows with vegetation for shelter. Requires bog violet (*Viola nephrophylla/V. soroia var. Affinis*) for survival. Adults lay eggs on the bog violet and larvae feed exclusively on this plant (USFWS 2022).	The study area does not possess the habitat required to support this species.	Low

Likelihood of Occurrence Definitions:

Low - preferred habitat for that species was determined to be plausible within the project, but the species has not been documented within one (1) mile of the project based on publicly available data sources and/or there was determined to be no suitable habitat within the project.

Moderate - suitable habitat exists, and the species has been documented within one (1) mile of the project based on publicly available data sources.

High - suitable habitat exists, and the species was observed during field reconnaissance.

State Sensitive Species

Kimley-Horn consulted the CPW SAM and HPH databases on February 12, 2025. A full list of CPW SAM species potentially intersecting the project is available in **Table 4**. Field reconnaissance observed suitable habitat for one species listed in the SAM database, Swainson's Hawk (*Buteo swainsoni*). Swainson's hawks are a Tier 2 SGCN species and has protections under the MBTA. This species is discussed in both **Table 4** and the Non-Eagle Raptor section below.

There are no CPW-designated HPHs intersecting the study area. The study area does not contain any CPW-designated areas for species with CPW recommendations. State sensitive species are likely not a constraint to project development at the time this report was written.

Table 4. CPW Species Activity Map Listed Species within the Study Areas

Species	CPW Status	2015 SWAP SGCN Status	CPW Designation	CPW Recommendations for Designation Type
American Bittern (*Botaurus lentiginosus*)	-----	Tier 2	Breeding Range	None
Bald Eagle (*Haliaeetus leucocephalus*)	State Special Concern	Tier 2	Summer Forage Winter Forage Winter Range	None. Pre-construction surveys prior to disturbance activities only if suitable habitat is present within 0.5 mile of the study area.

Species	CPW Status	2015 SWAP SGCN Status	CPW Designation	CPW Recommendations for Designation Type
				Suitable habitat was not observed within 0.5 mile of the study area during field reconnaissance on March 4, 2025.
Band-tailed Pigeon (*Patagioenas fasciata*)	-----	Tier 2	Breeding Range	None
Big Brown Bat (*Eptesicus fuscus*)	-----	-----	Overall Range	None
Big Free-tailed Bat (*Nyctinomops macrotis*)	-----	Tier 2	Overall Range	None
Black Bear (*Ursus americanus*)	-----	-----	Overall Range	None
Black Tern (*Childonias niger*)	-----	Tier 2	Breeding Range	None
Brazilian Free-tailed Bat (*Tadarida brasiliensis*)	-----	-----	Overall Range	None
Brewer Sparrow (*Spizella breweri*)	-----	Tier 2	Breeding Range	None
Bullsnake (*Pituophis catenifer sayi*)	-----	-----	Overall Range	None
Burrowing Owl (*Athene cunicularia*)	State Threatened	Tier 1	Breeding Range	None. Pre-construction surveys prior to disturbance activities only if suitable habitat is present within 0.25 mile of the study area. Suitable habitat was not observed within 0.25 mile of the study area during field reconnaissance on March 4, 2025.
Cassin's Sparrow (*Peucaea cassinii*)	-----	Tier 2	Breeding Range	None
Elk (*Cervus canadensis*)	-----	-----	Overall Range	None
Flathead Chub (*Platygobio gracilis*)	State Special Concern	Tier 1	HUC 12 Presence	None
Golden Eagle (*Aquila chrysaetos*)	-----	Tier 1	Breeding Range	None. Pre-construction surveys prior to disturbance activities only if suitable habitat is present within 0.5 mile of the study area. Suitable habitat was not observed within 0.5 mile of the study area during field reconnaissance on March 4, 2025.
Greater Sandhill Crane (*Grus canadensis*)	State Special Concern	Tier 1	Overall Range	None
Gunnison's Prairie Dog (*Cynomys gunnisoni*)	-----	Tier 1	Overall Range	None
Hernandez's Short-horned Lizard (*Phrynosoma hernandesi*)	-----	-----	Overall Range	None
Lazuli Bunting (*Passerina amoena*)	-----	Tier 2	Breeding Range	None
Little Brown Myotis (*Myotis lucifugus*)	-----	Tier 1	Overall Range	None
Many-lined Skink	-----	-----	Overall Range	None

Species	CPW Status	2015 SWAP SGCN Status	CPW Designation	CPW Recommendations for Designation Type
(*Plestiodon multivirgatus*)				
Mule Deer (*Odocoileus hemionus*)	-----	-----	Summer Range Overall Range	None
Northern Leopard Frog (*Lithobates pipiens*)	State Special Concern	Tier 1	HUC 12 Presence	None
Northern Harrier (*Circus cyaneus*)	-----	Tier 2	Breeding Range	None
Plateau Fence Lizard (*Sceloporus tristichus*)	-----	-----	Overall Range	None
Prairie Lizard (*Sceloporus consobrinus*)	-----	-----	Overall Range	None
Prairie Rattlesnake (*Crotalus viridis*)	-----	-----	Overall Range	None
Rio Grande Chub (*Gila pandora*)	State Special Concern	Tier 1	HUC 12 Prescence	None
Rufous Hummingbird (*Selasphorus rufus*)	-----	Tier 2	Migration Range	None
Sage Sparrow (*Artemisiospiza nevadensis*)	-----	Tier 2	Breeding Range	None
Southern Red-backed Vole (*Myodes gapperi*)	-----	Tier 2	Overall Range	None
Swainson's Hawk (*Buteo swainsoni*)	-----	Tier 2	Breeding Range	Pre-construction surveys prior to disturbance activities. Suitable habitat was observed within 0.25 mile of the study area during field reconnaissance on March 4, 2025.
Terrestrial Garter Snake (*Thamnophis elegans*)	-----	-----	Overall Range	None
Variable Skink (*Trachylepis varia*)	-----	-----	Overall Range	None
Virginia Warbler (*Leiothlypis virginiae*)	-----	Tier 2	Breeding Range	None
Western Rattlesnake (*Crotalus oreganus concolor*)	State Special Concern	Tier 2	Overall Range	None
Western Snowy Plover (*Charadrius alexandrines*)	State Special Concern	Tier 2	Breeding Range	None
White-faced Ibis (*Plegadis chihi*)	-----	Tier 2	Breeding Range	None
White-tailed Jackrabbit (*Lepus townsendii*)	-----	Tier 2	Overall Range	None

Migratory Birds

All native migratory birds are protected under the MBTA. Based on field reconnaissance, the entirety of the study area is suitable migratory bird nesting habitat. Bird surveys conducted during field reconnaissance focused primarily on trees, shrubs, grassland vegetation, and structures suitable for nesting birds. No nests were observed. A pre-construction migratory bird nest survey is required if disturbance activities occur during the migratory bird nesting season (generally March 15 – August 31 in Colorado).

Low lying areas within the project may become inundated during periods of heavy precipitation. Areas with standing water may serve as an attractant to water-obligate avian species during migration through the San Luis Valley. This issue poses a collision risk between avian species and project infrastructure during periods of heavy precipitation. Birds may also mistake the solar panels with water due to solar panel reflectivity. This phenomenon is known as the "lake effect".

The project will utilize modern solar panel technology to maximize energy production while minimizing the potential for avian collisions due to "lake effect". The solar panels used for the project will consist of monocrystalline PV panels with an anti-reflective coating. This coating provides a low reflectance, but with a high transmittance. Thus, the panels reflect minimal light into the surrounding area while at the same time allowing large amounts of light to pass through and be absorbed by the panel. PV panels have lower reflectivity than traditional concentrated solar power panels, which use mirrors to concentrate solar rays onto a central collector. Migratory birds are likely not a constraint to project development at the time this report was written if pre-construction surveys are completed.

Greater Sandhill Crane

Greater sandhill cranes are protected under the MBTA and are also considered a Tier 1 SGCN and State Special Concern species in Colorado. The entirety of study area overlaps CPW-designated greater sandhill crane overall range; however, there are no CPW recommendations for disturbance within this designation. Aquatic Feature 1 may serve as marginal foraging habitat for greater sandhill cranes; however, the proposed panel area and associated development will avoid this feature entirely (**Attachment C of the 1041 Permit Application**). The remaining portion of the study area outside of Aquatic Feature 1 lacks the components required for suitable foraging habitat. The Applicant attended a meeting with CPW on April 3, 2025, to discuss project impacts and mitigation measures. CPW stated that they have observed standing water in the northwest quadrant of the study area (Aquatic Feature 1) and have observed sitting ducks at this location; however, there was no mention of sandhill cranes within or near the study area. Greater sandhill cranes are likely not a constraint to project development at the time this report was written.

Non-Eagle Raptors

All raptor species are protected in Colorado under the MBTA. There are various CPW development buffers for raptor nests depending on the type of raptor species and disturbance activity generally ranging from 0.25 mile to 0.5 mile. CPW also publishes a mapped raptor nest geospatial database. Based on review of this database, there are no mapped raptor nests within 0.5 mile of the study area. No nests were observed within a 0.5-mile radius of the study area during field reconnaissance.

Suitable habitat for nesting raptors was observed in the general vicinity of the study area and a pre-construction raptor nest survey must be completed if disturbance activities occur within the raptor nesting season (Generally February 1 – September 15 for non-eagle and non-burrowing owl species). Non-eagle raptors are likely not a constraint to project development at the time this report was written if pre-construction surveys are completed.

The study area overlaps burrowing owl breeding range (**Table 5**). Unlike other raptors found in Colorado, burrowing owls nest within previously excavated mammal burrows, such as those of prairie dogs. In addition to MBTA protections, burrowing owls are also considered a Tier 1 SGCN and state threatened species. Suitable burrowing owl nesting habitat was not observed during field reconnaissance. Burrowing owls are likely not a constraint to project development at the time this report was written.

Bald and Golden Eagles

Kimley-Horn conducted field reconnaissance to observe suitable eagle nesting and roosting habitat within the study area for the purposes of due diligence in complying with the BGEPA. No eagle nests, suitable nesting trees, or suitable roosting sites were observed within the study area or within 0.5 mile of the study area. No bald eagle nests, winter night roosts, or communal roosts were mapped by CPW within a 1.0- mile radius of the study area. In addition, no golden eagle nests were mapped by CPW within a 1.0- mile radius of the study area. Eagles are likely not a constraint to project development at the time this report was written.

Big Game

The study area does not overlap any CPW-designated big game HPH. The Applicant attended a meeting with CPW on April 3, 2025, to discuss project impacts and mitigation measures. CPW stated that there is documented elk activity near the Blanca Wetlands northwest of the study area and elk movement occurs west of the study area. Project fencing will be designed using guidance from CPW and Colorado Department of Transportation. This includes a setback between project fencing and US Highway 160 and CR 116 (**Attachment C of the 1041 Permit Application**), as well as implementation of wildlife-friendly fencing specifications that reduces the risk of big game entanglement and injury. Big game is likely not a constraint to project development at the time this report was written.

National Wildlife Refuges

The San Luis Valley National Wildlife Refuge Complex is made up of the Monte Vista, Alamosa, and Baca National Wildlife Refuges. This complex is an area set aside for migratory birds and wildlife and is a part of the National Wildlife Refuge System, a network of lands set aside and managed by the USFWS specifically for wildlife. The Monte Vista National Wildlife Refuge is located approximately 13.5 miles west of the study area. The Alamosa National Wildlife Refuge is located approximately 1.2 miles south of study area, and the Baca National Wildlife Refuge is located approximately 19 miles north of the study area. National Wildlife Refuges are likely not a constraint to project development at the time this report was written.

Colorado Parks and Wildlife Areas

There are no CPW HPH or State Wildlife Areas (SWA) located within or adjacent to the study area. The nearest CPW SWA is the Playa Blanca SWA, located about 10 miles west of the study area. CPW associated areas are likely not a constraint to project development at the time this report was written.

Wildlife Utilization

Wildlife utilization observed within the study area on March 4, 2025, included a coyote (*Canis latrans*) and small burrows, likely those created by small rodents such as mice. Livestock were also present within the study area. Wildlife observed within the study area is likely not a constraint to project development at the time this report was written.

Conclusions

The biotic and aquatic conditions survey completed for the CR 116 Solar project resulted in the following key findings:

- There are no SMUs designated as prime farmland, farmland or unique importance, or farmland of state importance within the study area. There are no current or historic agriculture activities within the study area.
- The study area is composed primarily of disturbed desert scrub habitat. Diffuse knapweed, a CDA List B noxious weed species, accounted for approximately 10% of total species density within the study area.
- One aquatic feature, Aquatic Feature 1, was observed within the study area. Aquatic Feature 1 is likely not federal or state jurisdictional. No hydric soils were observed. The proposed panel area and associated development will not impact any NWI, NHD, CNHP, or field reconnaissance observed aquatic features, including Aquatic Feature 1. Thus, WOTUS and WOS permitting, consultation, and/or coordination are not required for the development of this project.
- There is no suitable habitat or critical habitat for federal T&E species within the study area. In addition, there is no suitable habitat within the study area for the two ESA-listed species included in the San Luis Valley Regional HCP.
- The study area does not contain any CPW-designated HPH, including for that of big game.
- The entirety of the study area is suitable migratory bird nesting habitat. Pre-construction surveys are required prior to disturbance activities.
- The entirety of study area overlaps CPW-designated greater sandhill crane overall range. Aquatic Feature 1 may serve as marginal foraging habitat for greater sandhill cranes; however, the proposed panel area and associated development will avoid this feature entirely.
- Suitable raptor nesting habitat was not observed within the study area; however, suitable nesting habitat is present within the general vicinity of the study area. Pre-construction surveys are required prior to disturbance activities.
- No eagle nests, suitable nesting trees, or suitable roosting sites were observed within the study area or within 0.5 mile of the study area. No bald eagle nests, winter night roosts, or communal roosts were mapped by CPW within a 1.0-mile radius of the study area. No golden eagle nests were mapped by CPW within a 1.0-mile radius of the study area.
- There are no national wildlife refuges located within or adjacent to, or within a 1-mile radius of the study area. The Alamosa National Wildlife Refuge is located approximately 1.2 miles south of study area.
- There are no CPW SWAs located within or adjacent to the study area.

References

Colorado Parks and Wildlife. 2025. Species Profiles. Available at: https://cpw.state.co.us/species-profiles

United States Department of Agriculture. 2012. Prime and Unique Farmlands. Accessed at: https://efotg.sc.egov.usda.gov/references/public/VA/PrimeandUniqueFarmlands.pdf

ERO Resource Corporation. 2012. San Luis Valley Regional Habitat Conservation Plan. Available at: https://www.rgwcd.org/files/71a03014f/Final_SLV_HCP-Oct_2012.pdf

United States Fish and Wildlife Service (USFWS). 2022. Service Proposes Listing Silverspot Butterfly as Threatened under Endangered Species Act. Available at: https://www.fws.gov/press-release/2022-05/service-proposes-listing-silverspot-butterfly-threatened#:~:text=DENVER%20%E2%80%94%20Today%2C%20the%20U.S.%20Fish,that%20is%20also%20available%20today.

USFWS. 2025a. Gray Wolf (*Canis lupus*). Available at: https://ecos.fws.gov/ecp/species/4488

USFWS. 2025b. Mexican Spotted Owl (*Strix Occidentalis Lucida*). Available at: https://ecos.fws.gov/ecp/species/8196

USFWS. 2025c. Monarch Butterfly (*Danaus plexippus*). Available at: https://ecos.fws.gov/ecp/species/9743

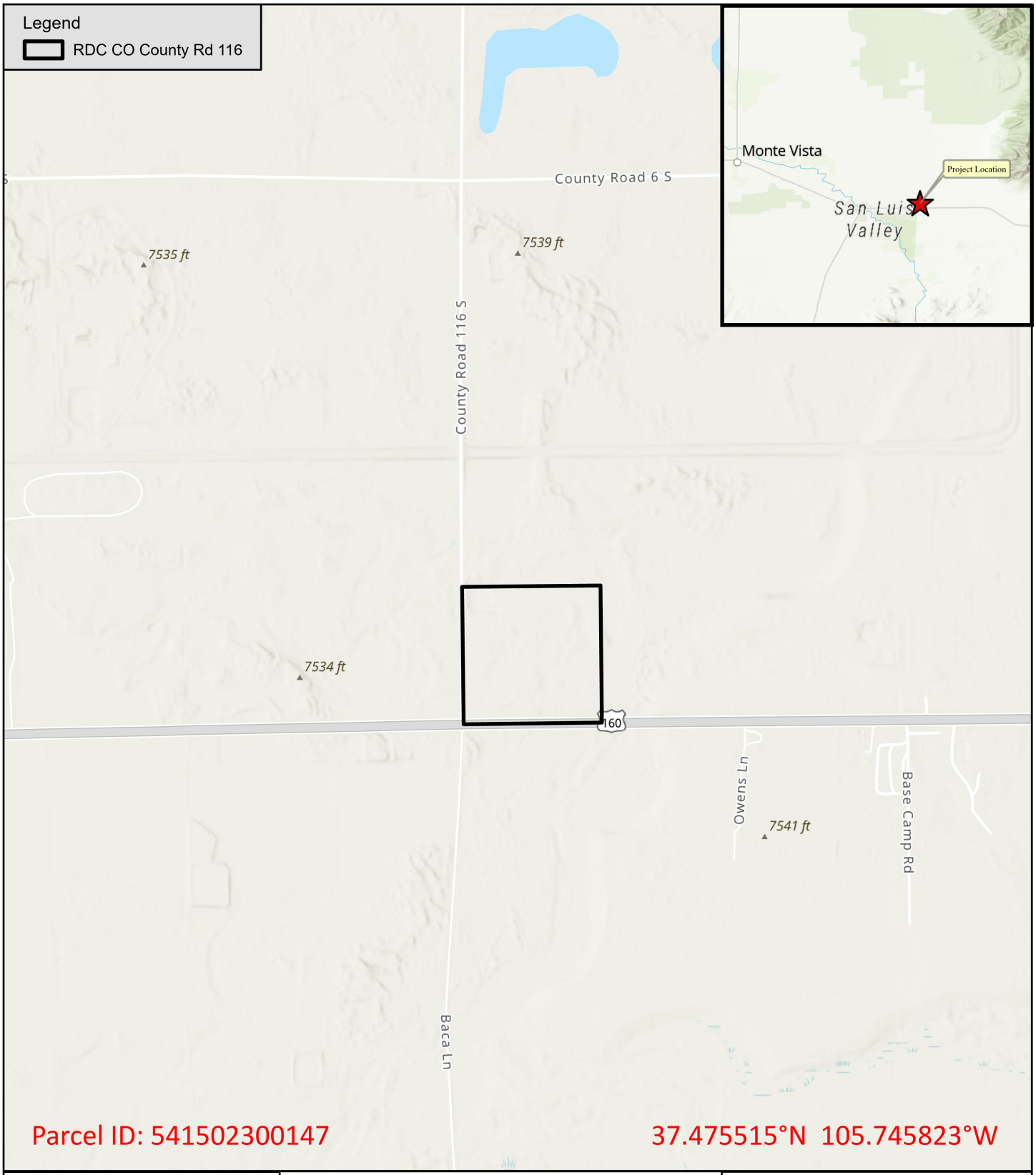
USFWS. 2025d. Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*). Available at: https://ecos.fws.gov/ecp/species/10885

USFWS. 2025e. Environmental Conservation Online System. Available at: https://ecos.fws.gov/ecp/

United States Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region*. ERDC/EL TR-10-3. May 2010.

USACE. 2025. *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version.* ERDC/CRREL TR-14-13. January 2025.

Appendix A: Project Location Map



Parcel ID: 541502300147

37.475515°N 105.745823°W

Project Location

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.25 0.5 1 Miles

N

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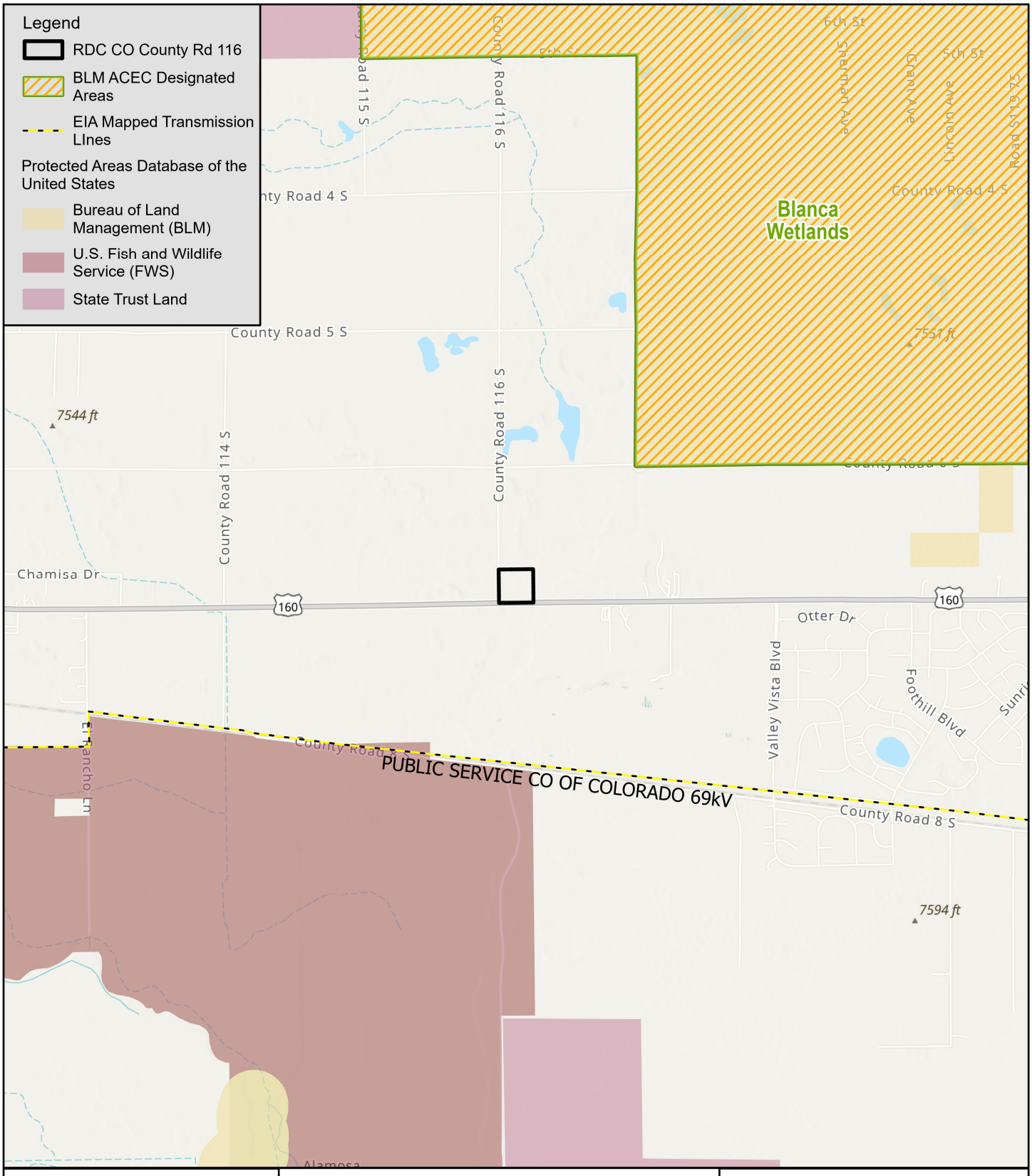
Appendix B: Project Vicinity Map



Project Vicinity Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 1 2 4 Miles

N

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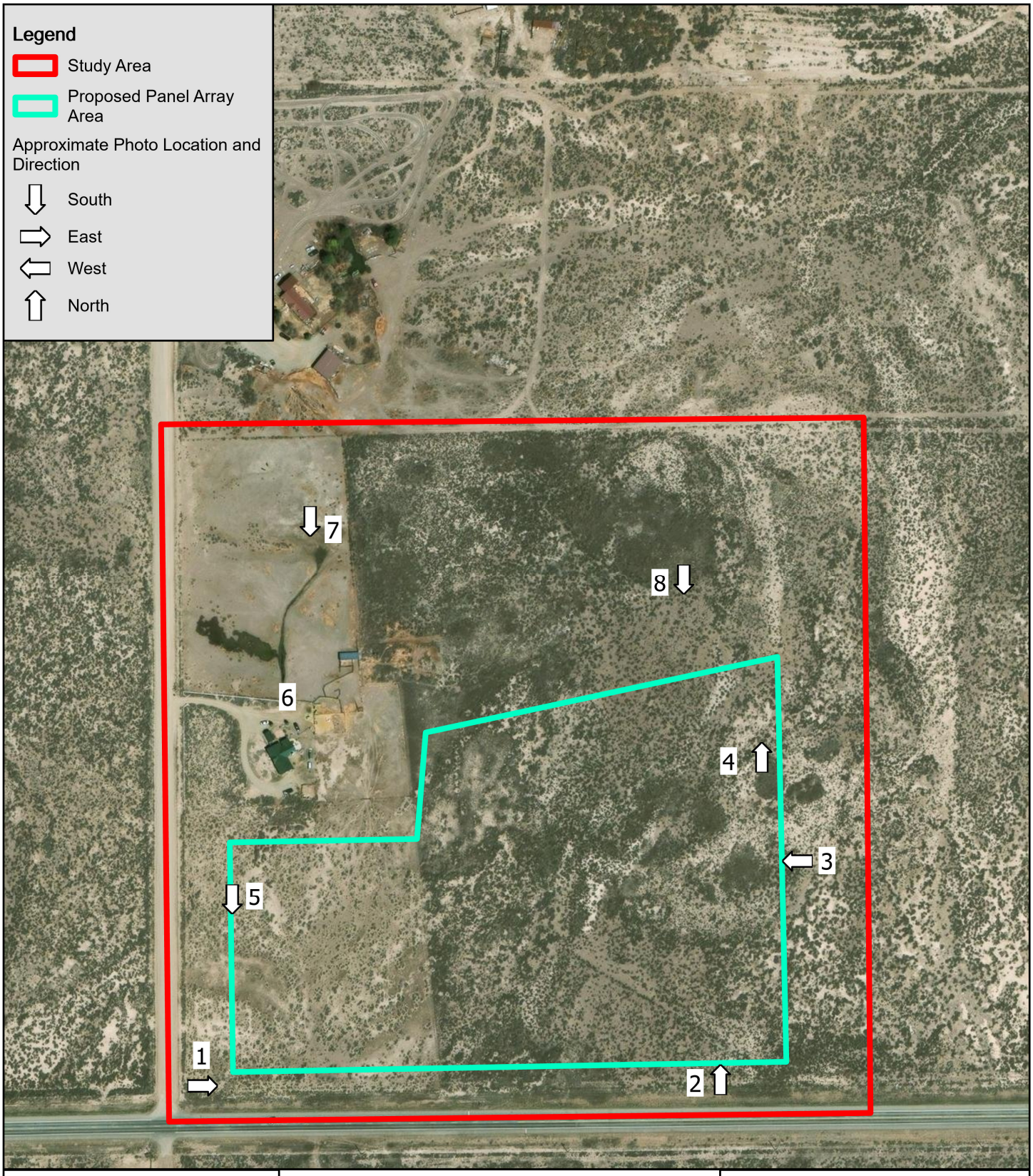
Appendix C: Representative Study Area Photographs



Site Visit Photo Log Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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Study Area Conditions

Photo 1 – View from the southwest corner of the study area, looking east at representative disturbed desert scrub habitat.

Photo 2 – View from the southeast portion of the study area, looking north at representative disturbed desert scrub habitat.

Study Area Conditions

Photo 3 – View from the east-central boundary of the study area, looking west at representative disturbed desert scrub habitat.

Photo 4 – View from the eastern boundary of the study area, looking north at a diffuse knapweed infestation.

Study Area Conditions

Photo 5 – View from the western portion of the study area, looking south at disturbed desert scrub habitat.

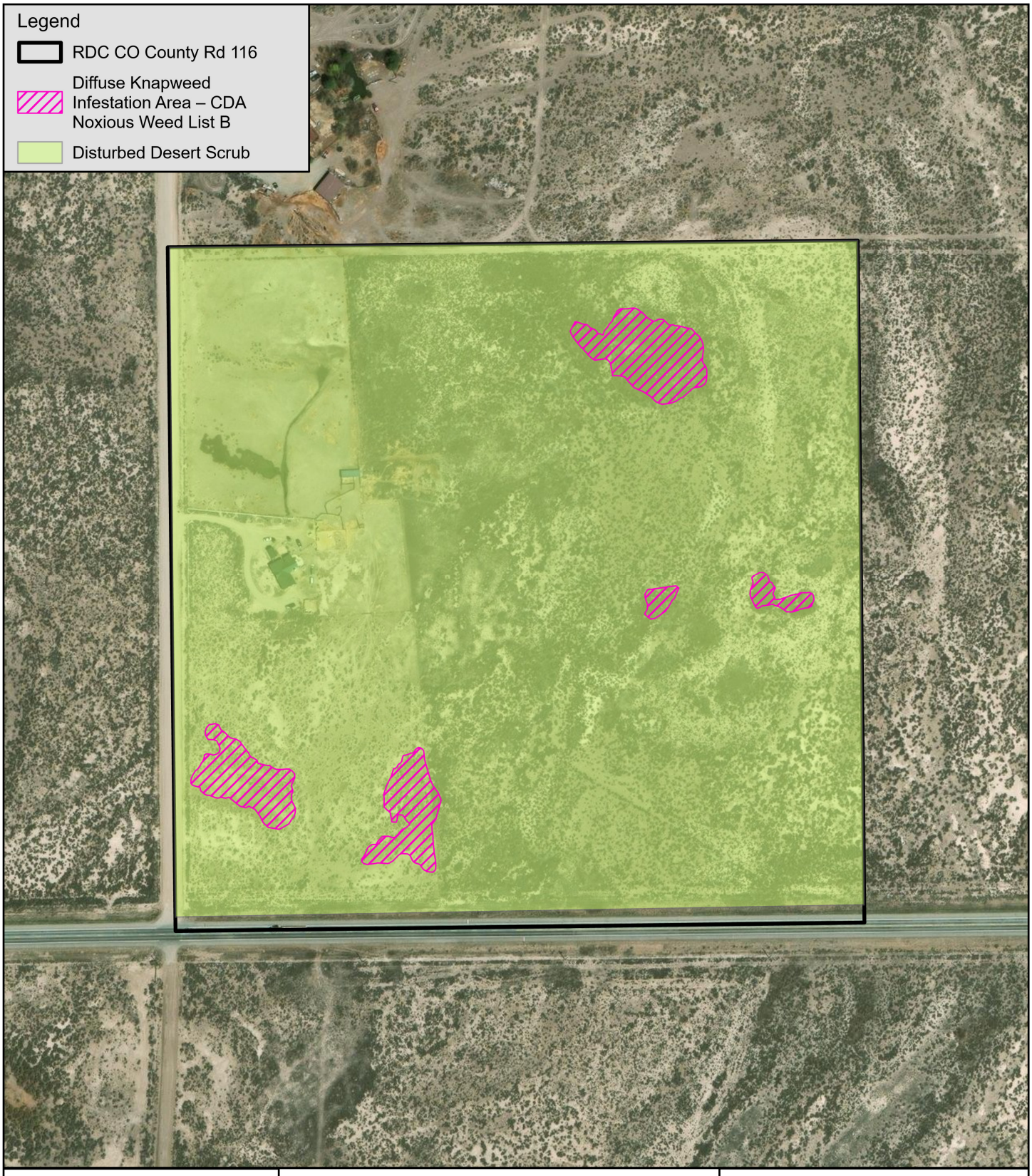
Photo 6 – View of the source of Aquatic Feature 1.

Study Area Conditions

Photo 7 – View of Aquatic Feature 1, looking south.

Photo 8 – View from the northeastern portion of the study area, looking south at representative disturbed desert scrub habitat.

Appendix D: Field Reconnaissance – Biological Resources Map



Field Reconnaissance Biological Resources Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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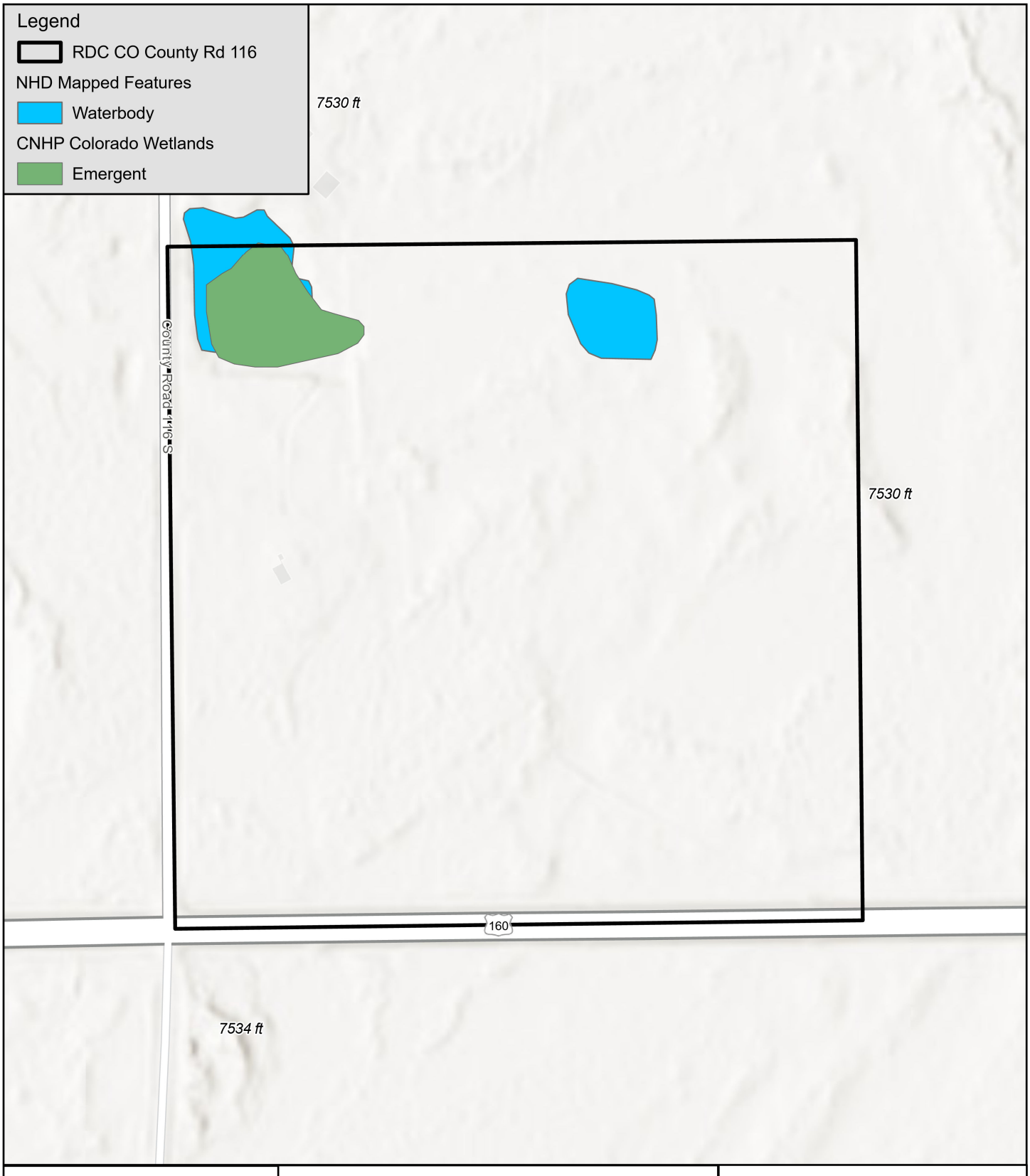
Appendix E: Desktop Hydrology Map



Desktop Hydrology Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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Appendix F: National Land Cover Database Map

National Land Cover Database Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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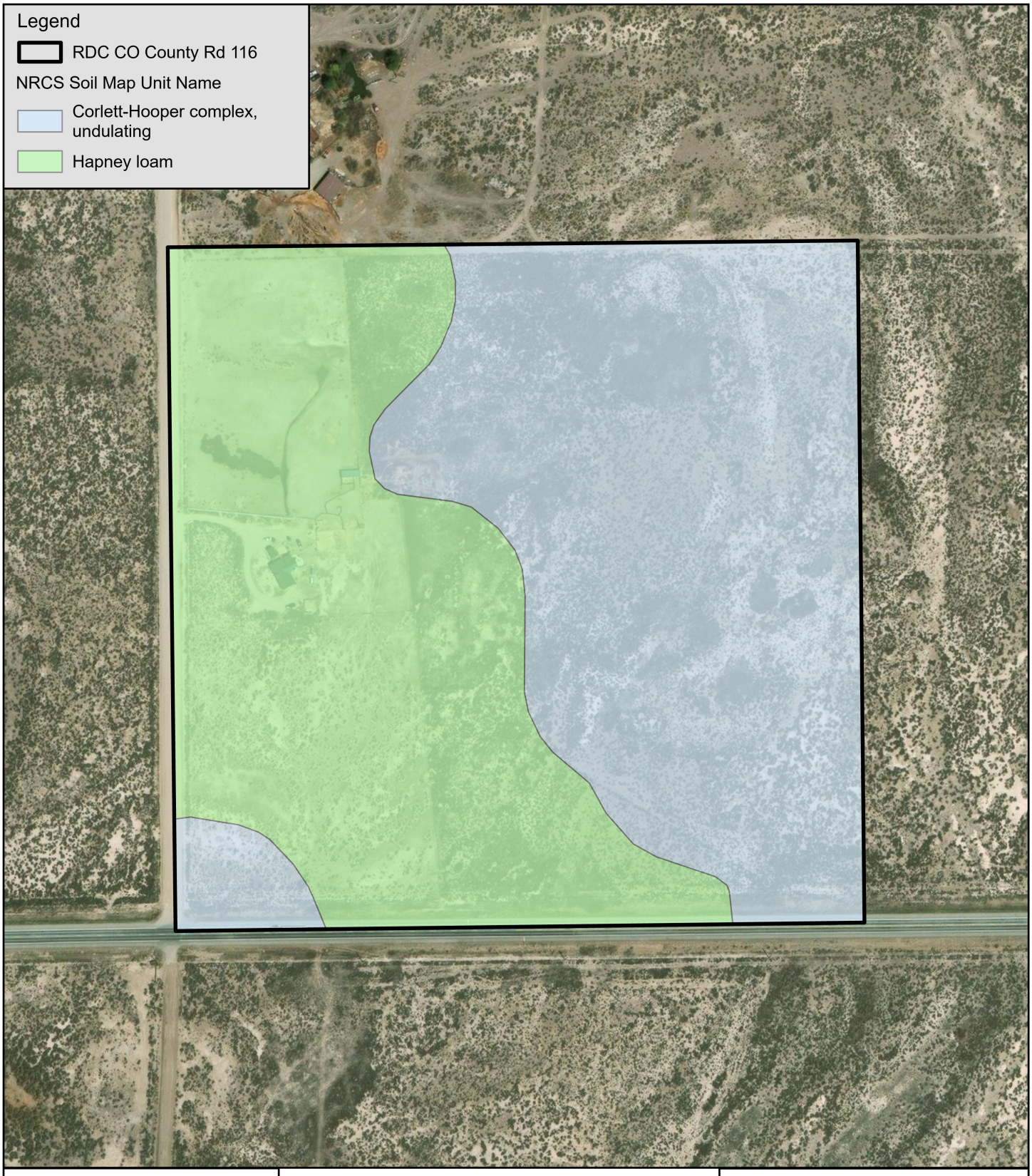
Appendix G: Natural Resources Conservation Services Soils Map



NRCS Soils Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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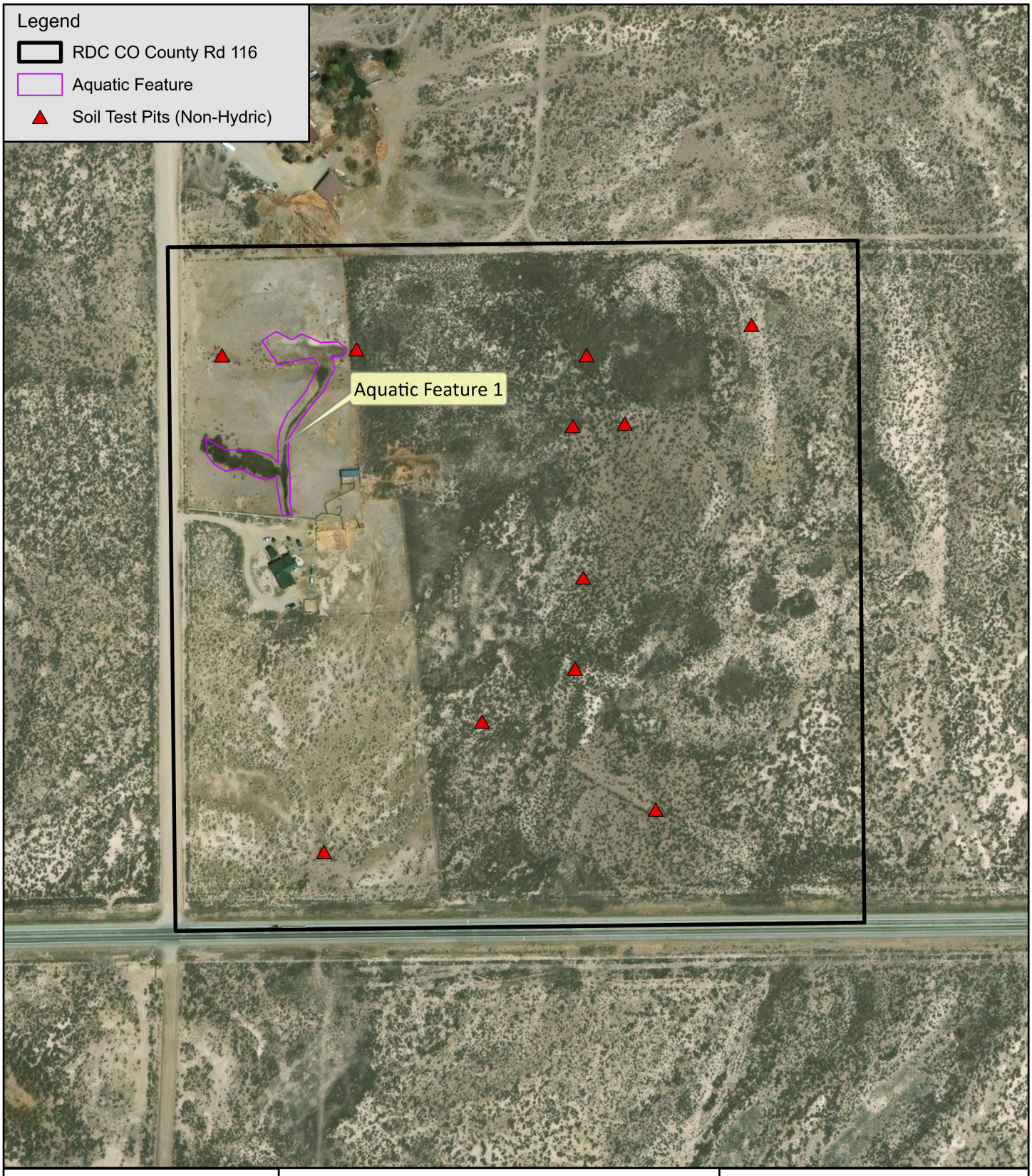
Appendix H: Field Reconnaissance – Aquatic Resources Map



Field Reconnaissance Aquatic Resources Map

RDC CO County Rd 116
Alamosa County, Colorado
May, 2025

0 0.05 0.1 0.2 Miles

N

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Appendix I: United States Fish and Wildlife Service Information for Planning and Consultation Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
Phone: (970) 628-7180 Fax: (970) 245-6933

In Reply Refer To: 05/14/2025 22:43:05 UTC
Project Code: 2025-0097073
Project Name: RDC CO County Road 116

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
(970) 628-7180

PROJECT SUMMARY

Project Code: 2025-0097073
Project Name: RDC CO County Road 116
Project Type: Power Gen - Solar
Project Description: Species Report
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.47599765,-105.74604798673653,14z

Counties: Alamosa County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf *Canis lupus* Population: CO No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Experimental Population, Non-Essential

BIRDS

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Silverspot *Speyeria nokomis nokomis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Threatened
Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

BALD & GOLDEN EAGLES INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

MIGRATORY BIRD INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

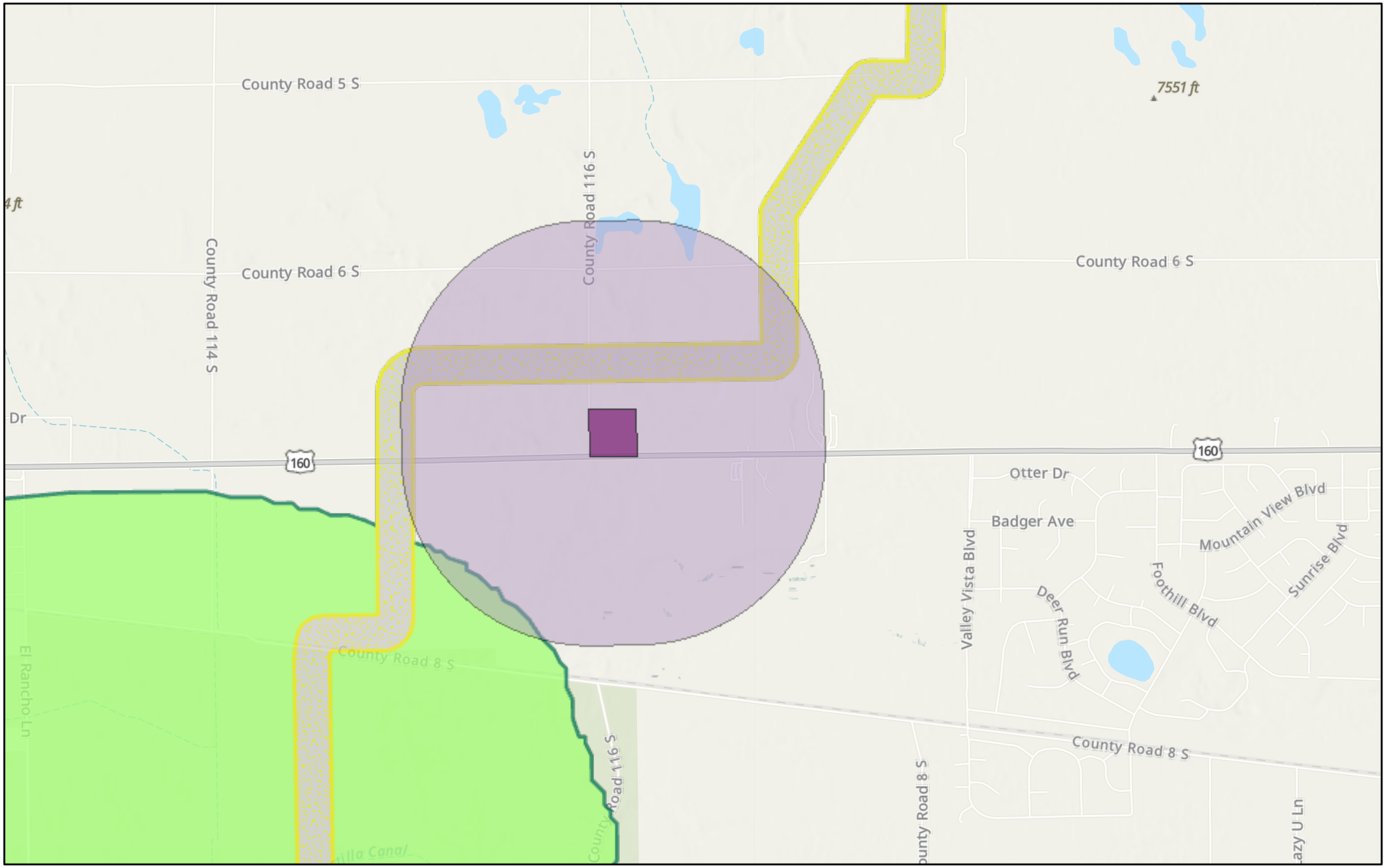
- PEM1B

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Tadd Long
Address:	6200 S Syracuse Way
Address Line 2:	Suite 300
City:	Greenwood Village
State:	CO
Zip:	80111
Email	tadd.long@kimley-horn.com
Phone:	5187768639

Appendix J: Colorado Conservation Data Explorer (CODEX) High Priority Habitats Report

RDC CO CR 116 CODEX Report



October 8, 2025

- Aquatic Native Species Conservation Waters_HPHC
- Bald Eagle Roost Site_HPHE1
- Elk Production Area_HPHD
- Elk Severe Winter Range_HPHD
- Elk Winter Concentration Area_HPHD

1:58,456

0 0.4 0.8 1.6 mi

0 0.5 1 2 km

Esri, NASA, NGA, USGS, FEMA, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Appendix J:

Preliminary Drainage Report

PRELIMINARY DRAINAGE REPORT

RDC CO County Road 116 Solar

At the Intersection of County Road 116 S and E US Highway 160 (Parcel # 541502300147)

Alamosa, CO

Prepared by:
Kimley-Horn Inc.
6200 South Syracuse Way, Suite 300
Greenwood Village, CO 80111
Contact: Adam Harrison, P.E.
Phone: (303) 228-2300

Prepared on: May 20, 2025

TABLE OF CONTENTS

APPENDICES

1. PROJECT DESCRIPTION & SCOPE OF WORK

1.1 Project Description

The development is a proposed 3.90-MWac solar power generating facility located in Alamosa, CO. The solar power generating facility will consist of rows of photovoltaic (PV) solar modules, gravel access driveways, associated electrical equipment, and underground utilities. Solar modules will be mounted on piles and elevated above the ground as to preserve the existing underlying topsoil and allow for revegetation and infiltration. The project will be surrounded by a perimeter fence. Ground area within the limits of development that is not occupied by gravel roads or foundations will be seeded with a variety of low-growth native plant species to establish permanent vegetation. Refer to **Appendix A** for the overall site plan. This project is surrounded by Highway 160 to the south, County Road 116 S to the west and agricultural land to the north and east. From County Road 116 S, there will be a gravel driveway providing access to the site.

A vicinity map has been provided in **Figure 1-1** for reference.

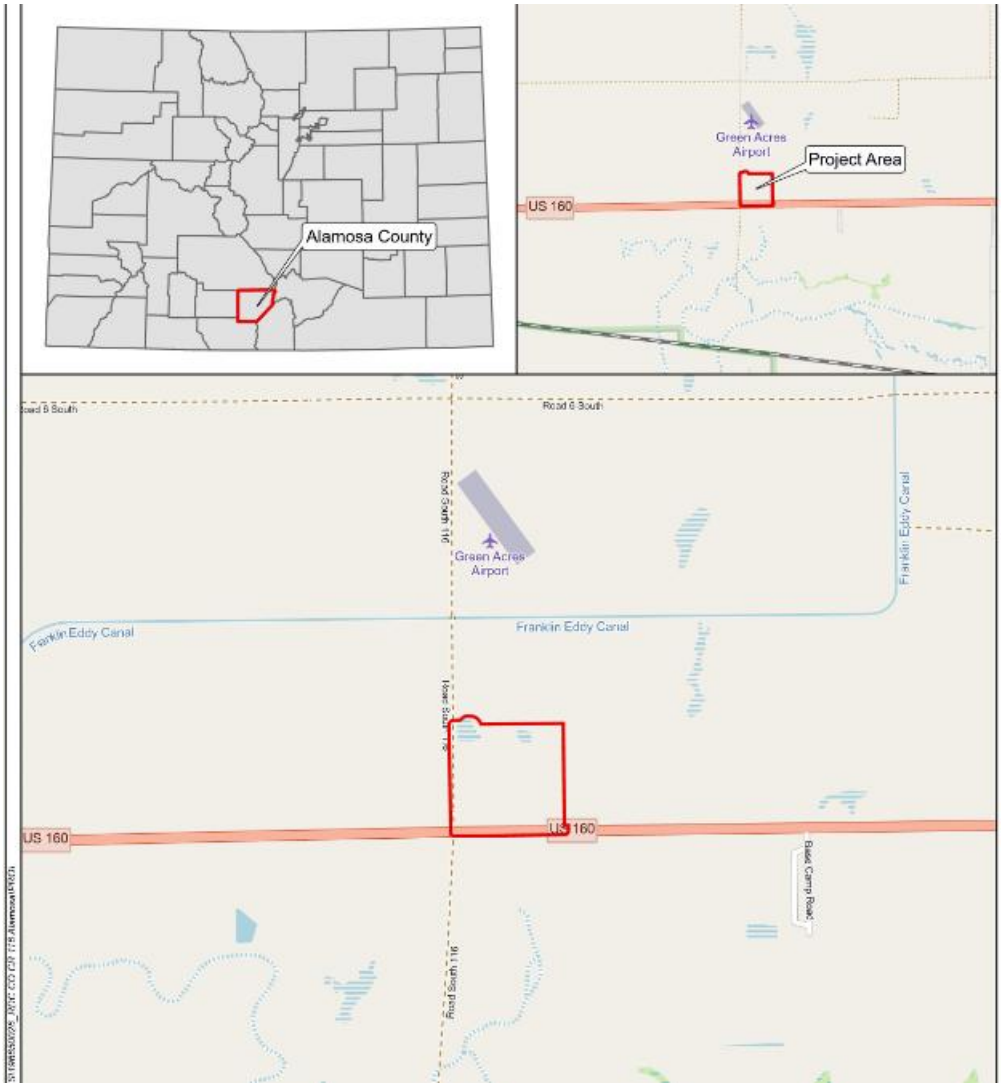


Figure 1-1: Vicinity Map

1.2 Document Overview

This drainage narrative is intended to provide Alamosa County with stormwater design information regarding the drainage and land disturbance activities related to the proposed RDC Co Road 116 Solar facility (Project). The Project will be designed, constructed, and maintained in a manner that minimizes storm water related impacts, in accordance with the Urban Storm Drainage Criteria Manual (USDCM) drainage criteria.

2. EXISTING SITE CONDITIONS

2.1 Pre-Development Conditions

The existing subject site property is approximately 40.0 acres. The site land cover primarily consists of sparse grasslands. The project is located east of Alamosa. The site is bounded to the south by Highway 160, to the east by parcel 541502300148, to the west by county road 116, to the north by parcel 541502300118.

The property is located within the Southwest Quarter of Section 2, Township 37 North, Range 11 East of the 6th P.M., Alamosa County, Colorado.

In the existing condition, the site drains north towards an existing ditch then to the Conejos River. The existing drainage patterns will be maintained in the proposed condition. Refer to **Appendix B, Figure 1**, which shows the receiving waters.

2.2 Geotechnical Information

The Natural Resource Conservation Service (NRCS) Report, dated 03/10/2025, concludes that onsite soil consists of Corlett-Hooper complex, undulating and Hapney loam. The site consists of Hydrologic Soil Groups C and D soils. The site was modeled using the poorest-draining soil type per drainage basin for conservative runoff calculations. For additional detail, refer to **Appendix B** for the NRCS Report.

2.3 Critical Areas

There are no critical areas mapped within the project vicinity. A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps indicated that none of the development is within a flood hazard area. The site is in Zone D areas of undetermined flood hazard and has no associated map.

3. DEVELOPED SITE CONDITIONS

3.1 Post-Development Site Conditions

The developed site is approximately 15.0 acres consisting primarily of permeable seeded area with impervious improvements including gravel access roads and equipment pads. The area under the solar panels will be planted with a low-maintenance native plant seed mix to mimic

natural processes to manage stormwater, which follows the Low-Impact Development (LID) approach.

The existing site is comprised of sparse grasslands and does not exhibit the characteristics of a low-impact development. By utilizing the native plant seed mix beneath the panels, the existing sparse grass land areas will be changed to a heavy meadow land classification that reduces peak flow rates and manages stormwater in line with the historic conditions of the site. The site design promotes conservation design at both the watershed and site levels, with the goal of replicating the native hydrologic characteristics of the sub-watersheds, creating natural ground coverage, and minimizing proposed grading and compaction. Offsite drainage patterns will remain the same as historic conditions.

4. STORMWATER CONTROL PLAN

4.1 Analysis Methods

This report evaluates the pre- and post-development runoff of the Project (including solar facility footprint and access drives) and addresses the stormwater requirements of Alamosa County and the State of Colorado. The stormwater runoff for the existing and proposed conditions was calculated utilizing the Rational Method. The 5-year, 1-hour storm event and 100-year, 1-hour storm event were analyzed for pre- and post-development drainage basins. The flow paths for the basins can be seen in **Appendix C**. The precipitation data used for the storm events is based on the *rainfall data from NOAA*.

Table 1 below notes the hydrologic design criteria used in the drainage analysis. The parameters listed below without a value can vary depending on the surface conditions, soil type, etc. Refer to **Appendix C** for possible values.

Table 1: Rational Calculation Parameter Summary

Parameter		Value	Unit	Reference
Percent Imperviousness		-	%	MHFD Criteria Manual, Chapter 6, Table 6-3
Time of Concentration, Tc		-	minutes	Appendix C
Runoff Coefficient, C		-	-	MHFD
1-hr Point Rainfall	100-Year Storm	1.5	inches	NOAA Rainfall data **Appendix C**
Storm Runoff, Q		-	cfs	

A summary of the overall drainage area, imperviousness, and cumulative runoff per the Rational calculations is displayed in **Table 2** below. **Table 3** provides a summary of the 100-year storm runoff rates. The detailed delineation for basins and calculations are provided in **Appendix C**.

Table 2: Calculation Summary

	Existing	Proposed
Area	38.2 ac	38.2 ac
Imperviousness	2.0 %	2.2 %
Q_5	1.33 cfs	1.38 cfs
Q_{100}	28.75 cfs	28.84 cfs

Table 3: Summary Pre vs. Post Development 100-Year Storm Runoff Rates

Basin	*Pre (cfs)*	*Post (cfs)*
C-PRE/POST-DA-001	28.75	28.84

4.3 Stormwater Management

A study published in the *Journal of Hydrologic Engineering* researched the hydrologic impacts of utility scale solar generating facilities. The study utilized a model to simulate runoff from pre-and post-solar panel conditions. The study concluded that the solar panels themselves have little to no impact on runoff volumes or rates. Rainfall losses, most notably infiltration, are not impacted by the solar panels. Rainfall that falls directly on a solar panel runs to the pervious areas around and under the surrounding panels. Refer to **Appendix D** for the study published in the *Journal of Hydrologic Engineering*.

5. CONCLUSION

The following list summarizes key components of the Project and findings related to land disturbance and storm water impacts.

- Installation of the solar facility will temporarily disturb the ground surface within the 15.0-acre Project.
- Under existing conditions, the peak flow from the site area for the 100 yr – 1hr storm event is 28.75 cfs.
- Under developed conditions, the peak flow from the site area for the 100 yr – 1hr storm event is 28.84 cfs.
- Installation of the solar facility will result in a negligible increase stormwater runoff flow rates from the project site. Therefore, permanent stormwater attenuation measures are not proposed with the project. Runoff water quality will not be impacted by the solar facility components.

- The project design will adequately protect public health, safety and general welfare and will have no adverse effects on the Alamosa County or CDOT right-of-way or offsite properties.

As noted above, a study published in the *Journal of Hydrologic Engineering* (**Appendix D**) researched the hydrologic impacts of utility scale solar generating facilities. The study utilized a model to simulate runoff from pre-development and post-development solar panel conditions. The study concluded that the solar panels themselves have little to no impact on runoff volumes or rates. Rainfall losses, most notably infiltration, are not impacted by the solar panels. Rainfall that lands directly on a solar panel runs to the pervious areas around and under the surrounding panels. Grading is proposed with minimal changes to the existing site drainage patterns and onsite access roads will be unpaved aggregate. Based on the proposed improvements on the project site, the findings of the above referenced study, and the calculations included within this report, the increase in runoff volume was determined to be negligible.

KIMLEY-HORN AND ASSOCIATES, INC.

Adam Harrison, PE

Project Engineer

6. REFERENCES

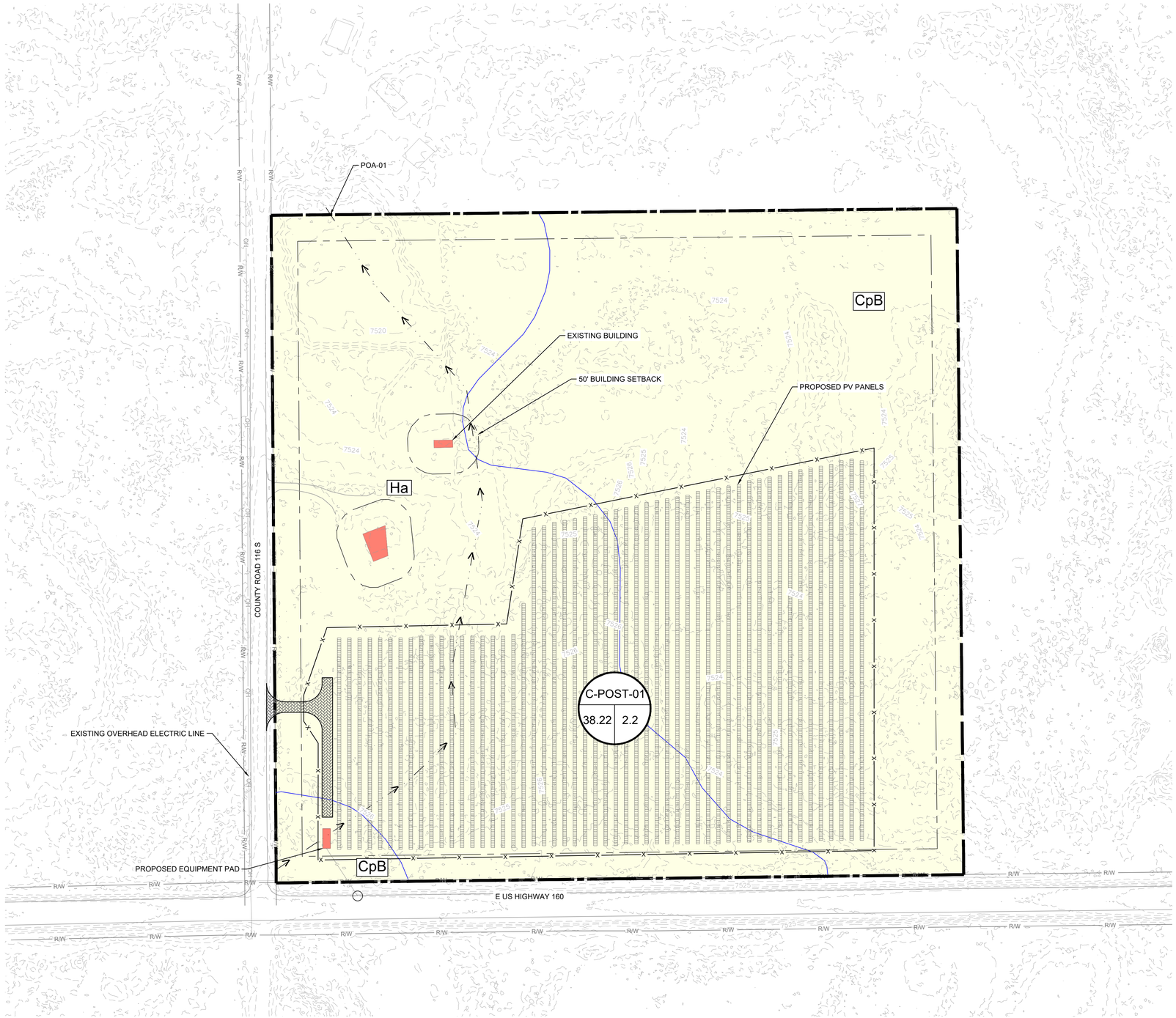
USDA NRCS (2024). *Custom Soil Resource Report for Alamosa County, Colorado..*

Mile High Flood District, *Urban Storm Drainage Criteria Manual: Volume 1 Management, Hydrology, and Hydraulics*. 2024.

APPENDIX A – OVERALL SITE PLAN

RDC CO COUNTY ROAD 116

SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 37 NORTH, RANGE 11 EAST, N.M.P.M., COUNTY OF ALAMOSA, STATE OF COLORADO



LEGEND

- DRAINAGE BOUNDARY / LIMITS OF ANALYSIS
- SOIL ZONE DELINEATION
- 5230 — COMPOSITE SURFACE CONTOURS
- DRAINAGE PATH
- GRASSLAND
- ROW CROP
- MEADOW
- GRAVEL
- IMPERVIOUS

A = BASIN DESIGNATION (B | I)

B = AREA (ACRES)

I = IMPERVIOUSNESS

RATIONAL CALCULATION SUMMARY

BASIN NAME	PEAK FLOWS			
	5-YR PEAK FLOW (cfs)		100-YR PEAK FLOW (cfs)	
	PRE	POST	PRE	POST
C-PRE/POST-DA-001	1.33	1.38	28.75	28.84
TOTAL	**1.33**	**1.38**	**28.75**	**28.84**

SOILS LEGEND	
CORLETT-HOOPER COMPLEX, UNDULATING	CpB
HAPNEY LOAM	Ha

LAND COVER PERCENT IMPERVIOUSNESS

LAND COVER TYPE	PERCENT IMPERVIOUS (%)
GRASSLAND	2%
MEADOW	2%
ROW CROP	2%
GRAVEL	40%
PAVED/IMPERVIOUS	100%

No.	REVISIONS	DATE

Kimley»Horn

6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
WWW.KIMLEY-HORN.COM

PRELIMINARY NOT FOR CONSTRUCTION

KHA PROJECT		
DATE	03/20/2025	
SCALE	AS SHOWN	
DESIGNED BY		TL
DRAWN BY		TL
CHECKED BY		AJH

DRAINAGE MAP

RDC CO COUNTY RD 116

ALAMOSA, CO

SHEET NUMBER

APPENDIX B – REFERENCED MATERIALS

- Receiving Waters Map
- NRCS Report
- FEMA Firm Map
- NOAA Precipitation Data

COMMUNITY-PANEL NUMBER

INSET B SHOWN ON PANEL 080009 0045 B

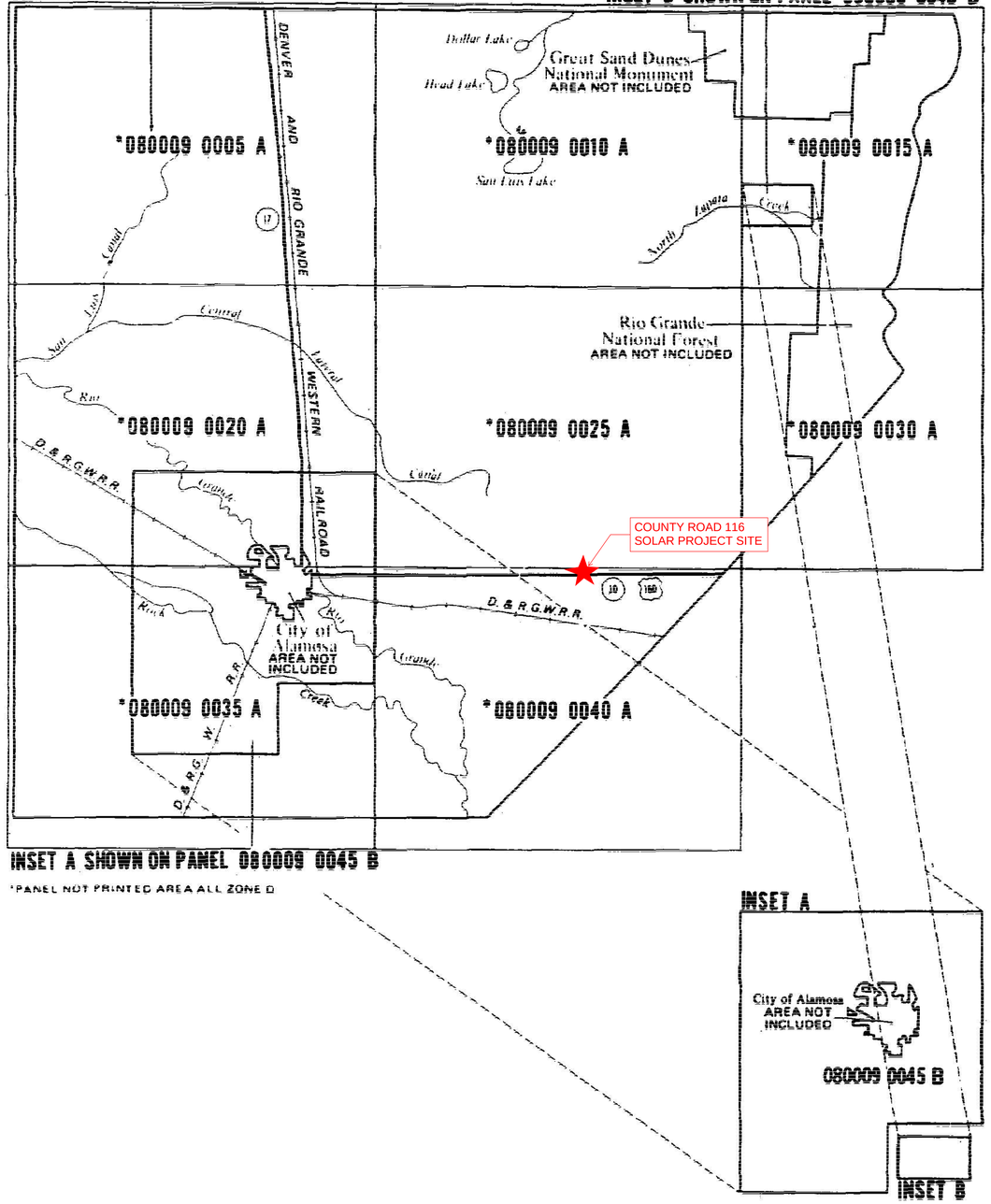


FIGURE 2: FEMA INDEX PANEL

MAP REPOSITORY

Land Use Administration
402 Edison Avenue
Alamosa, Colorado 81101
(Maps available for reference only, not for distribution.)

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

ALAMOSA COUNTY, COLORADO

(UNINCORPORATED AREAS)

MAP INDEX

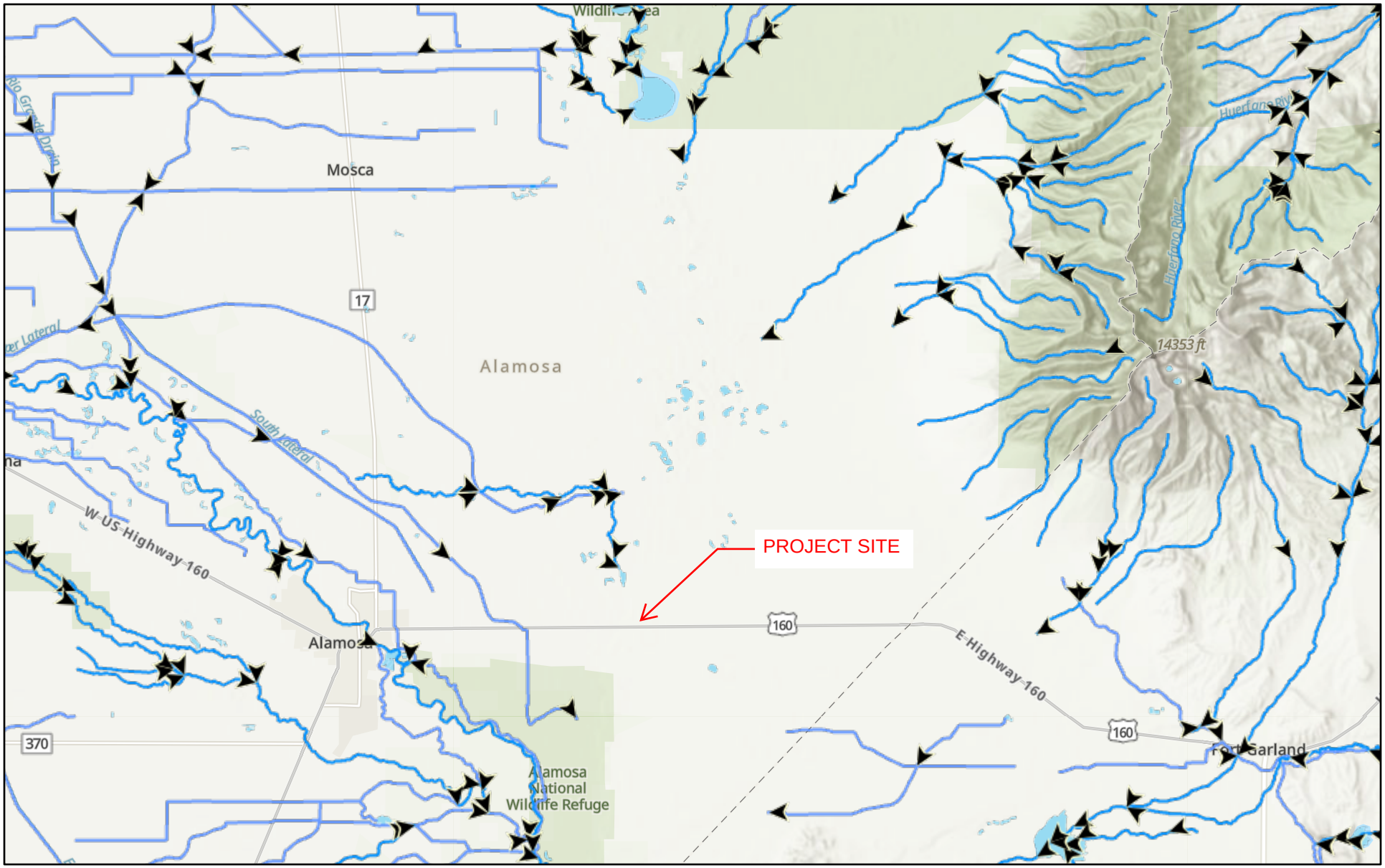
PANEL PRINTED:45

COMMUNITY-PANEL NUMBERS:
080009 0001-0045

MAP REVISED:
APRIL 21, 1999

Federal Emergency Management Agency

WATERS GeoViewer Print Map



3/20/2025, 2:31:31 PM

Waterbodies
Streams
Canals
Flow Direction

1:288,895

0 2 4 8 mi

0 3 6 12 km

US EPA, Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User

US Environment Protection Agency

Esri, NASA, NGA, USGS | Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS | US EPA |

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Alamosa Area, Colorado

March 10, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,330 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Alamosa Area, Colorado
Survey Area Data: Version 18, Aug 29, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2020—May 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CpB	Corlett-Hooper complex, undulating	20.8	54.3%
Ha	Hapney loam	17.5	45.7%
Totals for Area of Interest		**38.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Alamosa Area, Colorado

CpB—Corlett-Hooper complex, undulating

Map Unit Setting

National map unit symbol: jqrn
Elevation: 7,500 to 8,000 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 39 to 43 degrees F
Frost-free period: 90 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Corlett, undulating, and similar soils: 45 percent
Hooper, undulating, and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Corlett, Undulating

Setting

Landform: Dunes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits

Typical profile

H1 - 0 to 8 inches: sand
H2 - 8 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 42 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R051XY312CO - Sand Hummocks
Hydric soil rating: No

Description of Hooper, Undulating

Setting

Landform: Falling dunes

Down-slope shape: Linear
Across-slope shape: Linear

Typical profile
H1 - 0 to 7 inches: clay loam
H2 - 7 to 16 inches: clay
H3 - 16 to 32 inches: sandy clay loam
H4 - 32 to 60 inches: sand

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 60.0
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R051XY263CO - Salt Flats
Hydric soil rating: No

Minor Components

Hapney
Percent of map unit: 5 percent

Space city
Percent of map unit: 5 percent

Arena
Percent of map unit: 5 percent
Landform: Flood plains on valley floors
Ecological site: R051XY263CO - Salt Flats
Other vegetative classification: Salt Flats (null_64)
Hydric soil rating: Yes

Ha—Hapney loam

Map Unit Setting
National map unit symbol: jqrw

Elevation: 7,600 to 8,000 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 39 to 43 degrees F
Frost-free period: 90 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Hapney and similar soils: 85 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hapney

Setting

Landform: Flood plains on valley floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 2 inches: loam
H2 - 2 to 23 inches: clay
H3 - 23 to 40 inches: sandy clay loam
H4 - 40 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R051XY263CO - Salt Flats
Hydric soil rating: No

Minor Components

Hooper

Percent of map unit: 5 percent

Alamosa, saline

Percent of map unit: 5 percent
Landform: Oxbows, swales, flood plains, channels
Other vegetative classification: SALT MEADOW (051XY267CO_2)
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Alamosa Area, Colorado
Survey Area Data: Version 18, Aug 29, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2020—May 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CpB	Corlett-Hooper complex, undulating	D	20.8	54.3%
Ha	Hapney loam	C	17.5	45.7%
Totals for Area of Interest			**38.2**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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NOAA Atlas 14, Volume 8, Version 2
Location name: Alamosa, Colorado, USA*
Latitude: 37.4756°, Longitude: -105.7461°
Elevation: 7527 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.103 (0.086-0.127)	0.142 (0.118-0.176)	0.208 (0.173-0.258)	0.265 (0.218-0.330)	0.346 (0.274-0.451)	0.410 (0.316-0.542)	0.477 (0.353-0.646)	0.546 (0.386-0.761)	0.641 (0.434-0.920)	0.714 (0.469-1.04)
10-min	0.151 (0.126-0.186)	0.208 (0.173-0.257)	0.305 (0.253-0.378)	0.388 (0.320-0.484)	0.506 (0.401-0.660)	0.601 (0.463-0.793)	0.698 (0.518-0.946)	0.799 (0.565-1.12)	0.938 (0.635-1.35)	1.05 (0.687-1.52)
15-min	0.184 (0.153-0.227)	0.254 (0.211-0.314)	0.372 (0.308-0.461)	0.473 (0.390-0.590)	0.617 (0.489-0.805)	0.732 (0.565-0.967)	0.851 (0.631-1.15)	0.975 (0.689-1.36)	1.14 (0.774-1.64)	1.28 (0.838-1.86)
30-min	0.253 (0.211-0.313)	0.362 (0.302-0.448)	0.540 (0.448-0.671)	0.688 (0.567-0.858)	0.891 (0.703-1.15)	1.05 (0.805-1.38)	1.20 (0.891-1.62)	1.36 (0.961-1.89)	1.57 (1.06-2.25)	1.73 (1.14-2.52)
60-min	0.319 (0.266-0.395)	0.451 (0.376-0.558)	0.664 (0.551-0.824)	0.838 (0.690-1.04)	1.07 (0.844-1.38)	1.25 (0.960-1.64)	1.43 (1.05-1.92)	1.60 (1.13-2.22)	1.83 (1.23-2.61)	2.00 (1.31-2.90)
2-hr	0.385 (0.324-0.471)	0.540 (0.454-0.661)	0.788 (0.659-0.967)	0.987 (0.821-1.22)	1.25 (0.995-1.59)	1.45 (1.13-1.87)	1.65 (1.23-2.18)	1.84 (1.31-2.50)	2.08 (1.42-2.92)	2.26 (1.51-3.23)
3-hr	0.430 (0.364-0.523)	0.582 (0.491-0.708)	0.825 (0.694-1.01)	1.02 (0.854-1.25)	1.29 (1.03-1.62)	1.49 (1.16-1.90)	1.68 (1.26-2.21)	1.87 (1.35-2.53)	2.12 (1.46-2.95)	2.30 (1.55-3.27)
6-hr	0.531 (0.453-0.639)	0.671 (0.572-0.809)	0.899 (0.763-1.09)	1.09 (0.917-1.32)	1.34 (1.09-1.68)	1.54 (1.22-1.95)	1.73 (1.32-2.25)	1.93 (1.41-2.57)	2.18 (1.53-3.00)	2.37 (1.62-3.32)
12-hr	0.672 (0.578-0.801)	0.796 (0.685-0.949)	1.00 (0.858-1.20)	1.17 (1.00-1.41)	1.42 (1.16-1.75)	1.60 (1.29-2.01)	1.79 (1.39-2.30)	1.99 (1.48-2.62)	2.25 (1.61-3.04)	2.45 (1.70-3.36)
24-hr	0.822 (0.714-0.969)	0.939 (0.815-1.11)	1.13 (0.981-1.34)	1.30 (1.12-1.54)	1.54 (1.28-1.88)	1.73 (1.41-2.14)	1.92 (1.51-2.44)	2.12 (1.60-2.76)	2.39 (1.74-3.20)	2.61 (1.84-3.52)
2-day	0.949 (0.832-1.11)	1.08 (0.947-1.26)	1.30 (1.14-1.52)	1.49 (1.29-1.75)	1.75 (1.47-2.11)	1.96 (1.61-2.39)	2.16 (1.73-2.70)	2.38 (1.82-3.05)	2.67 (1.97-3.51)	2.90 (2.09-3.86)
3-day	1.02 (0.900-1.18)	1.17 (1.03-1.36)	1.42 (1.25-1.65)	1.63 (1.43-1.90)	1.93 (1.63-2.31)	2.16 (1.79-2.62)	2.39 (1.92-2.96)	2.63 (2.03-3.34)	2.96 (2.20-3.84)	3.20 (2.33-4.22)
4-day	1.08 (0.956-1.24)	1.24 (1.10-1.44)	1.52 (1.34-1.75)	1.74 (1.53-2.03)	2.06 (1.76-2.46)	2.32 (1.93-2.79)	2.57 (2.07-3.16)	2.83 (2.20-3.56)	3.18 (2.38-4.10)	3.45 (2.52-4.51)
7-day	1.24 (1.11-1.42)	1.42 (1.27-1.63)	1.73 (1.54-1.98)	1.98 (1.76-2.28)	2.34 (2.01-2.77)	2.62 (2.21-3.14)	2.91 (2.38-3.55)	3.21 (2.52-3.99)	3.60 (2.74-4.59)	3.91 (2.90-5.04)
10-day	1.39 (1.25-1.58)	1.58 (1.42-1.80)	1.90 (1.70-2.17)	2.18 (1.93-2.49)	2.56 (2.21-3.00)	2.86 (2.42-3.39)	3.16 (2.60-3.82)	3.48 (2.76-4.29)	3.90 (2.99-4.92)	4.23 (3.17-5.40)
20-day	1.81 (1.64-2.04)	2.04 (1.84-2.29)	2.41 (2.18-2.72)	2.73 (2.45-3.08)	3.16 (2.77-3.66)	3.50 (3.01-4.10)	3.85 (3.21-4.58)	4.20 (3.39-5.10)	4.67 (3.65-5.80)	5.04 (3.84-6.32)
30-day	2.15 (1.96-2.40)	2.42 (2.20-2.71)	2.86 (2.60-3.20)	3.22 (2.91-3.62)	3.72 (3.27-4.26)	4.10 (3.54-4.74)	4.47 (3.76-5.27)	4.85 (3.94-5.83)	5.35 (4.21-6.56)	5.72 (4.42-7.11)
45-day	2.58 (2.36-2.86)	2.92 (2.67-3.24)	3.46 (3.16-3.85)	3.90 (3.55-4.35)	4.48 (3.96-5.08)	4.92 (4.27-5.63)	5.34 (4.51-6.22)	5.75 (4.70-6.82)	6.27 (4.98-7.59)	6.65 (5.19-8.17)
60-day	2.94 (2.70-3.24)	3.35 (3.08-3.70)	4.00 (3.67-4.43)	4.51 (4.12-5.01)	5.18 (4.59-5.82)	5.67 (4.94-6.44)	6.13 (5.20-7.08)	6.57 (5.40-7.73)	7.11 (5.68-8.53)	7.49 (5.89-9.14)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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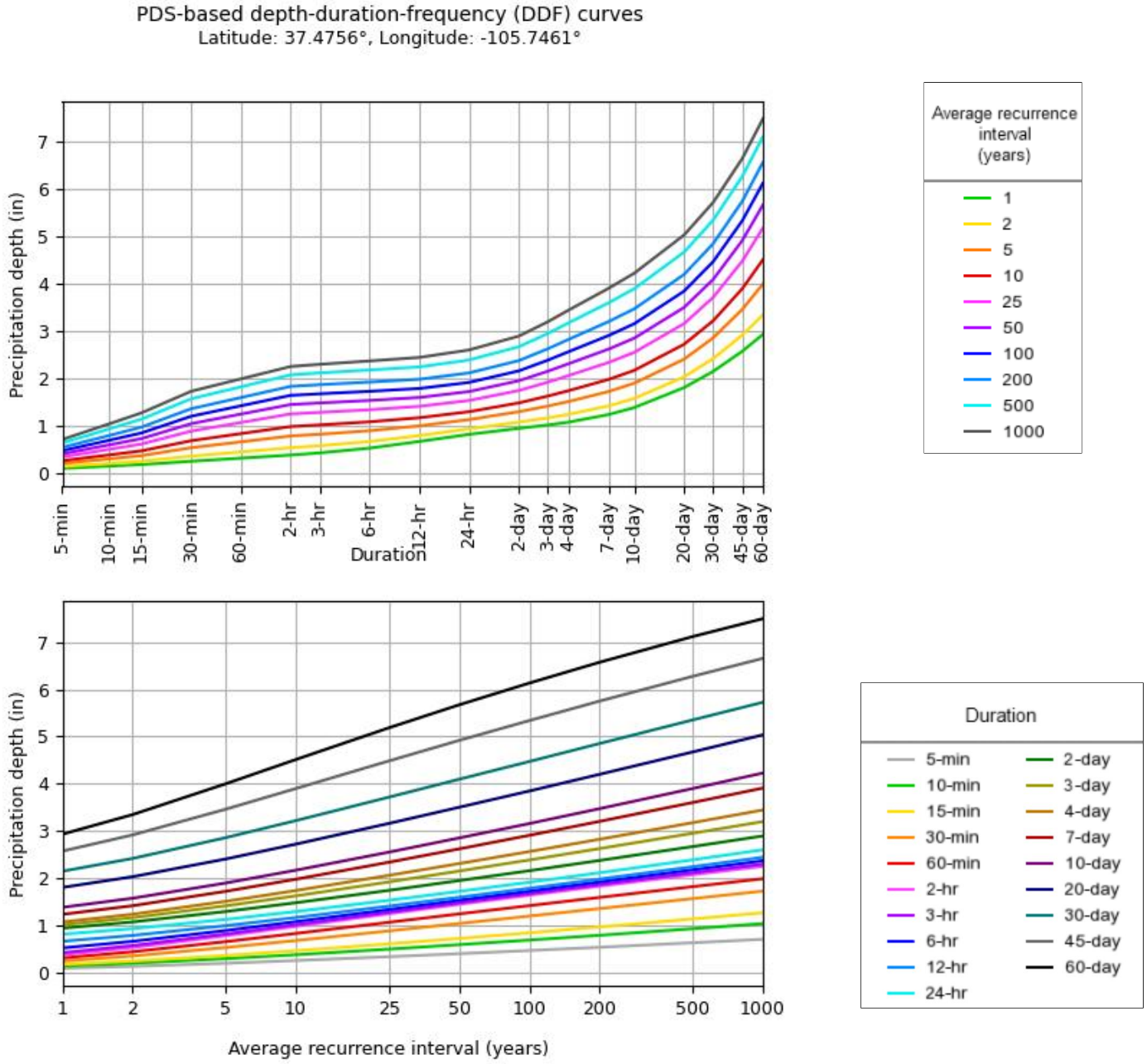
PF graphical



NOAA Atlas 14, Volume 8, Version 2

Created (GMT): Thu Feb 20 21:19:00 2025

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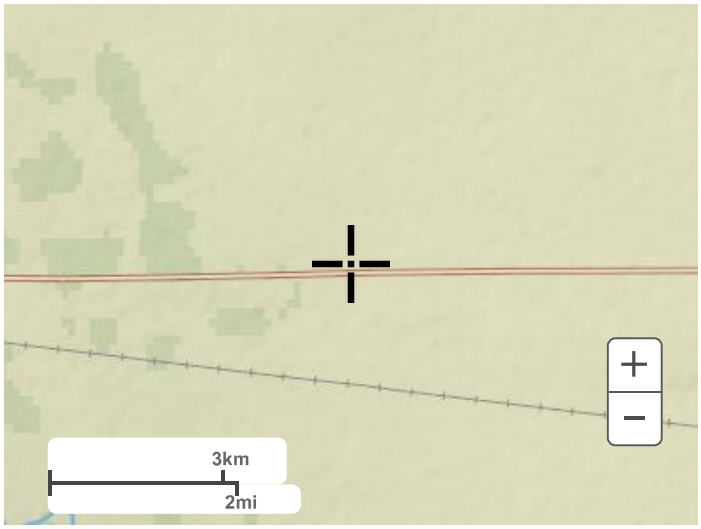
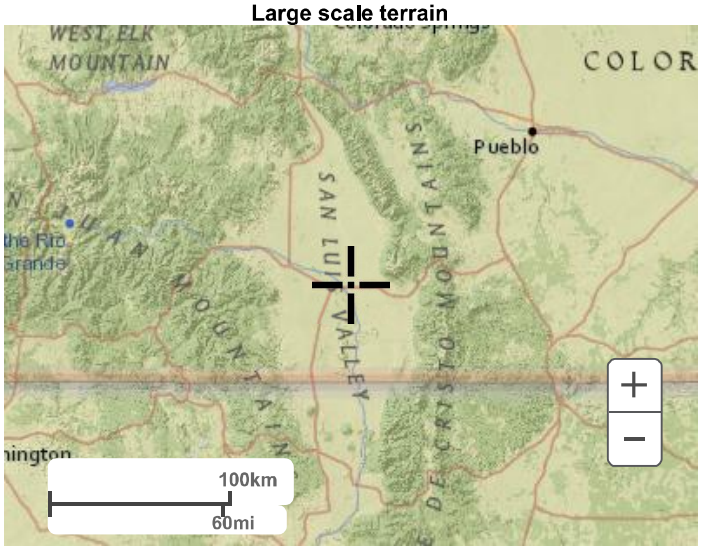
Maps & aerials

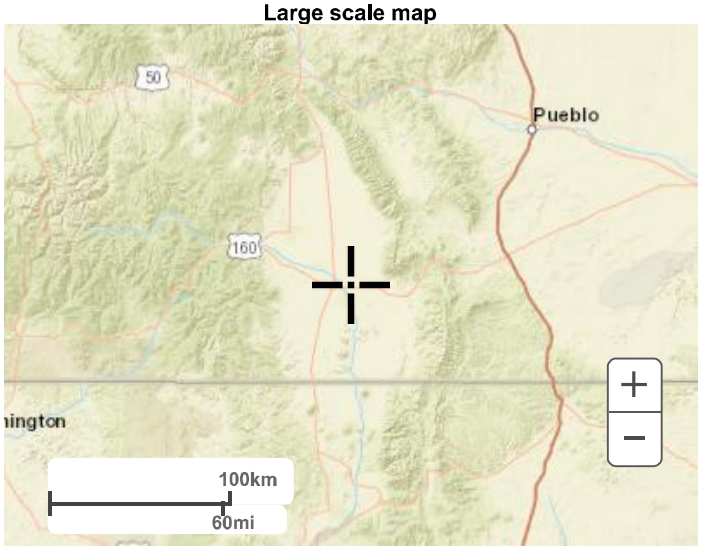
Small scale terrain



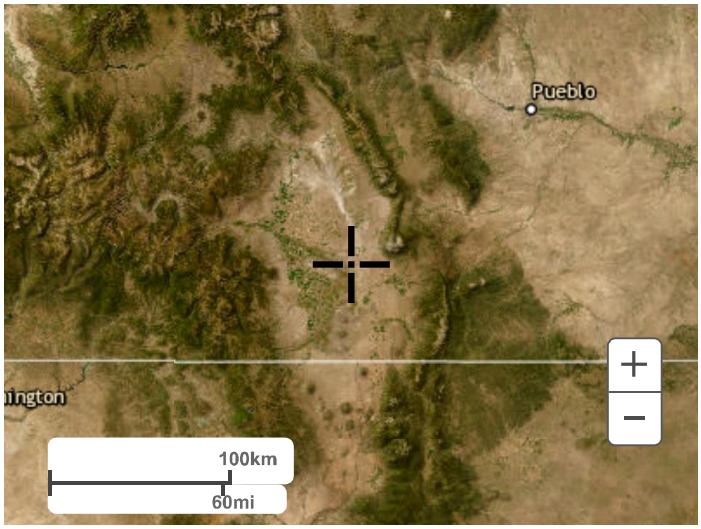
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX C – HYDROLOGIC CALCULATIONS

Calculation of Peak Runoff using Rational Method

Designer:
Company: Reactivate
Date: 3/11/2025
Project: County Road 116 Drainage
Location: Alamosa Colorado

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_i^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Computed $t_c = t_i + t_t$

Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$

$t_{minimum}$ = 5 (urban)
$t_{minimum}$ = 10 (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.45	0.67	0.85	1.10	1.30	1.50	1.98

	a	b	c
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

$$Q(cfs) = CIA$$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
DA-01 Pre	38.22	D	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
DA-01 Post	38.22	D	2.2	0.01	0.05	0.15	0.33	0.40	0.49	0.59

Subcatchment Name	Overland (Initial) Flow Time: Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)
DA-01 Pre	300.00	7527.12	7525.89	0.004	44.01
DA-01 Post	300.00			0.004	43.95

Subcatchment Name	Channelized (Travel) Flow Time: Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)
DA-01 Pre	1233.58	7525.89	7520.53	0.004	3	0.20	103.97
DA-01 Post	1233.58			0.004	3	0.20	103.97

Subcatchment Name	Time of Concentration: Computed t_c (min)	Regional t_c (min)	Selected t_c (min)
DA-01 Pre	147.98	59.27	59.27
DA-01 Post	147.91	59.14	59.14

Subcatchment Name	Rainfall Intensity, I (in/hr) 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Peak Flow, Q (cfs) 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
DA-01 Pre	0.46	0.68	0.87	1.12	1.32	1.53	2.02	0.18	1.33	4.86	14.14	20.40	28.75	45.82
DA-01 Post	0.46	0.68	0.87	1.12	1.33	1.53	2.02	0.20	1.38	4.92	14.21	20.48	28.84	45.94

APPENDIX D – HYDROLOGIC RESPONSE OF SOLAR FARMS

Hydrologic Response of Solar Farms

Lauren M. Cook, S.M.ASCE[1]; and Richard H. McCuen, M.ASCE[2]

Abstract: Because of the benefits of solar energy, the number of solar farms is increasing; however, their hydrologic impacts have not been studied. The goal of this study was to determine the hydrologic effects of solar farms and examine whether or not storm-water management is needed to control runoff volumes and rates. A model of a solar farm was used to simulate runoff for two conditions: the pre- and postpaneled conditions. Using sensitivity analyses, modeling showed that the solar panels themselves did not have a significant effect on the runoff volumes, peaks, or times to peak. However, if the ground cover under the panels is gravel or bare ground, owing to design decisions or lack of maintenance, the peak discharge may increase significantly with storm-water management needed. In addition, the kinetic energy of the flow that drains from the panels was found to be greater than that of the rainfall, which could cause erosion at the base of the panels. Thus, it is recommended that the grass beneath the panels be well maintained or that a buffer strip be placed after the most downgradient row of panels. This study, along with design recommendations, can be used as a guide for the future design of solar farms. **DOI: 10.1061/(ASCE)HE.1943-5584.0000530.**

CE Database subject headings: Hydrology; Land use; Solar power; Floods; Surface water; Runoff; Stormwater management.

Author keywords: Hydrology; Land use change; Solar energy; Flooding; Surface water runoff; Storm-water management.

Introduction

Storm-water management practices are generally implemented to reverse the effects of land-cover changes that cause increases in volumes and rates of runoff. This is a concern posed for new types of land-cover change such as the solar farm. Solar energy is a renewable energy source that is expected to increase in importance in the near future. Because solar farms require considerable land, it is necessary to understand the design of solar farms and their potential effect on erosion rates and storm runoff, especially the impact on offsite properties and receiving streams. These farms can vary in size from 8 ha (20 acres) in residential areas to 250 ha (600 acres) in areas where land is abundant.

The solar panels are impervious to rain water; however, they are mounted on metal rods and placed over pervious land. In some cases, the area below the panel is paved or covered with gravel. Service roads are generally located between rows of panels. Although some panels are stationary, others are designed to move so that the angle of the panel varies with the angle of the sun. The angle can range, depending on the latitude, from 22° during the summer months to 74° during the winter months. In addition, the angle and direction can also change throughout the day. The issue posed is whether or not these rows of impervious panels will change the runoff characteristics of the site, specifically increase runoff volumes or peak discharge rates. If the increases are hydrologically significant, storm-water management facilities may be needed. Additionally, it is possible that the velocity of water draining from the edge of the panels is sufficient to cause erosion of the soil below the panels, especially where the maintenance roadways are bare ground.

The outcome of this study provides guidance for assessing the hydrologic effects of solar farms, which is important to those who plan, design, and install arrays of solar panels. Those who design solar farms may need to provide for storm-water management. This study investigated the hydrologic effects of solar farms, assessed whether or not storm-water management might be needed, and if the velocity of the runoff from the panels could be sufficient to cause erosion of the soil below the panels.

Model Development

Solar farms are generally designed to maximize the amount of energy produced per unit of land area, while still allowing space for maintenance. The hydrologic response of solar farms is not usually considered in design. Typically, the panels will be arrayed in long rows with separations between the rows to allow for maintenance vehicles. To model a typical layout, a unit width of one panel was assumed, with the length of the downgradient strip depending on the size of the farm. For example, a solar farm with 30 rows of 200 panels each could be modeled as a strip of 30 panels with space between the panels for maintenance vehicles. Rainwater that drains from the upper panel onto the ground will flow over the land under the 29 panels on the downgradient strip. Depending on the land cover, infiltration losses would be expected as the runoff flows to the bottom of the slope.

To determine the effects that the solar panels have on runoff characteristics, a model of a solar farm was developed. Runoff in the form of sheet flow without the addition of the solar panels served as the prepaneled condition. The paneled condition assumed a downgradient series of cells with one solar panel per ground cell. Each cell was separated into three sections: wet, dry, and spacer.

The dry section is that portion directly underneath the solar panel, unexposed directly to the rainfall. As the angle of the panel from the horizontal increases, more of the rain will fall directly onto

[1]Research Assistant, Dept. of Civil and Environmental Engineering, Univ. of Maryland, College Park, MD 20742-3021.

[2]The Ben Dyer Professor, Dept. of Civil and Environmental Engineering, Univ. of Maryland, College Park, MD 20742-3021 (corresponding author). E-mail: rhmccuen@eng.umd.edu

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the ground; this section of the cell is referred to as the wet section. The spacer section is the area between the rows of panels used by maintenance vehicles. Fig. 1 is an image of two solar panels and the spacer section allotted for maintenance vehicles. Fig. 2 is a schematic of the wet, dry, and spacer sections with their respective dimensions. In Fig. 1, tracks from the vehicles are visible on what is modeled within as the spacer section. When the solar panel is horizontal, then the length longitudinal to the direction that runoff will occur is the length of the dry and wet sections combined. Runoff from a dry section drains onto the downgradient spacer section. Runoff from the spacer section flows to the wet section of the next downgradient cell. Water that drains from a solar panel falls directly onto the spacer section of that cell.

The length of the spacer section is constant. During a storm event, the loss rate was assumed constant for the 24-h storm because a wet antecedent condition was assumed. The lengths of the wet and dry sections changed depending on the angle of the solar panel. The total length of the wet and dry sections was set equal to the length of one horizontal solar panel, which was assumed to be 3.5 m. When a solar panel is horizontal, the dry section length would equal 3.5 m and the wet section length would be zero. In the paneled condition, the dry section does not receive direct rainfall because the rain first falls onto the solar panel then drains onto the spacer section. However, the dry section does infiltrate some of the runoff that comes from the upgradient wet section. The wet section was modeled similar to the spacer section with rain falling directly onto the section and assuming a constant loss rate.

For the presolar panel condition, the spacer and wet sections are modeled the same as in the paneled condition; however, the cell does not include a dry section. In the prepaneled condition, rain falls directly onto the entire cell. When modeling the prepaneled condition, all cells receive rainfall at the same rate and are subject to losses. All other conditions were assumed to remain the same such that the prepaneled and paneled conditions can be compared.

Rainfall was modeled after an natural resources conservation service (NRCS) Type II Storm (McCuen 2005) because it is an accurate representation of actual storms of varying characteristics that are imbedded in intensity-duration-frequency (IDF) curves. For each duration of interest, a dimensionless hyetograph was developed using a time increment of 12 s over the duration of the storm (see Fig. 3). The depth of rainfall that corresponds to each storm magnitude was then multiplied by the dimensionless hyetograph. For a 2-h storm duration, depths of 40.6, 76.2, and 101.6 mm were used for the 2-, 25-, and 100-year events. The 2- and 6-h duration hyetographs were developed using the center portion of the 24-h storm, with the rainfall depths established with the Baltimore IDF curve. The corresponding depths for a 6-h duration were 53.3, 106.7, and 132.1 mm, respectively. These magnitudes were chosen to give a range of storm conditions.

During each time increment, the depth of rain is multiplied by the cell area to determine the volume of rain added to each section of each cell. This volume becomes the storage in each cell. Depending on the soil group, a constant volume of losses was subtracted from the storage. The runoff velocity from a solar panel was calculated using Manning's equation, with the hydraulic radius for sheet flow assumed to equal the depth of the storage on the panel (Bedient and Huber 2002). Similar assumptions were made to compute the velocities in each section of the surface sections.

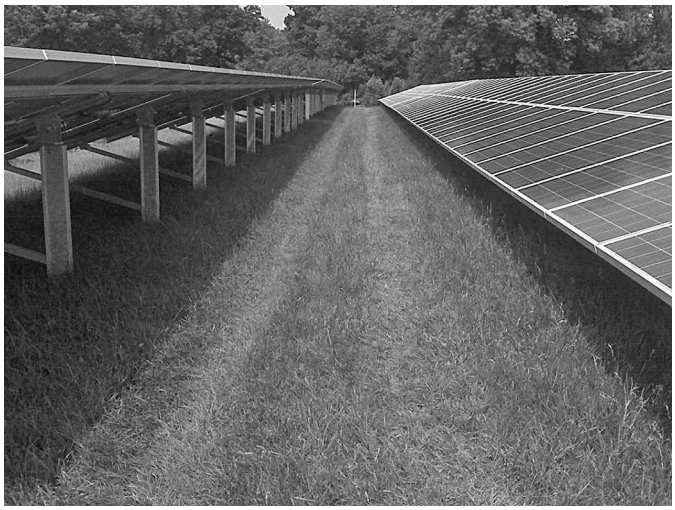

Fig. 1. Maintenance or "spacer" section between two rows of solar panels (photo by John E. Showler, reprinted with permission)

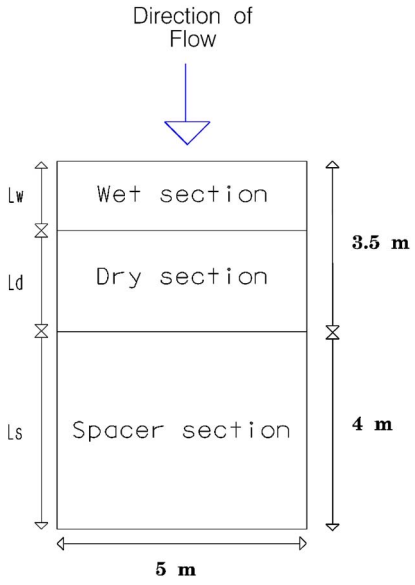

Fig. 2. Wet, dry, and spacer sections of a single cell with lengths *Lw*, *Ls*, and *Ld* with the solar panel covering the dry section

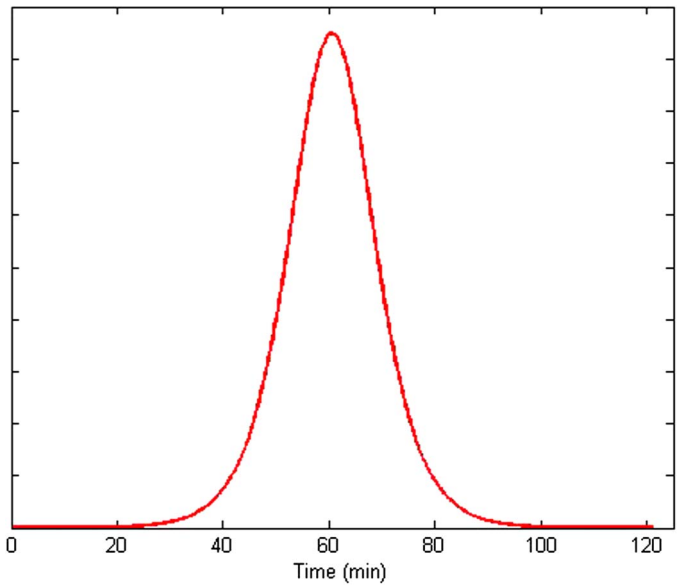

Fig. 3. Dimensionless hyetograph of 2-h Type II storm

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Runoff from one section to the next and then to the next downgradient cell was routed using the continuity of mass. The routing coefficient depended on the depth of flow in storage and the velocity of runoff. Flow was routed from the wet section to the dry section to the spacer section, with flow from the spacer section draining to the wet section of the next cell. Flow from the most downgradient cell was assumed to be the outflow. Discharge rates and volumes from the most downgradient cell were used for comparisons between the prepaneled and paneled conditions.

Alternative Model Scenarios

To assess the effects of the different variables, a section of 30 cells, each with a solar panel, was assumed for the base model. Each cell was separated individually into wet, dry, and spacer sections. The area had a total ground length of 225 m with a ground slope of 1% and width of 5 m, which was the width of an average solar panel. The roughness coefficient (Engman 1986) for the silicon solar panel was assumed to be that of glass, 0.01. Roughness coefficients of 0.15 for grass and 0.02 for bare ground were also assumed. Loss rates of 0.5715 cm/h (0.225 in./h) and 0.254 cm/h (0.1 in./h) for B and C soils, respectively, were assumed.

The prepaneled condition using the 2-h, 25-year rainfall was assumed for the base condition, with each cell assumed to have a good grass cover condition. All other analyses were made assuming a paneled condition. For most scenarios, the runoff volumes and peak discharge rates from the paneled model were not significantly greater than those for the prepaneled condition. Over a total length of 225 m with 30 solar panels, the runoff increased by 0.26 m^3, which was a difference of only 0.35%. The slight increase in runoff volume reflects the slightly higher velocities for the paneled condition. The peak discharge increased by 0.0013 m^3, a change of only 0.31%. The time to peak was delayed by one time increment, i.e., 12 s. Inclusion of the panels did not have a significant hydrologic impact.

Storm Magnitude

The effect of storm magnitude was investigated by changing the magnitude from a 25-year storm to a 2-year storm. For the 2-year storm, the rainfall and runoff volumes decreased by approximately 50%. However, the runoff from the paneled watershed condition increased compared to the prepaneled condition by approximately the same volume as for the 25-year analysis, 0.26 m^3. This increase represents only a 0.78% increase in volume. The peak discharge and the time to peak did not change significantly. These results reflect runoff from a good grass cover condition and indicated that the general conclusion of very minimal impacts was the same for different storm magnitudes.

Ground Slope

The effect of the downgradient ground slope of the solar farm was also examined. The angle of the solar panels would influence the velocity of flows from the panels. As the ground slope was increased, the velocity of flow over the ground surface would be closer to that on the panels. This could cause an overall increase in discharge rates. The ground slope was changed from 1 to 5%, with all other conditions remaining the same as the base conditions.

With the steeper incline, the volume of losses decreased from that for the 1% slope, which is to be expected because the faster velocity of the runoff would provide less opportunity for infiltration. However, between the prepaneled and paneled conditions, the increase in runoff volume was less than 1%. The peak discharge and the time to peak did not change. Therefore, the greater ground slope did not significantly influence the response of the solar farm.

Soil Type

The effect of soil type on the runoff was also examined. The soil group was changed from B soil to C soil by varying the loss rate. As expected, owing to the higher loss rate for the C soil, the depths of runoff increased by approximately 7.5% with the C soil when compared with the volume for B soils. However, the runoff volume for the C soil condition only increased by 0.17% from the prepaneled condition to the paneled condition. In comparison with the B soil, a difference of 0.35% in volume resulted between the two conditions. Therefore, the soil group influenced the actual volumes and rates, but not the relative effect of the paneled condition when compared to the prepaneled condition.

Panel Angle

Because runoff velocities increase with slope, the effect of the angle of the solar panel on the hydrologic response was examined. Analyses were made for angles of 30° and 70° to test an average range from winter to summer. The hydrologic response for these angles was compared to that of the base condition angle of 45°. The other site conditions remained the same. The analyses showed that the angle of the panel had only a slight effect on runoff volumes and discharge rates. The lower angle of 30° was associated with an increased runoff volume, whereas the runoff volume decreased for the steeper angle of 70° when compared with the base condition of 45°. However, the differences (~0.5%) were very slight. Nevertheless, these results indicate that, when the solar panel was closer to horizontal, i.e., at a lower angle, a larger difference in runoff volume occurred between the prepaneled and paneled conditions. These differences in the response result are from differences in loss rates.

The peak discharge was also lower at the lower angle. At an angle of 30°, the peak discharge was slightly lower than at the higher angle of 70°. For the 2-h storm duration, the time to peak of the 30° angle was 2 min delayed from the time to peak of when the panel was positioned at a 70° angle, which reflects the longer travel times across the solar panels.

Storm Duration

To assess the effect of storm duration, analyses were made for 6-h storms, testing magnitudes for 2-, 25-, and 100-year return periods, with the results compared with those for the 2-h rainfall events. The longer storm duration was tested to determine whether a longer duration storm would produce a different ratio of increase in runoff between the prepaneled and paneled conditions. When compared to runoff volumes from the 2-h storm, those for the 6-h storm were 34% greater in both the paneled and prepaneled cases. However, when comparing the prepaneled to the paneled condition, the increase in the runoff volume with the 6-h storm was less than 1% regardless of the return period. The peak discharge and the time-to-peak did not differ significantly between the two conditions. The trends in the hydrologic response of the solar farm did not vary with storm duration.

Ground Cover

The ground cover under the panels was assumed to be a native grass that received little maintenance. For some solar farms, the area beneath the panel is covered in gravel or partially paved because the panels prevent the grass from receiving sunlight. Depending on the

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volume of traffic, the spacer cell could be grass, patches of grass, or bare ground. Thus, it was necessary to determine whether or not these alternative ground-cover conditions would affect the runoff characteristics. This was accomplished by changing the Manning's n for the ground beneath the panels. The value of n under the panels, i.e., the dry section, was set to 0.015 for gravel, with the value for the spacer or maintenance section set to 0.02, i.e., bare ground. These can be compared to the base condition of a native grass ($n = 0.15$). A good cover should promote losses and delay the runoff.

For the smoother surfaces, the velocity of the runoff increased and the losses decreased, which resulted in increasing runoff volumes. This occurred both when the ground cover under the panels was changed to gravel and when the cover in the spacer section was changed to bare ground. Owing to the higher velocities of the flow, runoff rates from the cells increased significantly such that it was necessary to reduce the computational time increment. Fig. 4(a) shows the hydrograph from a 30-panel area with a time increment of 12 s. With a time increment of 12 s, the water in each cell is discharged at the end of every time increment, which results in no attenuation of the flow; thus, the undulations shown in Fig. 4(a) result. The time increment was reduced to 3 s for the 2-h storm, which resulted in watershed smoothing and a rational hydrograph shape [Fig. 4(b)]. The results showed that the storm runoff

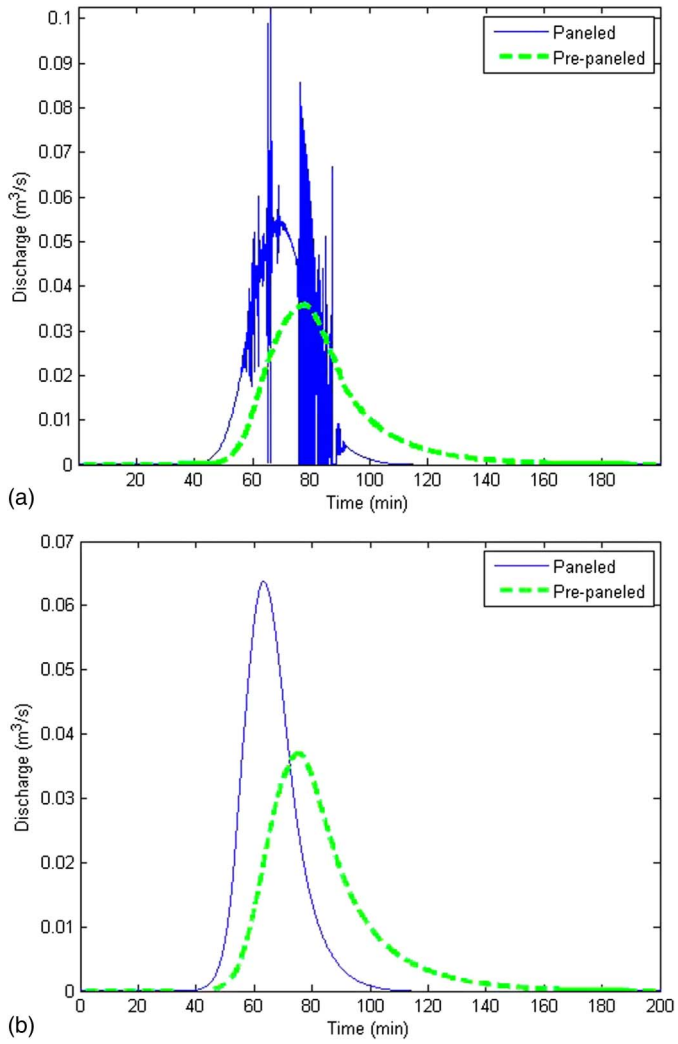

Fig. 4. Hydrograph with time increment of (a) 12 s; (b) 3 s with Manning's n for bare ground

increased by 7% from the grass-covered scenario to the scenario with gravel under the panel. The peak discharge increased by 73% for the gravel ground cover when compared with the grass cover without the panels. The time to peak was 10 min less with the gravel than with the grass, which reflects the effect of differences in surface roughness and the resulting velocities.

If maintenance vehicles used the spacer section regularly and the grass cover was not adequately maintained, the soil in the spacer section would be compacted and potentially the runoff volumes and rates would increase. Grass that is not maintained has the potential to become patchy and turn to bare ground. The grass under the panel may not get enough sunlight and die. Fig. 1 shows the result of the maintenance trucks frequently driving in the spacer section, which diminished the grass cover.

The effect of the lack of solar farm maintenance on runoff characteristics was modeled by changing the Manning's n to a value of 0.02 for bare ground. In this scenario, the roughness coefficient for the ground under the panels, i.e., the dry section, as well as in the spacer cell was changed from grass covered to bare ground ($n = 0.02$).The effects were nearly identical to that of the gravel. The runoff volume increased by 7% from the grass-covered to the bare-ground condition. The peak discharge increased by 72% when compared with the grass-covered condition. The runoff for the bare-ground condition also resulted in an earlier time to peak by approximately 10 min. Two other conditions were also modeled, showing similar results. In the first scenario, gravel was placed directly under the panel, and healthy grass was placed in the spacer section, which mimics a possible design decision. Under these conditions, the peak discharge increased by 42%, and the volume of runoff increased by 4%, which suggests that storm-water management would be necessary if gravel is placed anywhere.

Fig. 5 shows two solar panels from a solar farm in New Jersey. The bare ground between the panels can cause increased runoff rates and reductions in time of concentration, both of which could necessitate storm-water management. The final condition modeled involved the assumption of healthy grass beneath the panels and bare ground in the spacer section, which would simulate the condition of unmaintained grass resulting from vehicles that drive over the spacer section. Because the spacer section is 53% of the cell, the change in land cover to bare ground would reduce losses and decrease runoff travel times, which would cause runoff to amass as it

Fig. 5. Site showing the initiation of bare ground below the panels, which increases the potential for erosion (photo by John Showler, reprinted with permission)

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moves downgradient. With the spacer section as bare ground, the peak discharge increased by 100%, which reflected the increases in volume and decrease in timing. These results illustrate the need for maintenance of the grass below and between the panels.

Design Suggestions

With well-maintained grass underneath the panels, the solar panels themselves do not have much effect on total volumes of the runoff or peak discharge rates. Although the panels are impervious, the rainwater that drains from the panels appears as runoff over the downgradient cells. Some of the runoff infiltrates. If the grass cover of a solar farm is not maintained, it can deteriorate either because of a lack of sunlight or maintenance vehicle traffic. In this case, the runoff characteristics can change significantly with both runoff rates and volumes increasing by significant amounts. In addition, if gravel or pavement is placed underneath the panels, this can also contribute to a significant increase in the hydrologic response.

If bare ground is foreseen to be a problem or gravel is to be placed under the panels to prevent erosion, it is necessary to counteract the excess runoff using some form of storm-water management. A simple practice that can be implemented is a buffer strip (Dabney et al. 2006) at the downgradient end of the solar farm. The buffer strip length must be sufficient to return the runoff characteristics with the panels to those of runoff experienced before the gravel and panels were installed. Alternatively, a detention basin can be installed.

A buffer strip was modeled along with the panels. For approximately every 200 m of panels, or 29 cells, the buffer must be 5 cells long (or 35 m) to reduce the runoff volume to that which occurred before the panels were added. Even if a gravel base is not placed under the panels, the inclusion of a buffer strip may be a good practice when grass maintenance is not a top funding priority. Fig. 6 shows the peak discharge from the graveled surface versus the length of the buffer needed to keep the discharge to prepaneled peak rate.

Water draining from a solar panel can increase the potential for erosion of the spacer section. If the spacer section is bare ground, the high kinetic energy of water draining from the panel can cause soil detachment and transport (Garde and Raju 1977; Beuselinck et al. 2002). The amount and risk of erosion was modeled using the velocity of water coming off a solar panel compared with the velocity and intensity of the rainwater. The velocity of panel runoff was calculated using Manning's equation, and the velocity of falling rainwater was calculated using the following:

$$V_t = 120\, d_r^{0.35} \tag{1}$$

where d_r = diameter of a raindrop, assumed to be 1 mm. The relationship between kinetic energy and rainfall intensity is

$$K_e = 916 + 330 \log_{10} i \tag{2}$$

where i = rainfall intensity (in./h) and K_e = kinetic energy (ft-tons per ac-in. of rain) of rain falling onto the wet section and the panel, as well as the water flowing off of the end of the panel (Wischmeier and Smith 1978). The kinetic energy (Salles et al. 2002) of the rainfall was greater than that coming off the panel, but the area under the panel (i.e., the product of the length, width, and cosine of the panel angle) is greater than the area under the edge of the panel where the water drains from the panel onto the ground. Thus, dividing the kinetic energy by the respective areas gives a more accurate representation of the kinetic energy experienced by the soil. The energy of the water draining from the panel onto the ground can be nearly 10 times greater than the rain itself falling onto the ground area. If the solar panel runoff falls onto an unsealed soil, considerable detachment can result (Motha et al. 2004). Thus, because of the increased kinetic energy, it is possible that the soil is much more prone to erosion with the panels than without. Where panels are installed, methods of erosion control should be included in the design.

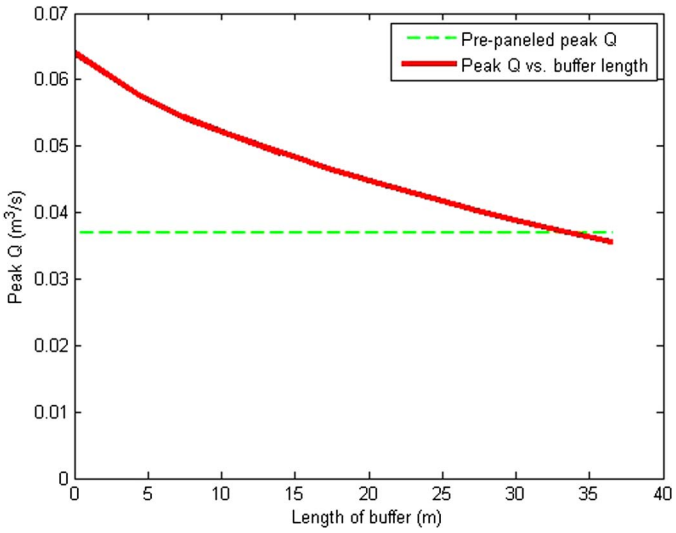

Fig. 6. Peak discharge over gravel compared with buffer length

Conclusions

Solar farms are the energy generators of the future; thus, it is important to determine the environmental and hydrologic effects of these farms, both existing and proposed. A model was created to simulate storm-water runoff over a land surface without panels and then with solar panels added. Various sensitivity analyses were conducted including changing the storm duration and volume, soil type, ground slope, panel angle, and ground cover to determine the effect that each of these factors would have on the volumes and peak discharge rates of the runoff.

The addition of solar panels over a grassy field does not have much of an effect on the volume of runoff, the peak discharge, nor the time to peak. With each analysis, the runoff volume increased slightly but not enough to require storm-water management facilities. However, when the land-cover type was changed under the panels, the hydrologic response changed significantly. When gravel or pavement was placed under the panels, with the spacer section left as patchy grass or bare ground, the volume of the runoff increased significantly and the peak discharge increased by approximately 100%. This was also the result when the entire cell was assumed to be bare ground.

The potential for erosion of the soil at the base of the solar panels was also studied. It was determined that the kinetic energy of the water draining from the solar panel could be as much as 10 times greater than that of rainfall. Thus, because the energy of the water draining from the panels is much higher, it is very possible that soil below the base of the solar panel could erode owing to the concentrated flow of water off the panel, especially if there is bare ground in the spacer section of the cell. If necessary, erosion control methods should be used.

Bare ground beneath the panels and in the spacer section is a realistic possibility (see Figs. 1 and 5). Thus, a good, well-maintained grass cover beneath the panels and in the spacer section is highly recommended. If gravel, pavement, or bare ground is

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deemed unavoidable below the panels or in the spacer section, it may necessary to add a buffer section to control the excess runoff volume and ensure adequate losses. If these simple measures are taken, solar farms will not have an adverse hydrologic impact from excess runoff or contribute eroded soil particles to receiving streams and waterways.

Acknowledgments

The authors appreciate the photographs (Figs. 1 and 5) of Ortho Clinical Diagnostics, 1001 Route 202, North Raritan, New Jersey, 08869, provided by John E. Showler, Environmental Scientist, New Jersey Department of Agriculture. The extensive comments of reviewers resulted in an improved paper.

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Attachment K:

Hydrology Report

MEMORANDUM

To:	RDC CO County Road 116
From:	Brenna Wood, PE, CFM, Kimley-Horn & Associates, Inc. Carter Strien, PE, CFM, Kimley-Horn & Associates, Inc. Kimley-Horn and Associates, Inc.
Date:	May 2025
Subject:	RDC CO County Road 116 Hydrology Study – Alamosa County, CO

Introduction

Kimley-Horn and Associates, Inc. (Kimley-Horn) prepared a two-dimensional (2D) hydrology study for the RDC CO County Road 116 project in Alamosa County, Colorado. The purpose of this study is to understand the existing inundation limits and scour potential associated with the 100-year, 24-hour storm event. The following memorandum describes the existing drainage patterns of the model area, and the methodology used to perform this hydrologic analysis.

The subject tract is approximately 44 acres and is located approximately 7 miles east of the City of Alamosa; see **Figure 1**. The site is bordered by County Road 116 South to the west, US Highway 160 to the south, undeveloped land to the east, and a private property to the north.

FEMA INFORMATION

The site is located on FEMA FIRM Panel No. 0800090025A with an effective date of January 19, 1978. This panel is unmapped per FEMA Index Panel 080009IND0; see **Figure 2**. As the area is unmapped, the site is Zone D. FEMA Zone D indicates areas with possible but undetermined flood hazards, because no flood hazard analysis has been conducted.

Methodology

HYDROLOGY

Soils data was obtained from the Natural Resources Conservation Service Web Soil Survey tool and classified by Hydrologic Soil Group (HSG); see **Figure 3**. Most soils onsite are classified as HSG C or D, indicating high runoff potential.

The National Land Cover Database (NLCD) 2021 product was used to define the existing land cover classifications across the site; see **Figure 4**. The majority of the site is classified as shrub/scrub.

An infiltration layer was generated using the SCS Curve Number method. A curve number was assigned for every unique combination of land classification and HSG; see **Table 1**.

Table 1: Curve Numbers

NLCD Land Classification	Hydrologic Soil Group			
	A	B	C	D
Barren Land Rock/Sand/Clay	68	79	86	89
Cultivated Crops	70	79	84	89
Deciduous Forest	30	55	70	77
Developed, High Intensity	98	98	98	98
Developed, Low Intensity	72	82	87	89
Developed, Medium Intensity	83	89	92	93
Developed, Open Space	49	69	79	84
Emergent Herbaceous Wetlands	98	98	98	98
Evergreen Forest	30	55	70	77
Grassland/Herbaceous	54	71	81	89
Mixed Forest	30	55	70	77
Open Water	98	98	98	98
Pasture/Hay	49	69	79	84
Perennial Ice/Snow	98	98	98	98
Shrub/Scrub	55	72	81	86
Woody Wetlands	98	98	98	98

To account for variable rainfall depths across the model, Precipitation Frequency Data Server (PFDS) 100-year, 24-hour point precipitation values (from NOAA) for seven locations contained in the model area were input as meteorological data; see **Table 2**. The precipitation applied to the entire 2D model area with a 24-hour, MSE 1 rainfall distribution.

Table 2: Rainfall table

Location	PFDS 100-Year, 24-Hour Point Precipitation (inches)
Near County Road 116, Alamosa	1.92
Near Stanley Road, Alamosa	1.95
Town of Del Norte, Del Norte	2.26
City of Monte Vista, Monte Vista	1.93
Near Little Bear Peak, Alamosa	4.86
Near San Francisco Creek Headwater, Del Norte	4.44
Alamosa Wildlife Refuge, Alamosa	2.00

Additionally, discharge from the Rio Grande at Del Norte was input to the model as a Flow Hydrograph boundary condition at a steady rate of 10,734 cubic feet per second (cfs). This represents the one-percent annual chance (or 100-year) peak discharge of the Rio Grande at Del Norte, per Flood Insurance Study 08105CV000A; see **Figure 2**.

HYDRAULICS

Two-dimensional (2D) hydraulic modeling was performed using the U.S. Army Corps of Engineers' HEC-RAS version 6.6 software. HEC-RAS performs hydraulic routing using the implicit finite volume technique to solve unsteady flow equations. This type of model is generally used to estimate the limits of flooding and velocity distributions for both confined and unconfined flow.

Topographic information for the 2D model area is based on publicly available elevation data from the United States Geological Survey (USGS). The topographic data was obtained as gridded Digital Elevation Models (DEM) with 1-meter cell sizes, then converted from meters to US survey feet.

A 2D computational mesh based on the topographic information described above was generated in HEC-RAS to perform hydraulic modeling. A grid size of 100 by 100 feet was established for the entire model area.

The runoff was routed through each cell using the Diffusion Wave 2D equation. The flow depth, velocity, and direction are based on factors such as topography and surface roughness. Existing NLCD classification was associated with a Manning's n roughness coefficient in accordance with the HEC-RAS 2D User's Manual, then applied to the model area to account for flow energy losses due to friction. **Table 3** summarizes the Manning's n values used in the hydraulic analysis.

Table 3: Manning's n Values

NLCD Land Classification	Manning's n
Barren Land Rock/Sand/Clay	0.03
Cultivated Crops	0.05
Deciduous Forest	0.1
Developed, High Intensity	0.15
Developed, Low Intensity	0.08
Developed, Medium Intensity	0.12
Developed, Open Space	0.035
Emergent Herbaceous Wetlands	0.06
Evergreen Forest	0.15
Grassland/Herbaceous	0.04
Mixed Forest	0.12
Open Water	0.035
Pasture/Hay	0.045
Perennial Ice/Snow	0.035
Shrub/Scrub	0.07
Woody Wetlands	0.07

Existing Conditions Results

ONSITE INUNDATION

Potential inundation depths on the site during a 100-year, 24-hour storm event are shown on the attached Inundation Depth Map (**Figure 5**). For the 100-year, 24-hour storm, potential inundation depths are less than 0.5 feet for the entire site. The site is generally protected from floodwater from the Rio Grande River by County Road 116 to the west of the site and an elevated irrigation ditch to the north.

ONSITE VELOCITY

Potential flow velocities on the site during a 100-year, 24-hour storm event are shown on the attached Flow Velocity Map (**Figure 6**). For the 100-year, 24-hour storm, potential flow velocities are less than 0.5 feet per second for the entire site.

ONSITE SCOUR

Kimley-Horn calculated the potential for anticipated local pier scour depth by using the maximum potential inundation depth values and flow velocities on the site. Pier scour was calculated using guidance in *HEC-18: Evaluating Scour at Bridges, Fifth Edition* (FHWA, 2012). Potential scour depths on the site during a 100-year, 24-hour storm event are shown on the attached Scour Depth Map (**Figure 7**). The entirety of the site will experience potential scour depths of less than 0.5 feet during a 100-year, 24-hour design storm.

ATTACHMENTS

Figure 1: Vicinity Map

Figure 2: FEMA FIRM and FIS Materials

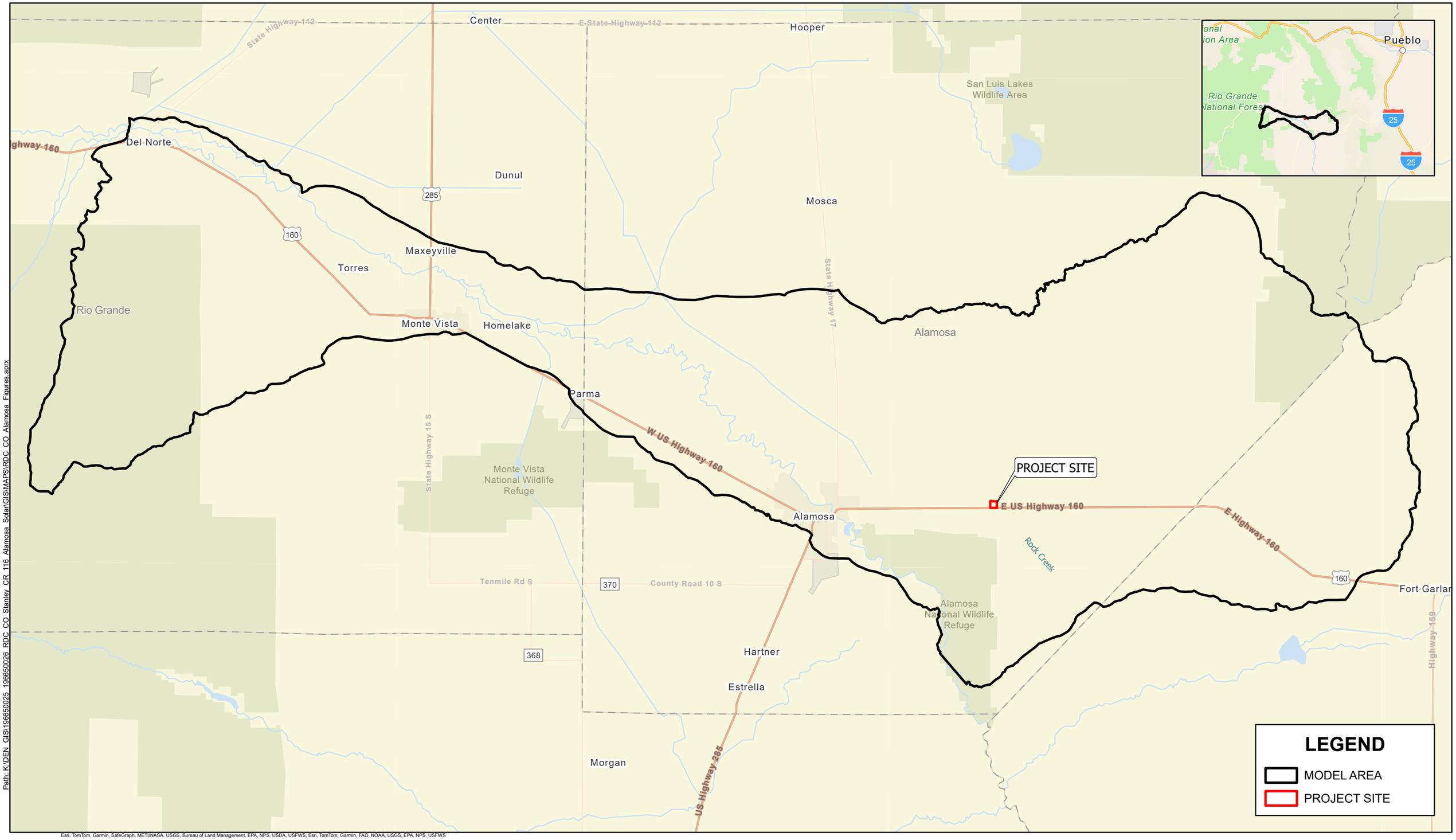
Figure 3: Hydrologic Soil Group Map

Figure 4: Land Cover Map

Figure 5: 100-Year, 24-Hour Inundation Depth Map

Figure 6: 100-Year, 24-Hour Flow Velocity Map

Figure 7: 100-Year, 24-Hour Scour Depth Map



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Greenwood Village, CO 80111
TEL: 303 228 2300
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FIGURE 1: VICINITY MAP

RDC CO COUNTY ROAD 116
ALAMOSA COUNTY, CO

COMMUNITY PANEL NUMBER

INSET B SHOWN ON PANEL 080009 0045 B

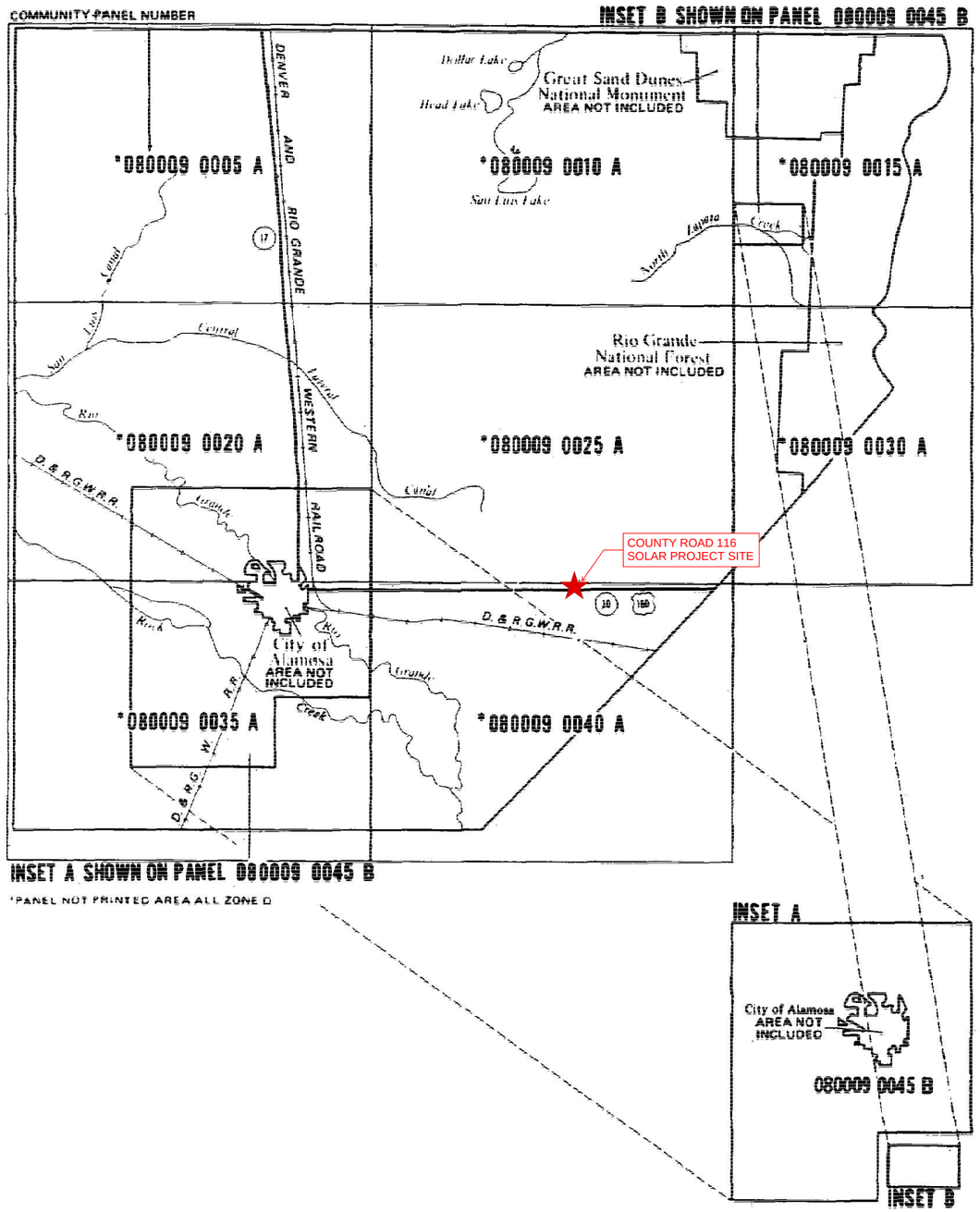


FIGURE 2: FEMA INDEX PANEL

MAP REPOSITORY

Land Use Administration
402 Edison Avenue
Alamosa, Colorado 81101
(Maps available for reference only, not for distribution.)

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

ALAMOSA COUNTY, COLORADO

(UNINCORPORATED AREAS)

MAP INDEX

PANEL PRINTED:45

COMMUNITY-PANEL NUMBERS:
080009 0001-0045

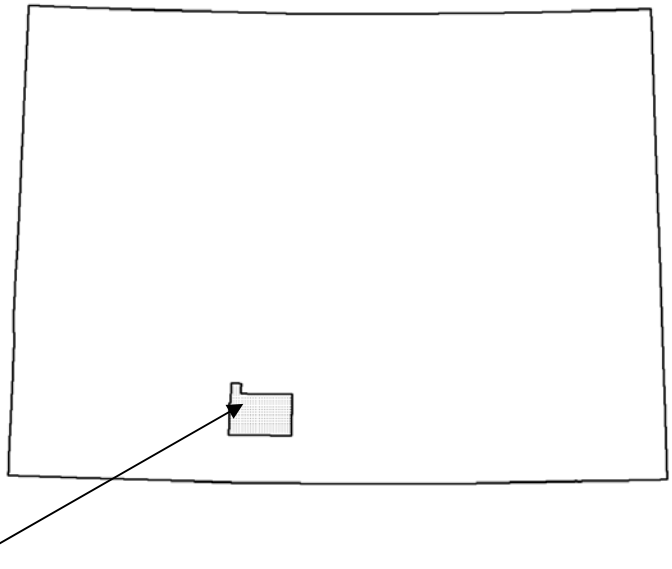
MAP REVISED:
APRIL 21, 1999

Federal Emergency Management Agency

FLOOD INSURANCE STUDY

RIO GRANDE COUNTY, COLORADO, AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNNITY NUMBER
DEL NORTE, TOWN OF	080154
MONTE VISTA, CITY OF	080155
RIO GRANDE COUNTY (UNINCORPORATED AREAS)	080153
SOUTH FORK, TOWN OF	080318



September 2, 2011

Federal Emergency Management Agency

08105CV000A

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Countywide FIS Effective Date: September 2, 2011

Revised Countywide FIS Dates:

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FLOOD INSURANCE STUDY
RIO GRANDE COUNTY, COLORADO, AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Rio Grande County, Colorado, including the City of Monte Vista, the Towns of Del Norte, and South Fork, and the unincorporated areas of Rio Grande County (hereinafter referred to as Rio Grande County). The Town of Center, which is partially located within Rio Grande County, is not included in this FIS. The majority of the area of the town is located within Saguache County, and therefore is included in the Saguache County, CO FIS. In addition, there are no Special Flood Hazard Areas (SFHAs) within the portion of Center that is located within Rio Grande County.

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the county that will be used to establish actuarial flood insurance rates. This information will also be used by Rio Grande County and the incorporated communities to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal regulations at 44 CFR, 60.3.

This Countywide FIS was prepared by compiling pertinent information for the flood hazard areas in both the incorporated and unincorporated areas of Rio Grande County, Colorado, from existing technical and/or scientific data, and from new studies. This existing and new data was reviewed by the Federal Emergency Management Agency (FEMA) prior to its use in the development of this FIS to ensure compliance with NFIP regulations.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Countywide FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for the study of the Rio Grande in the vicinity of Monte Vista and Del Norte were performed by Camp Dresser &

McKee Inc. for the Federal Insurance Administration, under Contract No. EMW-C-0046. This study was completed in October of 1980 [Federal Emergency Management Agency, City of Monte Vista and Town of Del Norte, Colorado, 1982]. Additional analyses for the detailed study areas in the vicinity of South Fork were performed by the U.S. Soil Conservation Service, as reported in the Flood Hazard Study for South Fork, Colorado [U.S. Department of Agriculture, Soil Conservation Service, October, 1980].

As part of the Countywide Digital Flood Insurance Rate Map (DFIRM) conversion project for Rio Grande County, a 1%-annual chance event floodplain was mapped by the United States Geologic Survey (USGS) on Willow Creek, southeast of the Town of South Fork [USGS, 2009].

The vector base map data for the county was compiled from various sources. The base map data consists of a series of shape files based on the NAD83 horizontal datum, using the UTM Zone 13N projection and includes the following:

(a) Transportation coverage – Included in this information is the road centerline and airport information within the county. Road centerline information was obtained from the San Luis Valley GIS Co-op of Alamosa, Colorado. Airports were digitized from the 2005 NAIP aerial photography of the county [USDA, 2005]. This data is current as of 2009.

(b) Political boundaries – These data include all incorporated community, military and Federal facility, National Forest, National Monument, and State Park boundaries. These data were obtained from the San Luis Valley GIS Co-op and were aligned to the Public Land Survey System lines for the County. This data is current as of 2009.

(c) Public Land Survey System - These data were obtained from the Bureau of Land Management and includes all section, township, and range information for Rio Grande County. This data is current as of 2009.

(d) Hydrography - These data were initially obtained from the San Luis Valley GIS Co-op; then corrected by Anderson Consulting Engineers, Inc., the DFIRM study contractor, to coincide with the stream centerlines visible on the 2005 aerial photograph, and to coincide with the most recent United States Geologic Survey (USGS) quadrangle maps. For areas where detailed studies were conducted, the stream centerline was replaced with the profile baseline utilized in the hydraulic study. This data is current as of 2009.

(e) National Geodetic Survey (NGS) benchmarks – The NGS benchmarks were downloaded from the National Geodetic Survey/National Oceanic and Atmospheric Administration website [NGS, 2009].

(f) United States Geologic Survey (USGS) Quad map index – These data were obtained from the USGS and includes the outline of all quad maps encompassed by the County boundary [USGS, 2009].

(g) New FIRM panel boundaries – These data were created by Anderson Consulting Engineers, Inc., and display the outlines of the new DFIRM panels for the county. This data is current as of 2009.

The hydraulic structure layer, including bridges and culverts within the extents of the effective hydraulic models, along with dams and weirs that are present within the county were obtained from the respective hydraulic studies. Dams and weirs along with the bridges and culverts in the effective hydraulic models that were visible on the 2005 aerial photograph were digitized by Anderson Consulting Engineers, Inc.

The coordinate system used for the production of the digital FIRM is Universe Transverse Mercator referenced to the North American Datum of 1983 and the GRS 80 spheroid, Western Hemisphere.

1.3 Coordination

In a memorandum dated May 17, 1985, the FEMA Regional Office in Denver, Colorado, requested that a Flood Insurance Study be prepared for Rio Grande County, Colorado. The study used information presented in the effective Flood Insurance Studies for the incorporated areas of the City of Monte Vista and the Town of Del Norte, and existing data from a Flood Hazard Study for portions of the Rio Grande and the South Fork Rio Grande in the vicinity of South Fork, Colorado [U.S. Department of Agriculture, Soil Conservation Service, October, 1980]. A final coordination meeting reviewing the findings of the Rio Grande County FIS was held on May 5, 1986.

For the studies in the vicinity of Monte Vista and Del Norte, an initial coordination meeting was held on June 25, 1979, attended by community and county officials and representatives of the Federal Emergency Management Agency (FEMA), the Colorado Water Conservation Board (CWCB), acting as the State Coordination Agency, and Camp Dresser & McKee Inc., the study contractor. The purpose of this meeting was to discuss the nature of the study, the scope and limits of work, and flood information currently available concerning the community.

A second coordination meeting was held on October 23, 1979, attended by city and county officials, and the study contractor, Camp Dresser & McKee Inc. Camp Dresser & McKee Inc. informed the City of their intentions and solicited any information on new developments or existing problems in the study area.

A legal notice was placed in the Monte Vista Journal, during the weeks of October 22, 1979 and November 5, 1979. A legal notice was also placed in the Del Norte Prospector, one day a week, for three consecutive weeks, beginning October 23, 1979. These notices were to notify all interested persons of the beginning of the study and its objectives and to solicit any relevant facts and technical data concerning local flood hazards.

Federal, state and local agencies were contacted regarding the availability of any reports, studies, or investigations which may contain information relative to flooding problems in the community. Information was received from FEMA and CWCB.

A scoping meeting for the Rio Grande Countywide DFIRM Conversion project was conducted in the Town of Del Norte on February 5, 2008. The meeting was attended by representatives of the CWCB, the City of Monte Vista, the Towns of Del Norte and South Fork, Rio Grande County, and Anderson Consulting Engineers, Inc, the DFIRM study contractor.

On May 18, 2010 the results of the countywide DFIRM Conversion project were presented and reviewed at a final Community Coordination (CCO) Meeting attended by representatives of the CWCB, FEMA, Anderson Consulting Engineers, Rio Grande County, the City of Monte Vista, and the Towns of Del Norte, and South Fork. All concerns raised during this meeting have been resolved. No initial CCO Meeting was held for Rio Grande County.

2.0 AREA STUDIED

2.1 Scope of Study

This Countywide FIS covers both the unincorporated and incorporated areas of Rio Grande County, Colorado, including the City of Monte Vista, and the Towns of Del Norte and South Fork. A small portion of the City of Center, Colorado lies in Rio Grande County, but is not included in this study. The Rio Grande National Forest, the Monte Vista National Wildlife Refuge, and undeveloped areas, which have little or no potential for future habitation, are also excluded. A specific area of the Rio Grande National Forest near South Fork is included where detailed flood hazard information was available.

The two main sources of flooding in Rio Grande County are the Rio Grande and the South Fork Rio Grande. The Rio Grande was studied in detail in the vicinity of Monte Vista, Del Norte, and South Fork. The South Fork of the Rio Grande was studied in detail in the vicinity of the Town of South Fork.

The areas studied by detailed methods were selected based on the extent and validity of available hydrologic and hydraulic data.

The limits of detailed study in Monte Vista and Del Norte were determined by FEMA with community and study contractor consultation at the meeting in June, 1979.

The existing 1969 U.S. Army corps of Engineers study for the Rio Grande [U.S. Army Corp of Engineers, June, 1969] was reviewed and updated.

Floods caused by overflow of the Rio Grande were studied in detail within the corporate limits of Monte Vista and Del Norte. The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development or proposed construction for five years past the time of the study, through January, 1985.

Many of the highway bridges and railroad crossings in the area have been reconstructed since the 1969 Corps report was published. These structures were studied in detail.

The scope and methods of study were proposed to and agreed upon by FEMA, the City of Monte Vista, and the Town of Del Norte.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards.

In 2009, hydrologic and hydraulic analyses were performed on Willow Creek from the confluence with the Rio Grande upstream for 2.3 miles [USGS, 2009].

2.2 Community Description

Rio Grande County, encompassing a total area of approximately 913 square miles, is located in southwestern Colorado. Saguache County lies to the north, Alamosa County to the east, Conejos County to the south, Archuleta County to the southwest, and Mineral County to the west. The incorporated communities in Rio Grande County (Monte Vista, Del Norte, South Fork, and a portion of Center) have a combined area of approximately 6 square miles. Economic activities in the area include timbering, farming, tourism, and small-scale mining.

According to the U.S. Census Bureau, the population of Rio Grande county increased from 10,770 in 1990 to 12,413 in 2000, with a projected 2008 population of 11,617 [U.S. Census Bureau, 2009].

Flood plain development is scarce, mostly consisting of ranches and farms. Residential development is increasing. Portions of the flood plains also have the potential for park and recreational uses, as well as a visual greenbelt.

The City of Monte Vista is located in the eastern portion of Rio Grande County. The total land area contained within the corporate boundaries approximately 2.6 square miles. According to the U.S. Census Bureau, the population of Monte Vista increased from 4,324 in 1990 to 4,529 in 2000, with a projected 2007 population of 4,019 [U.S. Census Bureau, 2009]. Economic activities of the area include lumber, farming, tourism, and ranching. The Great Sand Dunes National Monument, a major tourist attraction, is located 32 miles to the northeast. A major ski area, Wolf Creek, is southwest of Monte Vista. The Denver and Rio Grande Western Railroad main line passes through the town on its route along the Rio

Grande. Traffic on this line is limited to freight and stops are not normally made at Monte Vista.

Monte Vista is an older city with a minimum of recent construction. Commercial development is concentrated along the main street, Highway 160 and along Broadway, Highway 285. Residential areas are spread outward from Highway 160. The flood plains of all the flood sources considered in this study are essentially fully developed at present with single family housing the predominant type. Therefore, increased encroachment is not anticipated in the future although the character of development may change with time.

The Town of Del Norte is located in the northern portion of Rio Grande County. The total land area contained within the corporate boundaries is approximately 0.8 square miles. According to the U.S. Census Bureau, the population of Del Norte increased from 1,674 in 1990 to 1,705 in 2000, with a projected 2007 population of 1,617 [U.S. Census Bureau, 2009]. Economic activities of the area include lumber, farming, tourism, and some small scale mining.

Del Norte is an older town with a minimum of recent construction. Commercial development is concentrated along a single main street with residential areas spreading beyond. The flood plains of all the flood sources considered in this study are essentially fully developed at present with single family housing the predominant type. Therefore, increased encroachment is not anticipated in the future although the character of development may change with time.

The Town of South Fork is located in the western portion of Rio Grande County. The total land area contained within the corporate boundaries is approximately 2.3 square miles. According to the U.S. Census Bureau, the population of South Fork in 2000 was 604, with a projected 2007 population of 536 [U.S. Census Bureau, 2009]. Economic activities of the area include lumber, farming, tourism, and some small scale mining.

The Rio Grande originates in southern Colorado and flows through New Mexico before becoming the boundary between the United States and Mexico. The South Fork Rio Grande is a major tributary to the Rio Grande. It drains the southern portion of the basin from the Wolf Creek Pass area, or approximately 217.5 square miles. Its confluence with the Rio Grande is located just to the east of the Town of South Fork. Also feeding the Rio Grande are several other tributaries that drain portions of San Juan, Hinsdale, Mineral, Saguache, and Rio Grande Counties.

The upper Rio Grande and South Fork Rio Grande basins compose the southwestern portion of the Upper Rio Grande Valley in Mineral and Rio Grande Counties. The valley occupies a long, narrow trough that was formed mainly by faulting. The main topographic features of this valley are the two parallel north-south mountain ranges that border the valley, the San Juan and La Garita Mountains in the west and the Sangre De Cristo Range on the east. The Sangre De

Cristo Range merges with a low range of hills along the southern portion of the valley.

The San Juan Mountain Range is a well-defined area of rugged mountains rising above the San Luis Valley in the Rio Grande basin. The San Juan Mountains consist largely of volcanic rock in relatively horizontal layers overlying older sedimentary rock. Soils are moderately deep to shallow with rock outcrops. Permeability and runoff characteristics are highly variable.

Topography has a significant effect on the semiarid climate of the area. The surrounding mountains act as a barrier, preventing the northern cold air or eastern storms from penetrating the Upper Rio Grande Valley.

The climate of the study area includes low precipitation, low humidity, abundant sunshine, a wide daily temperature range, and generally low winds. The surrounding mountains act as a barrier preventing the northern cold air or eastern storms from penetrating into the San Luis Valley. Summers are cool in the study area, with temperatures occasionally reaching into the 90°F range. Temperatures for summer nights usually drop below 50°F. Winter temperatures, particularly in the daytime are usually warmer than those found at similar or lower elevations. Periods of extreme cold temperatures are of short duration. The mean annual temperature is 43.1°F. The average precipitation varies from 9.41 inches at Del Norte to over 40 inches in the higher mountain elevations, where most of the precipitation occurs as snow.

Vegetation varies considerably according to the elevation in the basin. Vegetation below 8,000 feet consists of pinion pine, juniper, and sage with sparse grass ground cover. Increased precipitation supports dense pine and aspen forests between this elevation and the timberline. Rock outcrops and tundra grasses predominate on the high mountain peaks, where climatic conditions are too severe for forest growth [Federal Emergency Management Agency, City of Monte Vista and Town of Del Norte, Colorado, 1982; and U.S. Department of Agriculture, Soil Conservation Service, October, 1980].

The elevation of the Rio Grande at Monte Vista averages about 7,680 feet. The headwaters of the river originate in the San Juan Mountains at the Continental Divide among mountain peaks ranging in elevation from 12,000 to 14,000 feet. The Rio Grande main stem flows eastward from the San Juan Mountains to South Fork, Colorado where it meets the South Fork Rio Grande. The South Fork Rio Grande drains the southern portion of the basin from the Wolf Creek Pass area.

A number of irrigation ditches; such as the Treasure Pass, Rober-Lohr and Fachs ditches convey water across natural drainage boundaries from the Colorado River Basin. A number of reservoirs also regulate flow in the basin. The Rio Grande is affected by the Beaver Creek, Santa Maria, Rio Grande and Continental reservoirs.

2.3 Principal Flood Problems

Flooding in the study area can result from snowmelt runoff, general rainfall, cloudburst storms, or any combination of the three.

Snowmelt runoff occurs from late May to early July. During this time, the study area is most susceptible to flooding, especially when temperatures are higher than normal or snowmelt is augmented with rain. This type of flooding has a long-duration runoff that results in a continuous rise in water level, producing high volumes of runoff.

Most of the annual rainfall occurs from July to October. Resultant flooding is of short duration, characterized by high peaks and low volumes of runoff.

The potential for the most severe flooding is created by the combination of rapid snowmelt with long-duration rainfall. Duration of flooding will vary depending on the season in which flooding occurs. During the spring when the streams are high because of snowmelt runoff coupled with spring rains, high water could persist for several days. During late summer, when the streams are normally low, runoff from thunderstorms will recede in a few hours.

Floodwaters flowing at high velocities create dangerous conditions. Velocities exceeding 3 feet per second with depths of 2 feet or more are generally considered hazardous. Those conditions would exist at several locations in the study area, especially in the river channels and low areas within the flood plain.

Detailed information on floods before 1900 is very limited. Information on past flooding is based on newspaper accounts and interviews with longtime residents of the area. Large floods occurred in Rio Grande County in 1884, 1905, 1911, 1927, 1949, 1957, 1970, and 1973. These floods caused major damage, disrupted highway, and railroad traffic and communication services, drowned livestock, and destroyed agricultural lands, irrigation structures, roads, railroads, bridges, and buildings.

In June 1927, a peak flow of 18,500 cfs was recorded in Monte Vista. Flooding was caused by 4 days of cloudbursts and incessant rain. Floods in the Monte Vista area generally ranged from 4,000 to 7,000 cfs between 1926 and 1967.

Information on past flooding is based on newspaper accounts and interviews with longtime residents of the area. Large floods occurred at Monte Vista in 1884, 1905, 1911, 1927, 1949, 1957 and 1970. These floods have caused major damage, disrupting highway and railroad traffic and communication services, drowned livestock, destroyed agricultural lands, roads, bridges and buildings.

The flood of 1884 is considered the most severe flood known in Monte Vista, with an estimated peak discharge of 20,000 cubic feet per second (cfs) at Alamosa, Colorado. The Colorado State Engineers Annual Report of 1911

proposed melting snow and rainfall as the cause of the flood in 1911. This flood has an estimated peak discharge of 14,000 cfs.

The October 1911 flood is considered the most severe flood known in Del Norte. The Rio Grande inundated the railroad tracks just outside the depot. Water was also 1.5 to 2 feet deep at the intersection of 4th and Pine Streets. The flood was triggered by intense rains in the mountains over an extended period of time. Diversion ditches, canals, and arroyos carried almost twice as much water as compared with other years. The U.S. Geological Survey (USGS) has estimated the flow to have been 18,000 cfs [U.S. Department of the Interior, Geological Survey, 1965]. This represents a recurrence interval of greater than 500 years.

Flooding problems within the Town of Del Norte are aggravated by the restriction of drainage channels due to vegetation growth and accumulated debris.

The highest flood of record on the South Fork Rio Grande was also that of October 1911. It destroyed four bridges, including the Denver & Rio Grande Western Railroad Bridge near the mouth of the river. The gage was destroyed, but subsequent investigation found that the river began to rise at about 7:00 a.m. on October 5, and rose at a rate of approximately 1 foot per hour, overflowing its banks at approximately 11:00 a.m. It stayed at the highest stage until approximately 2:30 p.m. At 7:00 p.m., the river was again within its banks. From high-water marks, the peak discharge on the South Fork Rio Grande was estimated to be approximately 8,000 cfs. This flood discharge was greater than the discharge expected from a 100-year recurrence interval flood. The flood of June 1927, the highest since 1911, reached a stage approximately 1 foot lower than the flood of 1911, but no estimate of the discharge is available-for the South Fork Rio Grande [Federal Emergency Management Agency, City of Monte Vista and Town of Del Norte, Colorado, 1982; and U.S. Department of Agriculture, Soil Conservation Service, October, 1980].

While slopes are steeper in the upper drainage basins, the dense vegetation in these areas serves to reduce rainfall runoff. A greater percentage of runoff is permitted by the sparse vegetation of the foothills and pasture land at the lower elevations. Consequently, the majority of the flood problems in the study area are caused by rapid snowmelt. This type of flooding has a long duration runoff which results in a continuous rise in water level thus producing a high runoff volume.

2.4 Flood Protection Measures

The City of Monte Vista has no existing regulations or ordinances concerning floodplain management or protection measures other than those of the Uniform Building Code, 1976 edition.

The Town of Del Norte has no existing regulations or ordinances concerning flood management or protection measures. There is very little flood protection for the Town of Del Norte. The main protection from the Rio Grande during floods is sand bags along the south edge of the river. This protects the Town from more frequent floods.

The Rio Grande Reservoir Dam was raised in 1979, with modifications made to the emergency spillway. The spillway capacity is 10,000 cfs. The estimated 100-year peak inflow is 5,600 cfs, which indicates that the 100-year recurrence interval flood will not overtop the dam.

Other than the dam, no other structural flood protection measures are known to exist in Rio Grande County.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this Flood Insurance Study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, or 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or event within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) in any 50-year period is approximately 40 percent (4 in 10), and for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this FIS. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting the community. Peak discharges for the Rio Grande at Monte Vista were calculated using the methodology for ungaged sites as described in the Manual for Estimating Flood Characteristics of Natural Flow Streams in Colorado [Colorado Water Conservation Board, 1976].

Peak discharges for the Rio Grande at Del Norte were estimated using a regional log-Pearson Type III analysis [U.S. Water Resources Council, 1976]. Stream flow data from the Del Norte measuring station, located within the Rio Grande basin, was used in this analysis. This data is contained in U.S. Geological

Survey Water Supply papers for the Rio Grande Basin [Magnitude and Frequency of Floods in the United States, USGS Water Supply Paper 1682; Surface Water Supply of the United States, Water Supply Papers 1923 and 2123; and Water Resource Data for Colorado, USGS, 1971-1978].

Peak discharges for the Rio Grande in the vicinity of the Town of South Fork were developed from frequency analyses of peak discharges for the Del Norte and Wason stream flow gages, which were active for 62 and 40 years, respectively. Peak discharges for the South Fork Rio Grande segment of this study were based on the Town of South Fork stream gage No. 2195, with 53 years of data. Additional data from several other stream gages in the region were used for checking and correlation purposes.

Information from the U.S. Water Resources Council [U.S. Water Resources Council, 1976], the Colorado Water Conservation Board [Colorado Water Conservation Board, 1976], and the USGS [U.S. Department of the Interior, Geological Survey, 1965] were also used as major references.

The peak discharges at Monte Vista were calculated using the methodology for un-gaged sites as described in "Technical Manual No. 1, Manual for Estimating Flood Characteristics of Natural-Flow Streams in Colorado," (TM1) by the USGS and CWCB [USGS and the Colorado Water Conservation Board, 1976]. Stream flow data from the gage on the Rio Grande River at Del Norte, Colorado were used to calculate a discharge-frequency relationship, using a Log Pearson Type III distribution [United States Water Resource Council, 1976]. Using the area proportion analysis as described in TM1, peak discharges were determined at Monte Vista.

The peak flow figures for each frequency used in the hydraulic analysis of this study were estimated using a Regional Log-Pearson Type III Analysis [United States Water Resource Council, 1976].

Peak discharges for Willow Creek were obtained from the HEC-HMS hydrologic analyses of the Willow Creek basin by the USGS in 2009 [USGS, 2009].

Peak discharge-drainage area relationships for the Rio Grande, South Fork Rio Grande, and Willow Creek are shown in Table 1.

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the riverine sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Water-surface elevations for the 10-, 2-, 1-, and 0.2-percent annual chance floods for the Rio Grande near Monte Vista and Del Norte were computed using the U.S.

Army Corps of Engineers HEC-2 computer program [U.S. Department of the Army, Corp of Engineers, 1979].

Table 1 - Summary of Discharges

Flooding Source and Location	Drainage Area (square miles)	Peak Discharges (cubic feet per second)			
		10-Percent Annual Chance	2-Percent Annual Chance	1-Percent Annual Chance	0.2-Percent Annual Chance
Rio Grande					
At Monte Vista	1,590	9,320	11,850	12,880	15,150
At Del Norte	1,320	7,701	9,879	10,734	12,608
South Fork Rio Grande Above Confluence with Rio Grande	217.5	2,990	5,090	6,250	9,690
Willow Creek at Confluence with Rio Grande	17.7	---	---	380	---

Cross sections for this analysis were obtained from aerial photographs flown in May 1980 [Landmark Mapping, Inc., Monte Vista, Colorado, 1980; and Landmark Mapping, Inc., Del Norte, Colorado, 1980], together with appropriate field verification. All bridges and culverts were measured in the field to obtain elevation data and structural geometry.

Water-surface elevations for the Rio Grande in the vicinity of the Town of South Fork and the South Fork Rio Grande were computed using the U.S. Soil Conservation Service WSP-2 computer program [U.S. Department of Agriculture, 1976]. Cross section data and reach lengths were obtained from photogrammetric maps prepared especially for this study. The aerial photographs used in the preparation of maps were taken on June 18, 1975 [U.S. Department of Agriculture, October 1980].

During the study of the reach of the Rio Grande in the vicinity of Del Norte, the Flood Hazard Boundary Map (FHBM) for Del Norte, Colorado was reviewed [Federal Emergency Management Agency, City of Monte Vista and Town of Del Norte, Colorado, 1982]. This map shows a much larger portion of the Town of Del Norte affected by flooding. Due to more accurate mapping information in the present study areas downstream of U.S. Highway 112 were determined to be outside the 100-year and the 500-year flood boundaries.

Water surface elevations for Willow Creek were obtained from the HEC-RAS hydraulic model prepared by the USGS in 2009 [USGS, 2009].

Roughness factors (Manning's "*n*" values) were determined by field inspection. Ground level photography aided in the selection of roughness factors and aerial

This Flood Insurance Study supersedes the Flood Hazard Boundary Map for Rio Grande County [U.S. Department of Housing and Urban Development, Federal Insurance Administration, April 29, 1977].

Flood Insurance Studies have been published for Alamosa and Archuleta Counties in Colorado, and are in general agreement with this study [Federal Emergency Management Agency, 1978; and Federal Emergency Management Agency, 1979].

The U.S. Army Corps of Engineers, published a detailed study in June 1969 titled "Floodplain Information, Monte Vista, Colorado." This study updates the Corps report in the hydrologic and hydraulic areas.

This FIS either supersedes or is compatible with all previous studies published on streams studied in this FIS and should be considered authoritative for the purposes of the NFIP.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA, Mitigation Division, Denver Federal Center, Building 710, Box 25267, Denver, Colorado 80225-0267.

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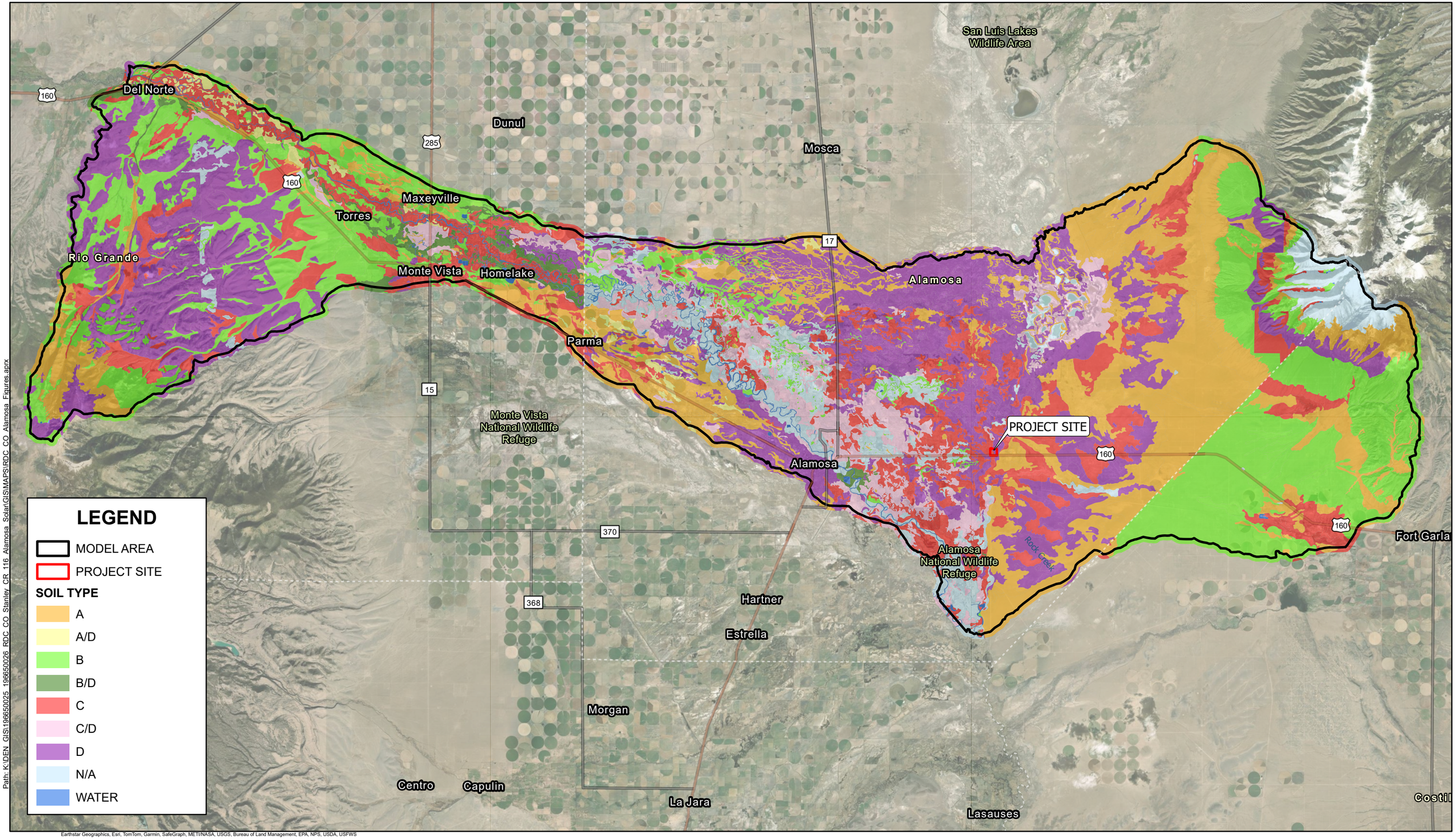

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www.kimley-horn.com

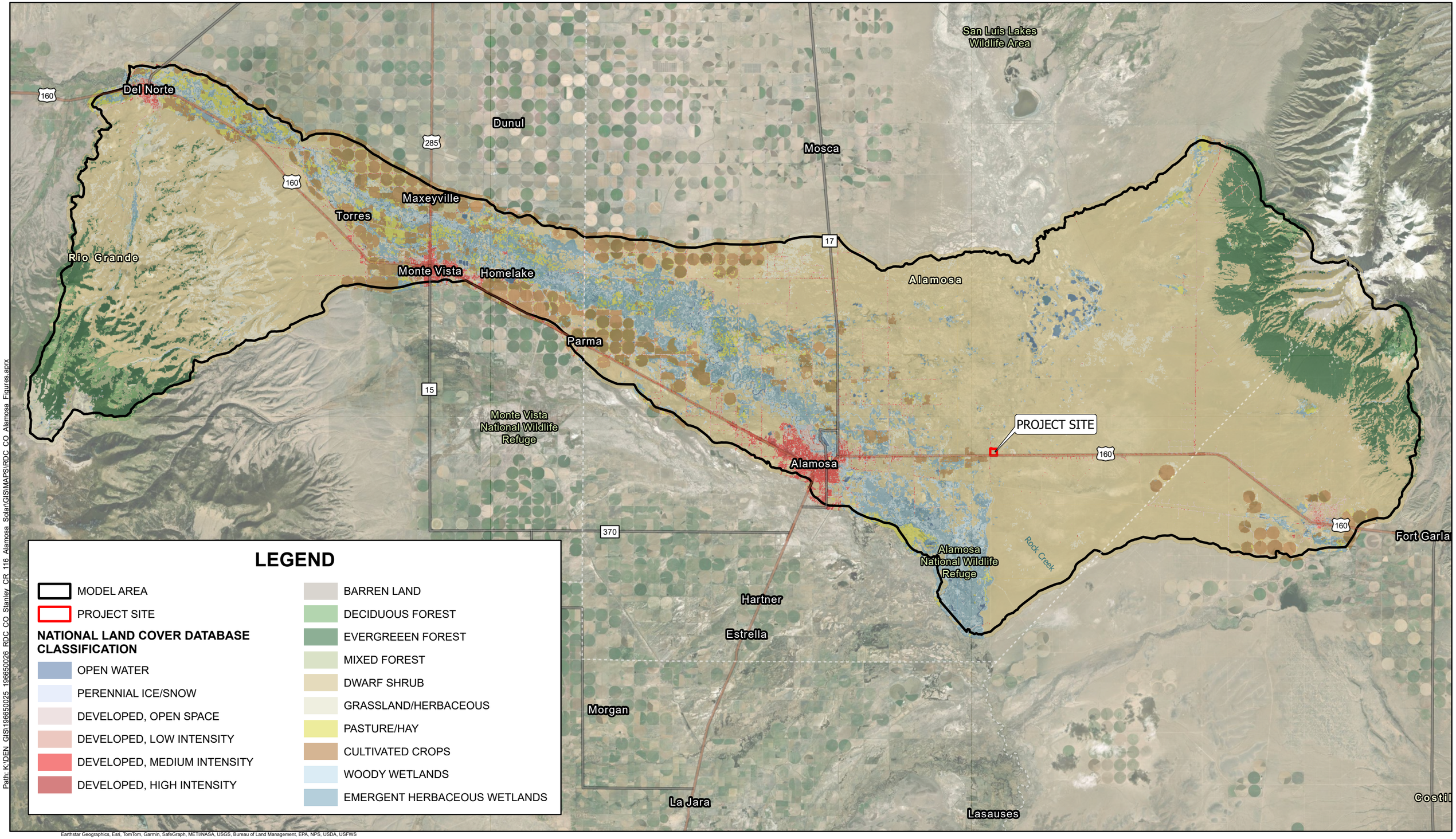
MAY 2025

N W E S

0 9,000 18,000 36,000 FEET

FIGURE 3: HYDROLOGIC SOIL GROUP MAP

RDC CO COUNTY ROAD 116
ALAMOSA COUNTY, CO



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N W E S

0 9,000 18,000 36,000 FEET

FIGURE 4: LAND COVER MAP

RDC CO COUNTY ROAD 116
ALAMOSA COUNTY, CO

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County Road 116 S

E US Highway 160

ighway 160

Rock Creek

LEGEND

- MODEL AREA
- PROJECT SITE

INUNDATION DEPTH (FT)

- 0.10 - 0.49
- 0.49 - 0.99
- 0.99 - 1.49
- 1.49 - 1.99
- 1.99 - 2.99
- 2.99 - 4.99
- 4.99 - 5.99
- 6.00+

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MAY 2025

N
W E
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0 100 200 400
FEET

FIGURE 5: 100-YEAR, 24-HOUR INUNDATION DEPTH MAP

RDC CO COUNTY ROAD 116
ALAMOSA COUNTY, CO

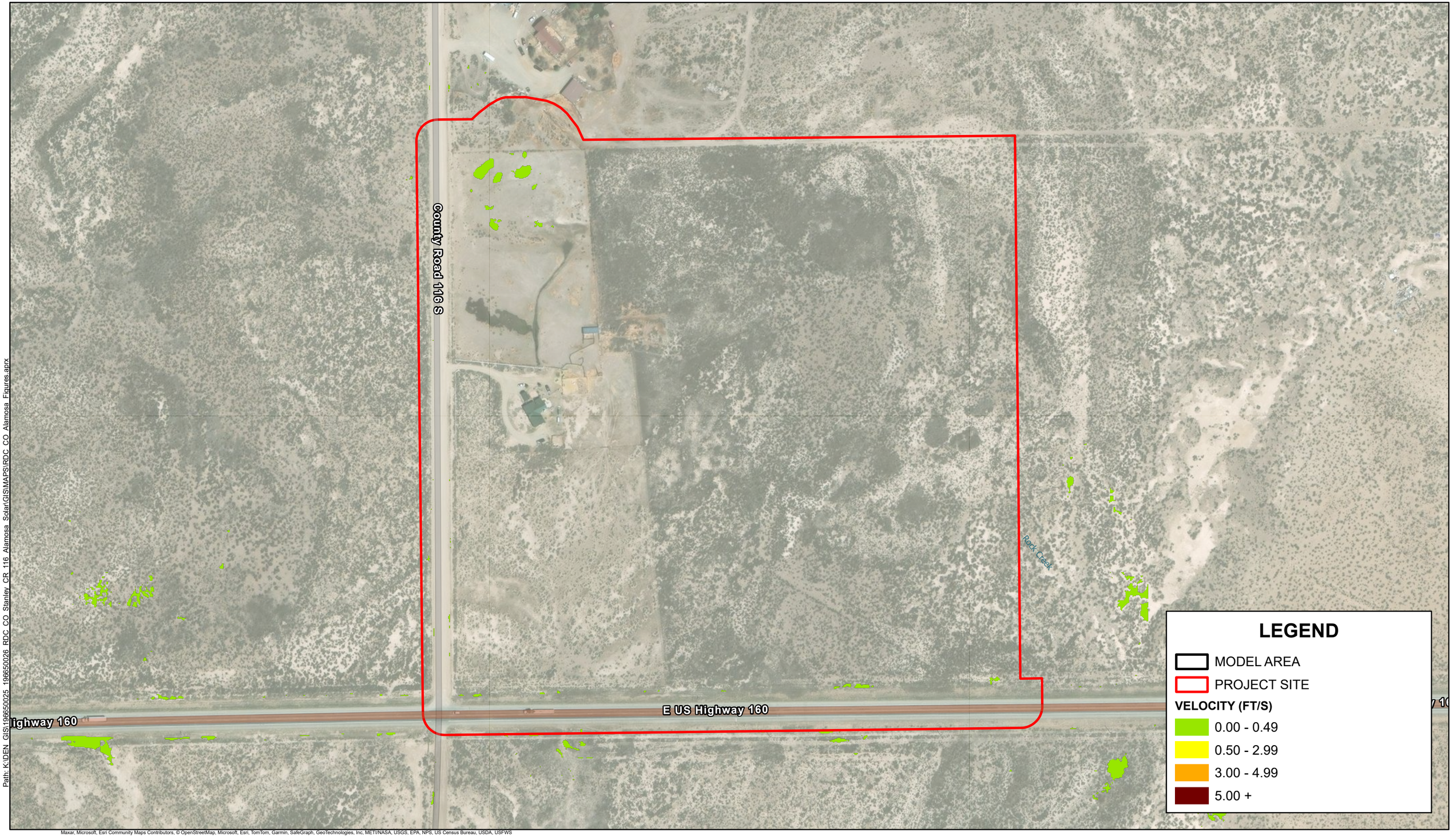

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FIGURE 6: 100-YEAR, 24-HOUR VELOCITY MAP

RDC CO COUNTY ROAD 116
ALAMOSA COUNTY, CO

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County Road 116 S

E US Highway 160

ighway 160

Rock Creek

LEGEND

- MODEL AREA
- PROJECT SITE

SCOUR DEPTH (FT)

- 0.00 - 0.49
- 0.50 - 0.74
- 0.75 - 0.99
- 1.00 - 1.49
- 1.49 - 1.99
- 2.00 +

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MAY 2025

N
W E
S

0 100 200 400
FEET

FIGURE 7: 100-YEAR, 24-HOUR SCOUR DEPTH MAP

RDC CO COUNTY ROAD 116
ALAMOSA COUNTY, CO

Attachment L:

Financial Information

Building Equity In Solar Training®

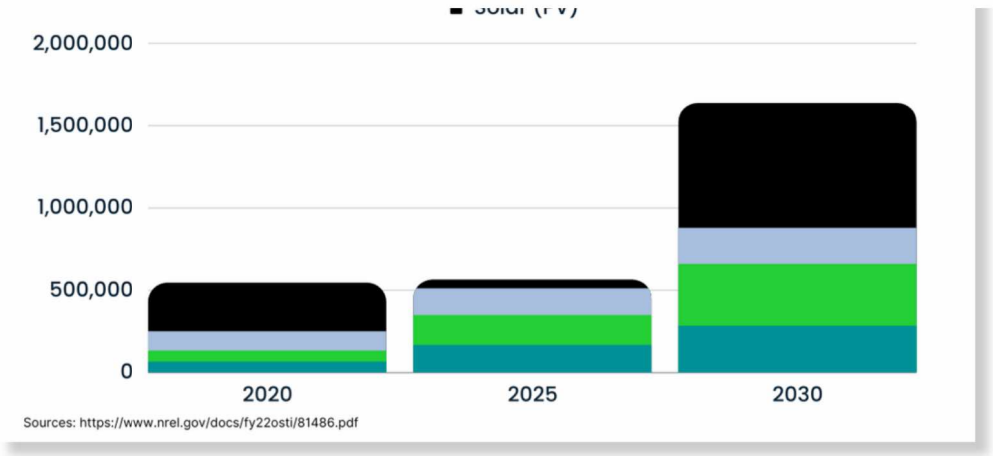
Reactivate's Workforce Training Program

Building Equity in Solar Training® (B.E.S.T.) is a national workforce training program designed to prepare individuals for a successful career in the solar sector by standardizing the skills needing and providing industry-recognized certifications.

B.E.S.T.'s workforce training model supports all individuals including those from working-class communities by offering resources needed to enroll, complete training, while addressing any potential barriers they need to overcome to enter a career with family sustaining wages.

Growing Demand

Renewable energy jobs are forecasted to grow to over 1 million by 2030. B.E.S.T. is deliberately crafted to address that need with a focus on job training for individuals to support the growing energy demand, grid reliability and resiliency needs to advance the country’s energy goals.



Program Design

The curriculum was created in conjunction with experienced solar curriculum facilitators GRID Alternatives (GRID), Solar Energy International (SEI), and Jobs for the Future (JFF) a nationally recognized workforce training and curriculum facilitator.

B.E.S.T. uses a mix of well-tested industry trainings developed by the North American Board of Certified Energy Practitioners (NABCEP), OSHA 30, as well as operator training, general building trades training and customized content tailored both to occupational demand and to the needs of the individuals participating in the program

The program utilizes a mix of classroom training and hands-on training approaches, which we view as critical to ensuring trainees are ready to enter the solar workforce upon graduation from the program.

Ensuring Student Success

The program is built around a suite of wraparound support to ensure student success.

These include:

- Enrollment options for individuals without a high school degree

- A train-the-trainer model for upskilling non-specialist instructors
- Access to free computers and Wi-Fi hot spots
- Skills-based training and certifications that will ensure graduates are hirable for other trades in the event the demand for solar installers is low.

01 Program Overview

- Sixteen-week Hybrid Solar Training Program
- Paid Training with materials provided
- Transportation and childcare assistance
- Dedicated tutoring and counseling
- Bi-lingual support (English/Spanish)

02 Eligibility

- 18 years or older
- Valid ID
- Eligible to work in the U.S.
- Interested in working in the solar industry

03 Training Generally Includes:

- Solar photovoltaic system installation training
- OSHA 30 certification
- Hands-on training
- NABCEP preparation and exam
- Career guidance and placement assistance

National Partners

GRID ALTERNATIVES

Jobs for the Future

SOLAR ENERGY INTERNATIONAL

Dedicated to **equitable** and **accessible** training

REACTIVATING COMMUNITES THROUGH RENEWABLE ENERGY

Photovoltaic - Project Data Summary based on User modifications to default values

Project Location	COLORADO
Year of Construction or Installation	2026
Average System Size - DC Nameplate Capacity (KW)	3900
Number of Systems Installed	1
Total Project Size - DC Nameplate Capacity (KW)	3900
System Application	Utility
Solar Cell/Module Material	Crystalline Silicon
System Tracking	Fixed Mount
Base Installed System Cost ($/KW$_{DC}$)	$615
Annual Direct Operations and Maintenance Cost ($/kW)	$28.21
Money Value - Current or Constant (Dollar Year)	2026
Project Construction or Installation Cost	$2,398,500
Local Spending	$858,411
Total Annual Operational Expenses	$388,245
Direct Operating and Maintenance Costs	$110,019
Local Spending	$101,217
Other Annual Costs	$278,226
Local Spending	$0
Debt Payments	$0
Property Taxes	$0

Local Economic Impacts - Summary Results

During construction and installation period	**Jobs**	**Earnings $000 (2026)**	**Output $000 (2026)**	**Value Added $000 (2026)**
Project Development and Onsite Labor Impacts				
Construction and Installation Labor	5.1	$328.2		
Construction and Installation Related Services	1.7	$134.2		
Subtotal	6.8	$462.4	$638.7	$537.2
Module and Supply Chain Impacts				
Manufacturing	0.0	$0.0	$0.0	$0.0
Trade (Wholesale and Retail)	0.2	$19.8	$63.0	$35.9
Finance, Insurance and Real Estate	0.0	$0.0	$0.0	$0.0
Professional Services	0.5	$34.3	$104.0	$59.7
Other Services	0.6	$73.1	$201.1	$117.5
Other Sectors	1.7	$71.1	$209.6	$118.9
Subtotal	3.1	$198.3	$577.8	$332.1
Induced Impacts	2.0	$111.9	$392.3	$219.5
Total Impacts	**11.9**	**$772.6**	**$1,608.7**	**$1,088.7**

During operating years	**Annual Jobs**	**Annual Earnings $000 (2026)**	**Annual Output $000 (2026)**	**Annual Output $000 (2026)**
Onsite Labor Impacts				
PV Project Labor Only	1.0	$61.3	$61.3	$61.3
Local Revenue and Supply Chain Impacts	0.3	$20.5	$70.2	$39.2
Induced Impacts	0.2	$9.4	$33.1	$18.5
Total Impacts	**1.5**	**$91.2**	**$164.6**	**$119.0**

Notes: Earnings and Output values are thousands of dollars in year 2026 dollars. Construction and operating period jobs are full-time equivalent for one year (1 FTE = 2,080 hours). Economic impacts "During operating years" represent impacts that occur from system/plant operations/expenditures. Totals may not add up due to independent rounding.

Attachment M:

Decommissioning Plan

RDC Co County Rd 116
DECOMMISSIONING PLAN
03/05/2025

Purpose

This decommissioning plan is provided by Reactivate (the "Project Company") and will detail the projected decommissioning demands associated with the proposed project.

The purpose of this decommissioning plan is to provide procedures and an opinion of probable construction cost for partial or full closure of the solar facility. Alamosa County Code requires a decommissioning plan and performance guarantees to supplement plans submitted as part of a Alamosa County 1041 Solar Energy Permit Package. This decommissioning plan details provisions for facility deconstruction and site restoration, to satisfy the specific guidelines set forth in the Project's 1041 Solar Energy Facility Permit. This decommissioning plan shall take effect upon facility abandonment, discontinuation of operation, or expiration of the use permit as defined by Alamosa County Code.

Site Location

RDC Co County Rd 116 proposes to build a photovoltaic (PV) solar facility ("Solar Facility") with a nameplate capacity of approximately 3.90 MW_{AC} ("Project"), in Alamosa County, Colorado. The Facility is located 6860 Baca Ln and within tax parcel identification numbers 541502300147 ("Property").

Anticipated Service Life of the Project

Unless the system is purchased by the Alamosa County or other entity, the facility shall be decommissioned in accordance with this Decommissioning Plan ("Plan"), restoring the site to as close to its agreed-upon post-decommissioned state as practicably possible upon expiration or termination of the Power Purchase Agreement. The Solar Facility will have a maturity date of twenty (20) years but carries an expected useful lifetime of more than 30 years.

Decommissioning responsibilities include the removal of: perimeter fences, any concrete or steel foundations, all metal structures (mounting racks and trackers), all photovoltaic (PV) modules, generators, aboveground and underground cables, transformers, inverters, fans, switch boxes, fixtures, etc. and otherwise restoring the premises to its original position or mutually-agreed upon state. Other Plan activities include the management of materials and waste, projected costs, and a decommissioning fund agreement overview.

Decommissioning Risk Over the Lifecycle of a Project

The probability of an event that would lead to abandonment or long-term interruption is extremely low during the first 15 to 20 years of the Project life. Accordingly, the risk of decommissioning the Project is extremely low during this time frame. The reasons why the risk to decommission the Project is extremely low in the early phases of the Project include, but are not limited to:

- Project owners have sophisticated financing structures that allow the lender or tax equity partner to step in and rectify the event that may lead to abandonment.
- Most critical solar components have original equipment manufacturer (OEM) warranties with terms exceeding five years that include labor and parts. A warranty is an agreement or guarantee outlined by a manufacturer to a customer that defines performance requirements for a product or service. Warranties give customers a form of insurance if the purchased product or service does not adhere to quality standards. These warranties assure the Project owner, financing parties, and other stakeholders, that equipment will perform as expected which minimizes the risk of a decommissioning event. Average warranty lengths for critical solar components range from 5 to 10 years, with production warranties on solar panels extending to 20 to 25 years.
- Solar projects consist of many networked components designed to convert solar energy into electrical energy. The failure of any single component will not result in a substantial reduction of energy generation that could lead to a decommissioning event.
- Solar projects are required to maintain replacement value property damage insurance coverage and business interruption insurance coverage. Business interruption insurance covers the loss of income that a business suffers after a disaster or equipment failure. Typical solar business interruption insurance covers income loss for twelve months from the date of the event triggering the loss.
- The replacement costs of solar components will typically decline over time, and accordingly, costs to replace failed or damaged equipment after lapsed OEM warranties will not create large financial hurdles for the Project.
- In the early stages of the Project, the resale value of the equipment is significantly higher than the decommissioning costs, resulting in a net positive (revenue).

Considering the reasons stated above, a decommissioning bond early in the life of a solar project life is not required to assure the coverage facility removal and site restoration costs.

Solar power is an increasingly popular form of renewable energy around the world and as an alternative to the burning of fossil fuels, solar ranks alongside wind and hydropower as essential energy options for the future of the planet. Solar also offers the additional benefit of being easier to build, operate, and decommission with minimal environmental risks. Recent rises in popularity and use can be linked to lower installation and operation costs and it is expected that this pattern will continue, further reducing the risk of a decommissioning event.

Commencement of Decommissioning

This Plan assumes that the Facility will be decommissioned under any of the following conditions:

1. The land lease (including the exercise of any extension options) ends and will either not be renewed or a new lease will not be entered into for the Project.
2. The system does not produce power for sale for a consecutive 12-month period, except in the instance of a force majeure event in which the Project is being repaired and/or restored.
3. The system is damaged and will not be repaired or replaced.

Removal of Nonutility Owned Equipment

To decommission the Solar Facility, the Project will include at a minimum:

- Disconnection from the utility power grid
- Removal of all Facility components: any perimeter fences, panels, inverters, wire, cable, combiner boxes, transformers, racks, trackers, tracker motors, weather monitoring, control system apparatus, etc.
- Removal of all non-utility owned equipment (at point of interconnection), conduits, structures, fencing, and foundations to a depth of at least three feet below grade.
- Restoration of property to a condition reasonably similar to its condition prior to Facility installation, or as initially agreed upon.
- Plant vegetation suitable for the location, native to the region, and which matches surrounding vegetation.

This decommissioning plan is based on current best management practices and procedures. This Plan may be subject to revision based on new standards and emergent best management practices at the time of decommissioning. Permits will be obtained as required and notification will be given to necessary stakeholders prior to decommissioning.

The decommissioning process will maximize the recycling, reuse and salvage of applicable facility components, which are outlined in the opinion of probable construction costs. Decommissioning activities will not begin prior to issuance of approved permits by local regulatory agencies with appropriate jurisdiction.

Restoration of Property

At the time of decommissioning, the Project Company will restore the Solar Facility to an agreed-upon condition. All waste and excess materials will be disposed of in accordance with municipal, provincial and federal regulations. Waste that can be recycled under municipal programs will be recycled accordingly. Provided, however, the Project Company shall not be required to replace any structures that were removed to build the Solar Facility.

The restoration will consist of de-compaction of the topsoil by disking or tilling and re-vegetation of the property. Mass grading is not anticipated since the initial project will not alter topography significantly. At the end of the project the area will be seeded and fertilized with native vegetation as needed to return the site to an initially agreed-upon condition. The owner of the leased property may request in writing for other certain items to remain e.g. access roads, driveways, or landscape features.

The developer will coordinate with the County to monitor vegetation and drainage following restoration until permanent vegetation is established. Erosion and sediment control, re-seeding, soil stabilization, weed control and fertilization will be provided by the developer as needed until the site is stabilized and approved to be completed by the County.

Upon completion of the site restoration, a final report of activities will be submitted to the County documenting the process and results.

Time Period to Complete Decommissioning

The Project Company will have twelve (12) months from the date decommissioning commences to complete decommissioning. Provided, however, the Project Company shall be able to request an extension of an additional six (6) months if it is in good faith diligently decommissioning and is delayed due to weather conditions or other items outside its control.

Party Responsible for Decommissioning

The Project Company is responsible for this decommissioning, provided however that the Project Company may contract with a third-party to perform the decommissioning on its behalf. Nothing in this plan relieves any obligation that the real estate property owner may have to remove the Facility as outlined in the land use permit in the event the operator of the Facility does not fulfill this obligation.

Decommissioning Cost Estimate and Bonding

An engineer's opinion of probable construction cost and analysis of material salvage value were prepared as part of this decommissioning plan. Exhibit A summarizes the probable costs and salvage values associated with decommissioning. Exhibit B summarizes probable costs associated with decommissioning exclusive of salvage values. Exhibit C summarizes probable costs associated with trucking panels to approved recycling facilities.

Expenses associated with decommissioning the Project will be dependent on labor costs at the time of decommissioning. For the purposes of this report, current RSMeans data was used to estimate labor, material, and equipment expenses. Fluctuation and inflation of the labor costs were not factored into the estimates.

Accounting for inflation, total probable cost of decommissioning exclusive of salvage value in Year 5 is estimated to be **$282,255**.

Resale/Salvage Value Estimate

There is a robust secondary market for resale of solar PV panels worldwide and a network of facilities available for recycling panels. Solar PV panels are estimated to degrade less than 0.5% per year, meaning they're expected to operate at 90% of capacity after 20 years. Panel manufacturers will guarantee the performance for each individual module and replace defective modules per the terms of warranty. Panels can therefore be sold for a price higher than their scrap value.

In general, the highest component value would be expected at the time of construction with declining value over the life of the Project. Over most of the Project's life, components such as the solar panels could be sold in the wholesale market for reuse or refurbishment. As panel efficiency and power production decrease due to aging and/or weathering, the resale value will decline accordingly. Secondary markets for used solar components include other utility scale solar facilities with similar designs that may require replacement equipment due to damage or normal wear over time; other buyers (e.g., developers, consumers) that are willing to accept a slightly lower power output in return for a significantly lower price point when compared to new equipment. The solar facility's additional supporting components, such as inverters, transformers, racking and piles, can be dismantled and resold for scrap value. Inverters and transformers are comprised of salvageable materials such as copper, aluminum, and silver. Piles and other steel components can likewise be recovered and salvaged. Resale values at the end of Year 5 for equipment of significant value were calculated with straight-line depreciation after an instant depreciation of the original material cost.

A current sampling of reused solar panels indicates a wide range of pricing depending on age and condition ($0.10 to $0.50 per watt). Future pricing of solar panels is difficult to predict currently, due to the relatively young age of the market, changes to solar panel technology, and the ever-increasing product demand. A conservative estimation of the value of solar panels in Year 5 at $0.18 per watt would yield approximately $819,342. Increased costs of removal, for resale versus salvage, would be expected to preserve the integrity of the panels; however, the net revenue would still be substantially higher than the estimated salvage value.

The resale value of components such as trackers, may decline more quickly; however, the salvage value of the steel that makes up a larger portion of the tracker is expected to stay at or above the value used in this report.

The price used to value the steel in this report is $212.16 per ton. The price used to value copper in this report is $3.55 per lb.

Total probable salvage value of decommissioning in Year 5 is estimated to be **$972,580.**

It is recommended that the decommissioning and reclamation plan and opinions of probable cost be updated every five (5) years, due to fluctuations in labor, equipment, and material costs and salvage values.

EXHIBIT A

RDC CO County RD 116
Alamosa Colorado
Decommissioning Estimate Pro Forma w/ Salvage: 5 Year Removal

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs. LS = Lump Sum, HR = Hours, EA = Each, LF = Linear Feet.

Item	Quantity	Unit	Unit Price	Total Salvage	Total Price (incl. markups)	Total Price
Mobilization	1	LS		$ -	$10,570.00	$ (10,570.00)
Supervision	210	HR	$86.00	$ -	$18,060.00	$ (18,060.00)
Temporary Facilities	1	LS		$ -	$1,180.00	$ (1,180.00)
Safety	1	LS		$ -	$800.00	$ (800.00)
Legal Expenses	1	LS		$ -	$210.00	$ (210.00)
General Liability Insurance	1	LS		$ -	$850.00	$ (850.00)
Contractor's G&A	1	LS		$ -	$1,610.00	$ (1,610.00)
SWPPP, Erosion Control Measures (Disturbed Area)	40	Ac	$800.00	$ -	$32,000.00	$ (32,000.00)
Seeding	2	Ac	$2,229.47	$ -	$4,458.94	$ (4,458.94)
Tilling 6" topsoil/scarifying access road and rough grading existing soil	0	Ac	$2,081.77	$ -	$405.53	$ (405.53)
Remove and Recycle Chainlink Fence	3,516	LF	$4.66	$ 2,088.67	$16,384.56	$ (14,295.89)
Remove and Recycle AC Cables	72,000	LF	$0.40	$ 12,780.00	$29,030.60	$ (16,250.60)
Remove and Recycle DC Cables	75,167	LF	$0.22	$ 13,342.05	$16,696.72	$ (3,354.67)
Backfill AC and DC trenches	73,373	LF	$0.38	$ -	$27,590.84	$ (27,590.84)
Remove and Recycle Inverters/Transformers	26	EA	$305.54	$ 46,800.00	$7,944.04	$ 38,855.96
Remove and Recycle Photovoltaic Modules	8,658	EA	$2.43	$ 819,342.54	$21,038.94	$ 798,303.60
Remove and Recycle Piles	3,360	EA	$4.82	$ 39,920.03	$16,195.20	$ 23,724.83
Remove and Recycle Support Assemblies	361,117	LB	$0.05	$ 38,307.32	$17,135.34	$ 21,171.97
Contaminated Soils Testing	1	LS		$ -	$7,500.00	$ (7,500.00)
Reclamation Monitoring and Maintenance	1	LS		$ -	$15,000.00	$ (15,000.00)
			Subtotal:	**$ 972,580.61**	**$244,660.71**	**$ 727,919.89**
					Inflation (2.9%/year):	**$ 111,850.31**
					Total:	**$ 839,770.20**

Notes:

1. A site of similar size was used to derive potential quantities for erosion and sediment control.
2. Labor productivity and unit rates were derived from RSMeans Online (Heavy Construction, 2025 data). The current Consumer Price Index was utilized to determine the inflation rate.
3. Labor, material, and equipment rates are based on the RSMeans City Cost Index (CCI) for CCI: Pueblo.
4. Material salvage values were based off of current US salvage exchange rates.
5. Equipment rental rates determined from RSMeans and/or local rental facilities.
6. Photovoltaic Module material salvage rate is based on straight-line depreciation of modules (-0.5% per year).
7. For PV Module Removal/Recycle labor and equipment costs are computed at present values, while salvage value is computed at depreciated values.
8. Material salvage values were determined using the most prevalent salvageable metal in each component. Copper Wire @$0.18/LF (AC and DC Cables) and Steel @0.6/LF of fence, @$0.750/pile, and @$0.11/LB.
9. Inverter resale value is dependent on the assumption that all inverters will be decommissioned and resold half way through their useful life (every 5 years).

*Refer to Appendix A-1: Decommissioning Estimate: BESS Facility, for detailed calculations for the BESS facility decommissioning.

EXHIBIT B

RDC CO County RD 116
Alamosa Colorado
Decommissioning Estimate Pro Forma w/o Salvage: 5 Year Removal

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs. LS = Lump Sum, HR = Hours, EA = Each, LF = Linear Feet.

Item	Quantity	Unit	Unit Price	Total Price
Mobilization	1	LS		$10,570.00
Supervision	210	HR	$86.00	$18,060.00
Temporary Facilities	1	LS		$1,180.00
Safety	1	LS		$800.00
Legal Expenses	1	LS		$210.00
General Liability Insurance	1	LS		$850.00
Contractor's G&A	1	LS		$1,610.00
SWPPP, Erosion Control Measures (Disturbed Area)	40	Ac	$800.00	$32,000.00
Seeding	2	Ac	$2,229.47	$4,458.94
Tilling 6" topsoil/scarifying access road and rough grading existing soil	0	Ac	$2,081.77	$405.53
Remove and Recycle Chainlink Fence	3,516	LF	$4.66	$16,384.56
Remove and Recycle AC Cables	72,000	LF	$0.40	$29,030.60
Remove and Recycle DC Cables	75,167	LF	$0.22	$16,696.72
Backfill AC and DC trenches	73,373	LF	$0.38	$27,590.84
Remove and Recycle Inverters/Transformers	26	EA	$305.54	$7,944.04
Remove and Recycle Photovoltaic Modules	8,658	EA	$2.43	$21,038.94
Remove and Recycle Piles	3,360	EA	$4.82	$16,195.20
Remove and Recycle Support Assemblies	361,117	LB	$0.05	$17,135.34
Contaminated Soils Testing	1	LS		$7,500.00
Reclamation Monitoring and Maintenance	1	LS		$15,000.00
			Subtotal:	$244,660.71
			Inflation (2.9%/year):	$37,593.94
			Total:	$282,254.66

Notes:
1. A site of similar size was used to derive potential quantities for erosion and sediment control.

2. Labor productivity and unit rates were derived from RSMeans Online (Heavy Construction, 2025 data). The current Consumer Price Index was utilized to determine the inflation rate.
3. Labor, material, and equipment rates are based on the RSMeans City Cost Index (CCI) for CCI: Pueblo.
4. Equipment rental rates determined from RSMeans and/or local rental facilities.

EXHIBIT C

RDC CO County RD 116
Alamosa Colorado
Panel Trucking Costs

$/mo/truck rental	$	5,750
$/mo/truck labor (FT+benefits)*	$	8,000
$/mo/truck maintenance	$	1,000
$/mo/truck insurance	$	1,500
Total $/mo/truck cost	$	16,250.00
$/gallon fuel	$	3.50
miles /gallon		8
Mileage (Project Location to Peublo) roundtrip		230
Total fuel cost per trip	$	100.63
Capacity in tons per trip		20
total number of panels		8,658
panel weight (tons)		260
Misc. Waste (tons)		20
Total trips		14
Loading/unloading hours per trip		1
road hours per trip		2.00
hours per day		10
days/month		21
trips per month per truck		70.0
Total truck months		1
Subtotal of Truck and Labor Cost	$	16,250
Fuel Cost	$	1,409
Total Trucking Cost	**$**	**17,659**

*Assumes truck labor only works half of the month at standard heavy truck operator rates

Attachment N:

Conceptual Transportation Plan and Haul Route Map

July 18, 2025

Mr. James Bentley
Reactivate
Project Development
bentley@reactivate.com

Re: RDC CO County Rd 116
Traffic Study Letter
Alamosa County, Colorado

Dear Mr. Bentley:

This traffic study letter has been prepared for the proposed RDC CO County Rd 116 project located in Alamosa County, Colorado. The purpose of this letter is to provide trip generation, trip distribution, and project traffic assignment for the construction phase of the proposed solar project to determine the anticipated increase in traffic attributable to the proposed project. The proposed development is located on the northeast corner of the US-160 and CR-116 intersection. A vicinity map illustrating the location of RDC CO County Rd 116 is attached as **Figure 1**.

The project will consist of a 3.9 MW solar facility on approximately 15 acres of fenced area with supporting infrastructure. A conceptual site plan for the proposed development is attached. This traffic study identifies the amount of traffic associated with this proposed development during both construction and operational phases, and the expected trip distribution and traffic assignment.

CONSTRUCTION ACTIVITY AND ACCESS

Construction activity to assemble the entire solar facility is anticipated to commence Quarter 2 of 2026. The construction activities each month may vary based on phasing and the size of the phase. This traffic study was prepared analyzing the peak construction traffic during the highest months of activity that will last approximately 3-4 months in Quarter 3 of 2026. Construction will generally follow these steps:

- Mobilization
- Civil/site preparation
- Cable plow/foundations construction
- Post install
- Racking install
- Substation construction
- Set major equipment
- Module installation
- Testing, commissioning, and energization
- Demobilization

Regional access to RDC CO County Rd 116 will be provided by US-160 while primary and direct access will be provided by CR-116. The full movement access is proposed approximately 350 feet north of US-160 (measured edge to edge) along CR-116.

CR-116 is an unpaved roadway with little to no development along the roadway and as such is believed to carry minimal traffic volume under existing conditions, though CR-116 does provide access to the Bureau of Land Management's Blanca Wetlands. US-160 is a paved two-lane roadway with a posted speed limit of 65 miles per hour within the study area. US-160 is classified by the Colorado Department of Transportation (CDOT) as a R-A: Regional Highway facility and is estimated to have an average daily traffic volume of approximately 5,400 vehicles, with approximately 15 percent of those encompassing trucks or other heavy vehicles.

The anticipated truck and passenger car routes to RDC CO County Rd 116 from the City of Alamosa to the west and the Town of Fort Garland to the east along US-160 to access CR-116. **Figure 2** illustrates the truck routes to and from the site. US-160 is expected to be the only primary haul route within the area due to its access to other major roadways in the vicinity, in addition to the roadway being paved and the site being only approximately 350 feet to the north of US-160. From the arterial roadway of US-160 to the project access, the haul route does not pass by any residential homes along CR-116. Therefore, no additional routes were deemed to be appropriate for the haul route since this route is straightforward along an arterial roadway with direct access located within 500 feet of the arterial.

TRIP GENERATION

Site-generated traffic estimates are determined through a process known as trip generation. The number of trips for the RDC CO County Rd 116 facility was based on anticipated construction activity and operations. In order to study the effect of construction traffic created by the solar facility, the expected trips during the peak period of construction were used as the basis for this study. The peak construction traffic activity is anticipated to occur in 2026.

Construction Traffic Generation

The typical construction peak season workday will see workers arriving during a four-hour window between 6:00 am and 10:00 am and departing during a three-hour window between 1:00 pm and 4:00 pm. The standard construction hours are anticipated to be 6:30 am to 3:30 pm. The highest proportion of workers will arrive to the site between 6:00 and 7:00 am (half) and depart between 3:00 pm to 4:00 pm (one-third), although the volume will be fairly uniform during the arrival and departure hours. It is anticipated that construction of the facility will include a maximum of 12 construction workers. It is important to note the truck trip generation also includes the volume adjusted for the three (3) passenger car equivalents (PCE) per truck. The following **Table 1** identifies the peak construction activity trip generation for the construction of RDC CO County Rd 116 facility.

Table 1 – RDC CO County Rd 116 Traffic Generation

Land Use and Size	Weekday Vehicles Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Heavy Duty Trucks (3)	6	2	0	2	0	2	2
PCE Trips	*18*	*6*	*0*	*6*	*0*	*6*	*6*
Passenger Vehicles (12)	24	6	0	6	0	4	4
Total Vehicles	**30**	**8**	**0**	**8**	**0**	**6**	**6**
Total PCE	***42***	***12***	***0***	***12***	***0***	***10***	***10***

As shown in the table above, RDC CO County Rd 116 is expected to generate approximately 30 daily trips (15 round trips) with eight (8) of these trips occurring in the morning peak hour and six (6) of these trips occurring in the afternoon peak hour during the peak construction activities. This volume of daily traffic of 30 trips is expected to be the highest volume generated during solar facility construction.

Solar Facility Operational Phase Traffic Generation

After the RDC CO County Rd 116 project has been constructed, the number of trips generated by the solar plant is expected to be significantly less than during the construction period, approximately one vehicle per week (2 weekly trips). Therefore, traffic impacts related to the operation of the solar plant facility will be negligible and insignificant.

TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

Trip distribution is based on the anticipated arrival location of employees along with the delivery route to be used for truck traffic. The distribution for construction worker trips was derived based on distances to nearby cities/towns and populations. Therefore 75% of traffic has been assigned to/from the west and 25% to/from the east. Attached **Figure 3** illustrates the anticipated project trip distribution while the project traffic assignment (including passenger car equivalent (PCE) for construction activities is shown in attached **Figure 4**.

CDOT ACCESS PERMIT

Access for the site will be provided by the north leg of the US-160 and CR-116 intersection. Therefore, a temporary CDOT access permit is anticipated to be needed for the north leg of CR-116 along US-116 due to more than 20% of project traffic being contributed to the existing intersection.

CONCLUSIONS AND RECOMMENDATIONS

In summary, the RDC CO County Rd 116 construction activity project traffic shows a very low traffic volume assigned to the surrounding street network. Further, trips are negligible during the operational phase of the solar facility. Based on these results, RDC CO County Rd 116 will have a minimal traffic impact. The public street roadways and adjacent intersections are anticipated to successfully accommodate this project traffic volume. A temporary CDOT access permit is anticipated to be needed for the north leg of the US-160 and CR-116 intersection due the project contributing more than 20% of traffic to the existing north leg. If you have any questions or require anything further, please feel free to call me at (720) 738-3435.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

Mary Gormley, PE, PTOE, RSP_1
Project Manager

Figures

Kimley»Horn
NORTH
NTS 196650026

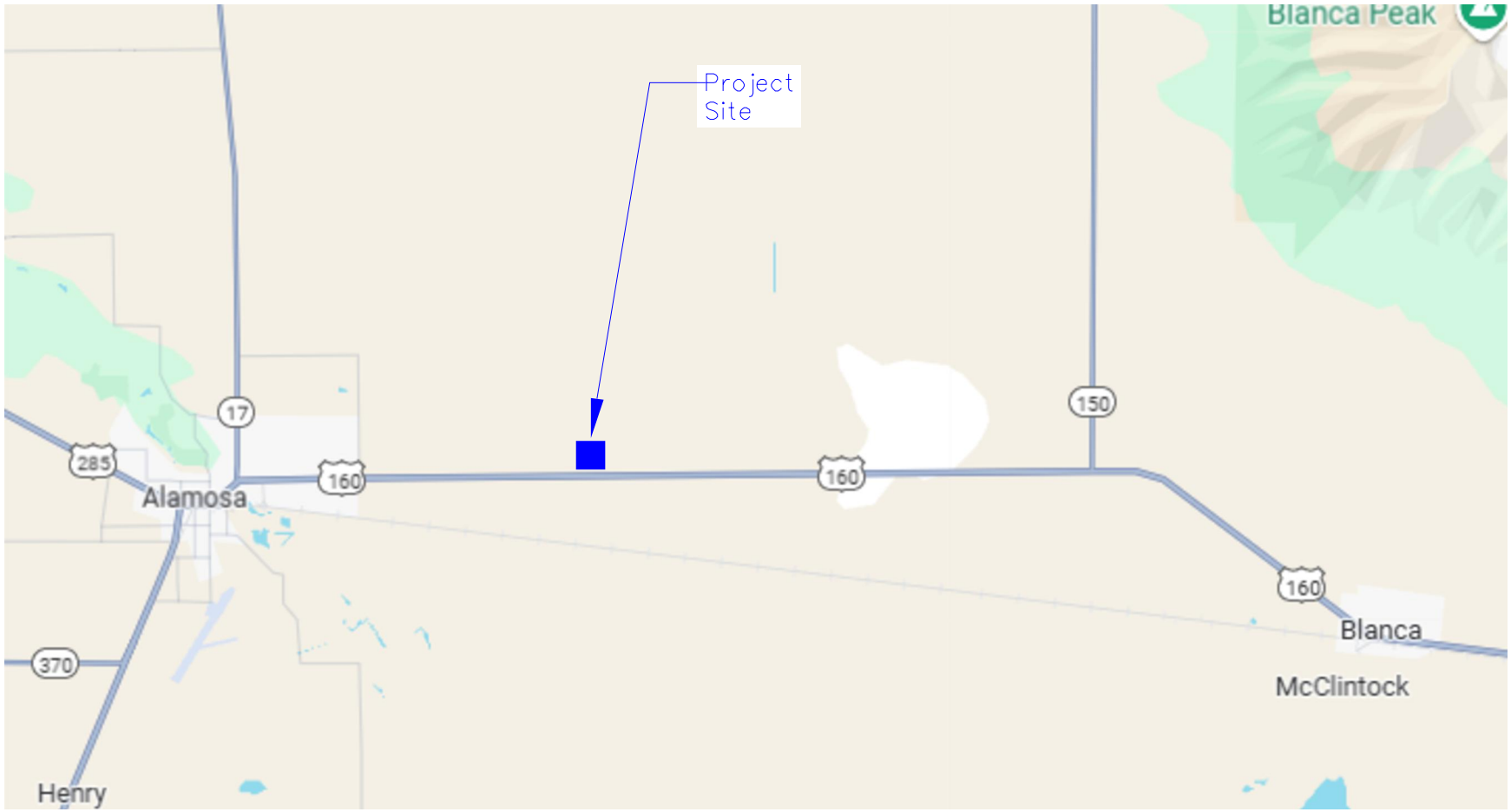


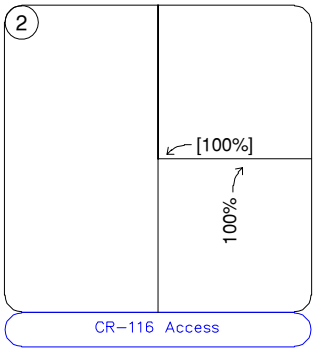
FIGURE 1
RDC CO County Rd 116
Alamosa County, Colorado
Vicinity Map

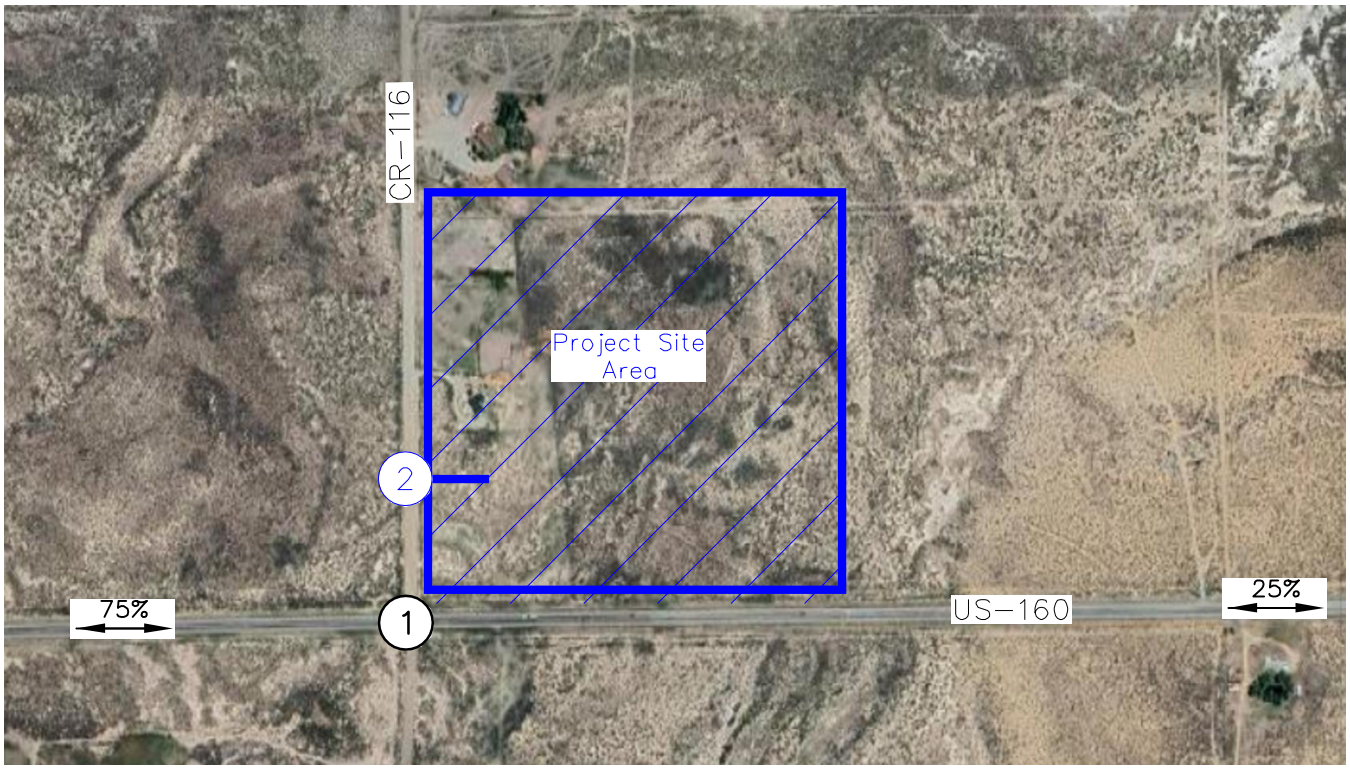
Kimley»Horn

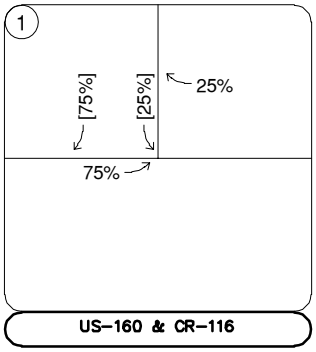
NTS 196650026

FIGURE 2
RDC CO County Rd 116
Alamosa County, Colorado
Truck Route

LEGEND
Proposed Truck Route



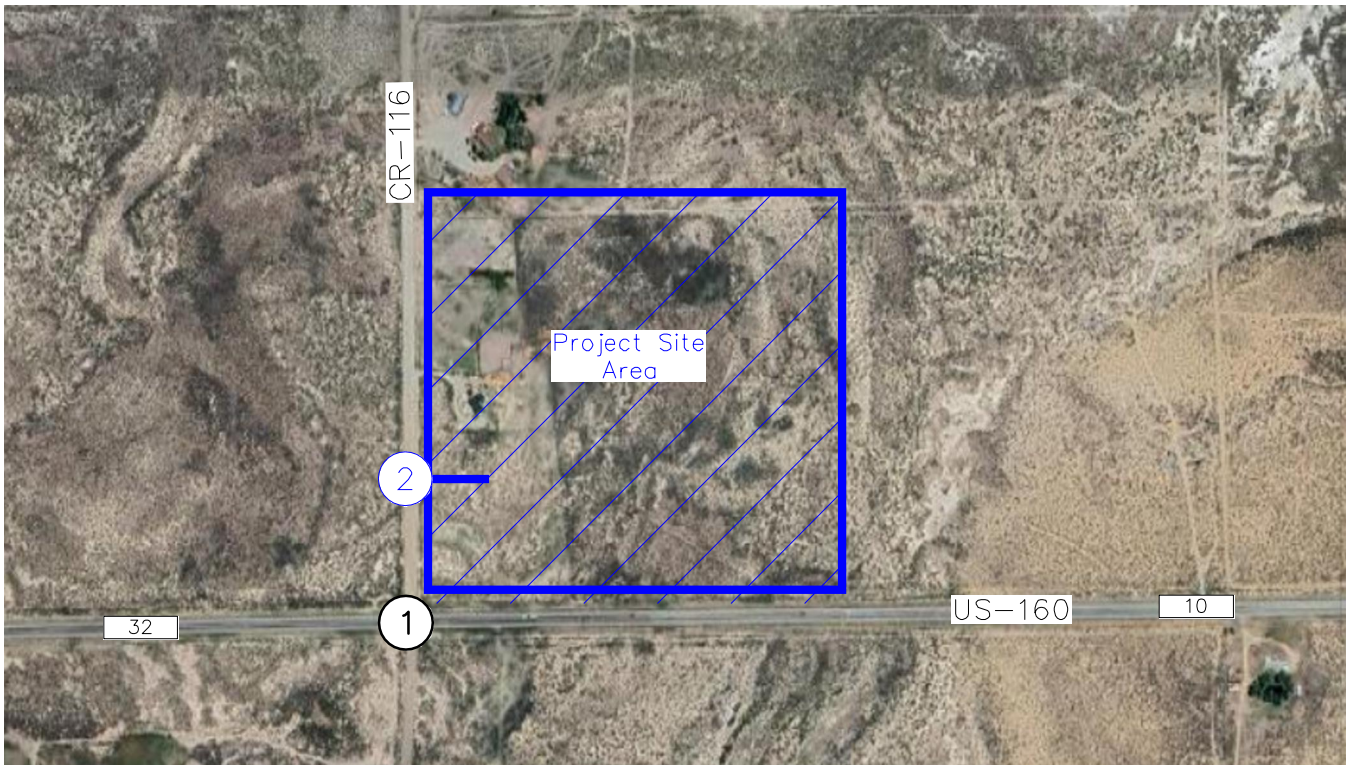


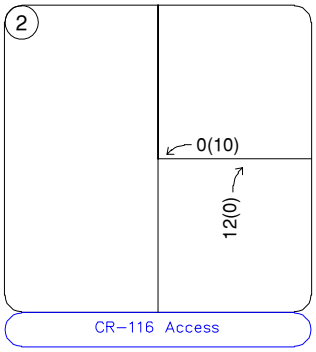


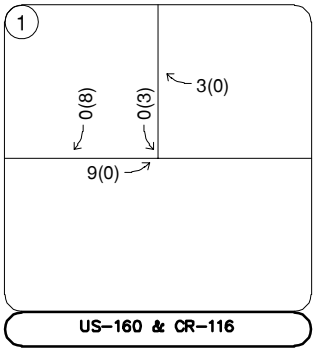
LEGEND

X	Study Area Key Intersection
X	Project Access Intersection
XX%	External Trip Distribution Percentage
XX%[XX%]	Entering[Exiting] Trip Distribution Percentage

FIGURE 3
RDC CO County Rd 116
Alamosa County, Colorado
Project Trip Distribution







LEGEND

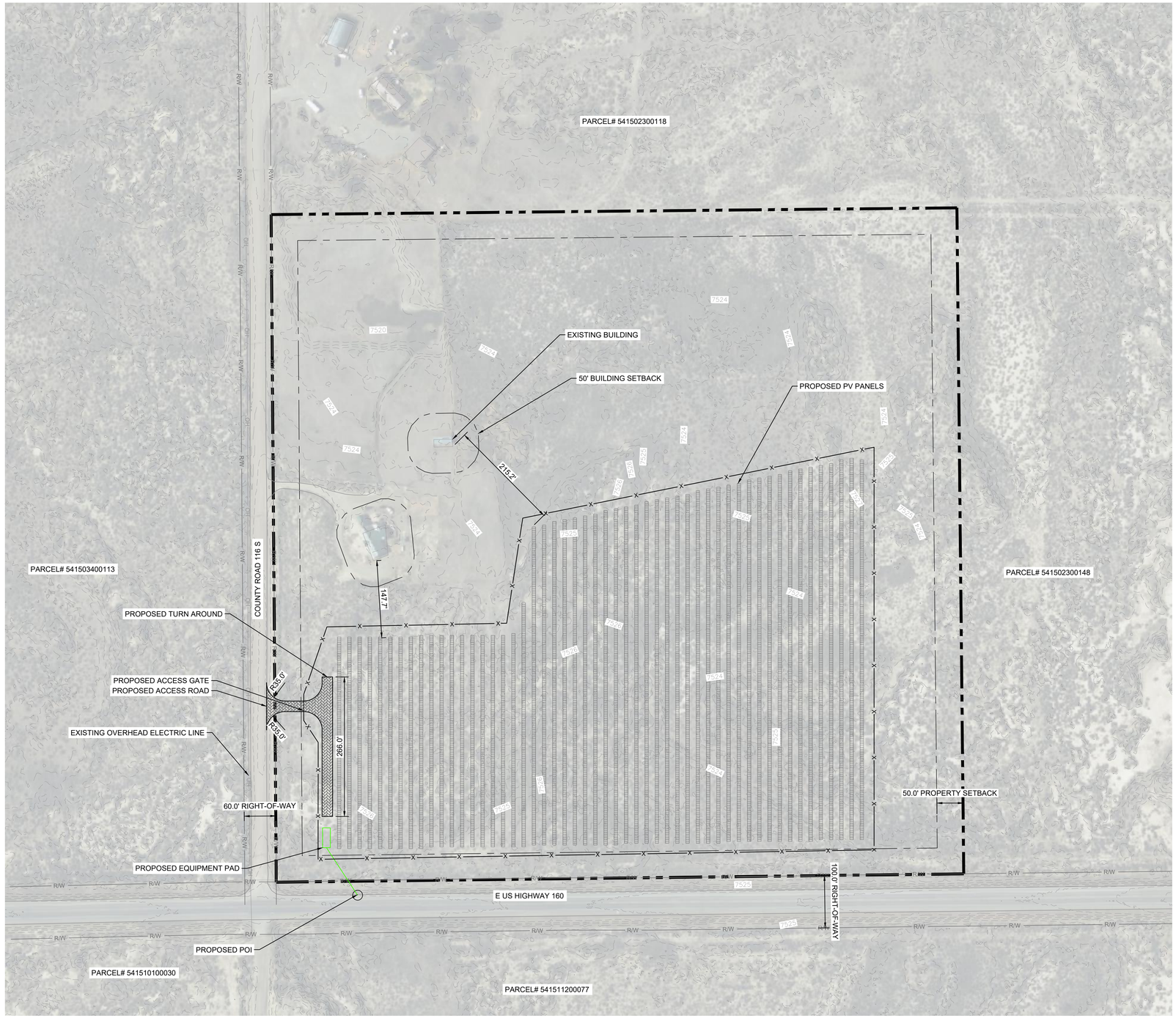
X	Study Area Key Intersection
X	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 4
RDC CO County Rd 116
Alamosa County, Colorado
Project Traffic Assignment (W/ PCE)

Conceptual Site Plan

RDC CO COUNTY ROAD 116

SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 37 NORTH, RANGE 11 EAST, N.M.P.M., COUNTY OF ALAMOSA, STATE OF COLORADO



LEGEND

- EASEMENT
- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING ROAD
- PROPOSED FENCE
- EXISTING FENCE
- PROPOSED ELECTRIC
- PROPOSED OVERHEAD ELECTRIC
- EXISTING OVERHEAD ELECTRIC
- PROPOSED SETBACK
- PROPOSED SOLAR PANEL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED GRAVEL ACCESS ROAD

SITE STATISTICS	
PARCEL AREA	40.0 ACRES
FENCED AREA	14.9 ACRES

No.	REVISIONS	DATE

Kimley»Horn

6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, COLORADO 80111
WWW.KIMLEY-HORN.COM

PRELIMINARY NOT FOR CONSTRUCTION

KHA PROJECT	
DATE	03/20/2025
SCALE	AS SHOWN
DESIGNED BY	TL
DRAWN BY	TL
CHECKED BY	AJH

SITE PLAN

RDC CO COUNTY RD 116
ALAMOSA, CO

SHEET NUMBER

Attachment O:

Road Condition Survey

Table of Contents

Memorandum

Date: March 19, 2025

Subject: Preliminary Road Conditions Survey

Background

The proposed project, RDC CO County Rd 116 (Project), is located in unincorporated Alamosa County, Colorado, approximately seven miles east of the City of Alamosa. The project area will be located north of US Highway 160 and east of County Road (CR) 116. The project area will be accessed from County Road 116, after turning off US Highway 160. The portion of County Road 116 that will be used for access is a gravel road maintained by Alamosa County, Colorado.

RDC CO County Rd 116 LLC ("Applicant") entered a contractual agreement with Kimley-Horn to conduct a preconstruction preliminary road condition assessment. The intent of the assessment is to establish a baseline condition of the affected portion of County Road 116 prior to any construction activity. Per previous correspondence with Alamosa County Road and Bridge Department representatives, the County would like to establish a baseline condition as well as assess any damages incurred during construction. To limit damages, speeds will be limited during construction and RDC CO County Rd 116 LLC will stay communicative with the County through the construction process. Kimley-Horn conducted the preconstruction roadway assessment of CR 116 on March 4th, 2025.

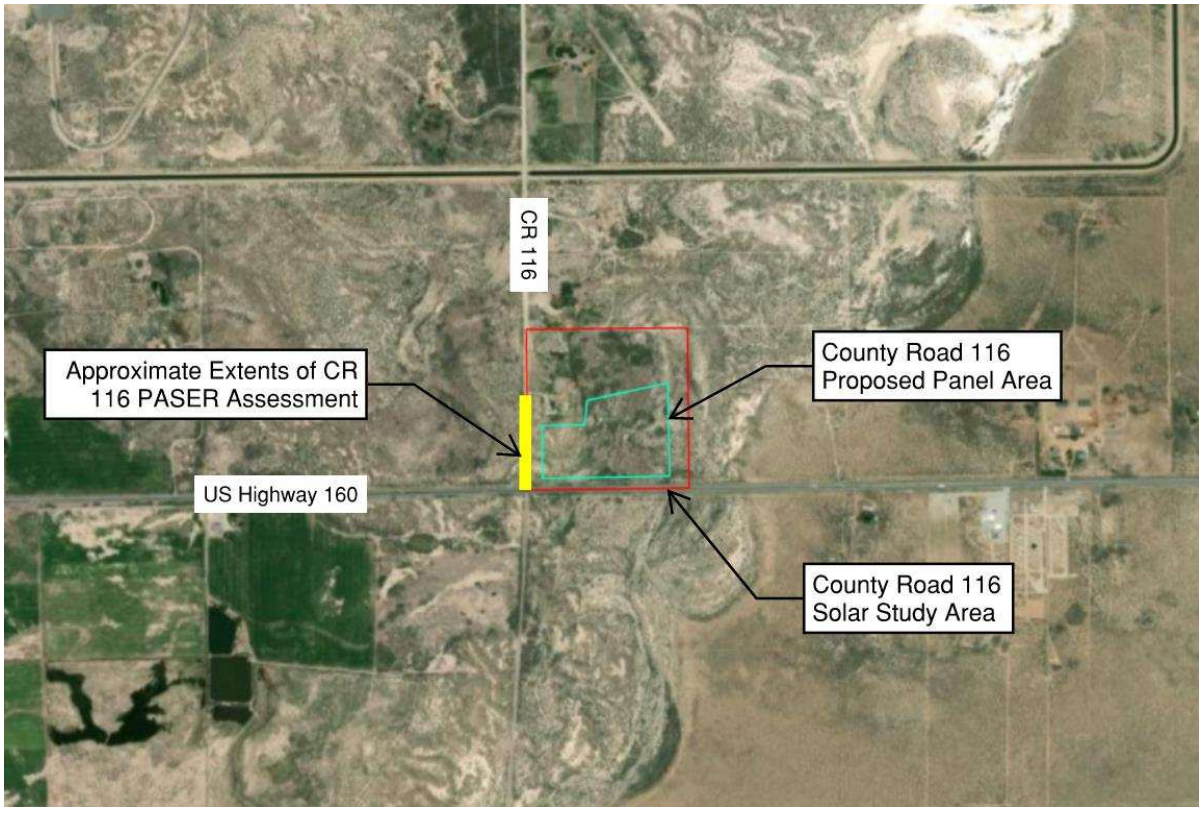
Data Collection Methodology

Pavement Surface Evaluation and Rating (PASER) methodology was used to rate the current roadway condition. The PASER gravel condition assessment involves a visual evaluation of the roadway crown height and condition, drainage, the thickness and quality of the gravel layer, surface deformation, and surface defects. The PASER asphalt condition assessment involves a visual evaluation of the roadway surface defects, surface deformations, cracks and any patches and potholes.

PASER Assessment Findings

A PASER condition assessment was conducted on approximately 800 feet of County Road 116. **Figure 1** below contains a map of the survey extents.

Figure 1: PASER Survey Extents



Appendix A contains a photo log from the site assessment. The road conditions are summarized below.

County Road 116: Gravel Roadway PASER Assessment

- **Crown**: A visible crown was identified on the roadway surface, which is intended to facilitate water flow from the centerline to the ditch.
- **Drainage**: A partial drainage condition was identified. Roadside ditches were identified along the road, and evidence of poor drainage such as ponding or erosion was not found.
- **Gravel Layer**: The gravel layer was in fair condition. Evidence of gravel loss was found at some portions along the center of the road. Due to the minimal evidence of surface defects, the existing gravel layer appears to be adequate for the current level of service.
- **Surface Deformation**: Minor surface deformations were found along the gravel surface portion of the road, including slight washboarding near the intersection of the road with US Highway 160. Other areas of the road had slight travel effects including dust and loose aggregate, but no considerable ruts or potholes were found along the road.
- **Surface Defects**: A minor amount of loose aggregate was found throughout the gravel roadway. Loss of fines in the gravel can cause loose aggregate, which reduces the stability of the surface and results in aggregate loss.

The PASER condition assessment of the gravel road is 4, or a good condition. This assessment indicates that the gravel road is showing traffic effects, and some isolated repairs and routine maintenance are necessary to restore the roadway to a better condition. Gravel roads require routine maintenance to maintain stability and drainage of the aggregate surface. In general, it is recommended that every 7-10 years, gravel roadways are regraded, and new aggregate is added to isolated areas experiencing gravel loss. The existing schedule of routine maintenance is expected to continue during construction. The applicant will coordinate all necessary repairs to County Road 116 with the county through the establishment of a Road Use Agreement.

Construction Traffic Estimates

Construction activity to build the solar facility is anticipated to begin approximately in July 2026 and end in October 2026. The project is anticipated to be operational starting in early 2027, and will have a 50-year life. A traffic study was completed to analyze the peak construction traffic during the highest months of activity. Regional access to the project area will be provided by US-160, and primary access will be provided off CR 116 S. It is anticipated that construction of the RDC CO County Rd 116 project will generate a total of 30 daily trips of construction traffic. Table 1 contains a breakdown of construction traffic. The full traffic study can be found in Attachment N.

Table 1: Construction Traffic Trip Generation

User	Weekday Vehicles Trips						
		AM Peak Hour			PM Peak Hour		
	Daily Trips	In	Out	Total	In	Out	Total
Heavy Duty Trucks	6	2	0	2	0	2	2
Passenger Vehicles	24	6	0	6	0	4	4
Total Vehicles	30	8	0	8	0	6	6

Construction gross vehicle weight (GVW) will range from 2,000 lb for light passenger cars up to 80,000 lb, which is the legal maximum Combined GVW for Colorado truck traffic. An Oversize/ Overweight permit will be obtained if oversize/overweight vehicles in excess of legal truck size and gross vehicle weight (GVW) are anticipated during construction duration.

PASER Condition Assessment Summary

The current condition of County Road 116 is good for the level of service. Construction activity will increase the level of service of the roadways and may impact their conditions. It is recommended that a road condition assessment is conducted for County Road 116 closer to the start of construction, during, and after construction activities to verify that the condition of the roadway is unchanged. The Applicant will enter a Road Use Agreement with the county prior to the start of construction.

Appendix A. Site Photos

Site Conditions

Photo 1 – County Road 116, near the central-western border of the study area, driving south.

Photo 2 – Evidence of washboarding and loose gravel near the intersection of County Road 116 and US Highway 160.

Representative Site Photos – March 4th, 2025			
RDC CO County Rd 116 Project Alamosa County, Colorado			Kimley»Horn
	March 2025	*Scale: NTS*	

Attachment P:

Noise Study

RDC CO County Road 116 Solar Sound Study

At the Intersection of County Road 116 S and E US Highway 160 (Parcel # 541502300147)

Alamosa, CO

Prepared by:
Kimley-Horn Inc.
6200 South Syracuse Way, Suite 300
Greenwood Village, CO 80111
Contact: Adam Harrison, P.E.
Phone: (303) 228-2300

Prepared on: March 20, 2025

Executive Summary

The purpose of this technical memorandum is to summarize the evaluated sound levels associated with the operational equipment located at the proposed Solar Site in Alamosa County, CO. The proposed solar photovoltaic project site is approximately 6 miles west of Alamosa, and approximately 13 miles northwest of Blanca. This project is surrounded by Highway 160 to the south, County Road 116 S to the west and agricultural land to the north and east. The solar site will be located on vacant or agricultural land with rural residential land north and east of the project area. The location of the proposed Solar Site is shown in **Figure 1**.

Analysis Findings

- The solar photovoltaic project will be located on vacant land with undeveloped land surrounding the project area as well as rural residences to the north and east. Unmitigated equivalent operational noise levels were estimated to be near or below approximately 45 dB(A) at the project site property boundary, which is below the 55 dB(A) reference threshold established in the Colorado Revised Statutes. Noise abatement is not recommended at this time.

Project Description

The development is a proposed 3.90-MWac solar power generating facility located in Alamosa, CO. The solar power generating facility will consist of rows of photovoltaic (PV) solar modules, gravel access driveways, associated electrical equipment, and underground utilities. The project will be surrounded by a perimeter fence.

Figure 1: Site Location and Vicinity

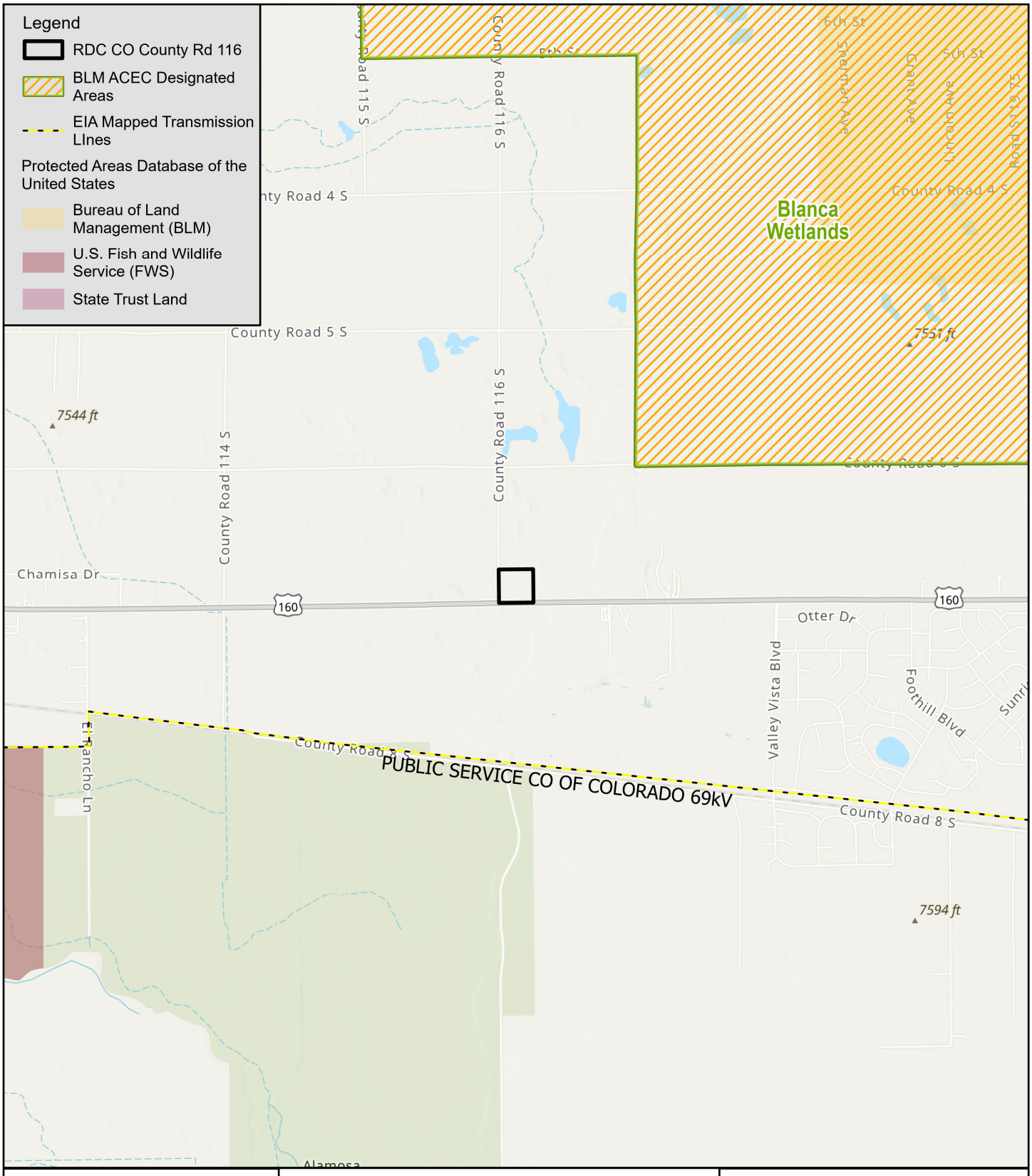
Characteristics of Noise

Noise is generally defined as unwanted sound. It is emitted from many natural and man-made sources. Sound pressure levels are usually measured and expressed in decibels (dB). The decibel scale is logarithmic and expresses the ratio of the sound pressure unit being measured to a standard reference level. Most sounds occurring in the environment do not consist of a single frequency, but rather a broad band of differing frequencies. The intensities of each frequency add together to generate sound. Because the human ear does not respond to all frequencies equally, the method commonly used to quantify environmental noise consists of evaluating all of the frequencies of a sound according to a weighting system. It has been found that the A-weighted decibel [dB(A)] filter on a sound level meter, which includes circuits to differentially measure selected audible frequencies, best approximates the frequency response of the human ear.

The degree of disturbance from exposure to unwanted sound – noise – depends upon three factors:

1. The amount, nature, and duration of the intruding noise
2. The relationship between the intruding noise and the existing sound environment; and
3. The situation in which the disturbing noise is heard

In considering the first of these factors, it is important to note that individuals have varying sensitivity to noise. Loud noises bother some people more than other people, and some



Project Vicinity Map

RDC CO County Rd 116
Alamosa County, Colorado
March, 2025

0 1 2 4 Miles

N

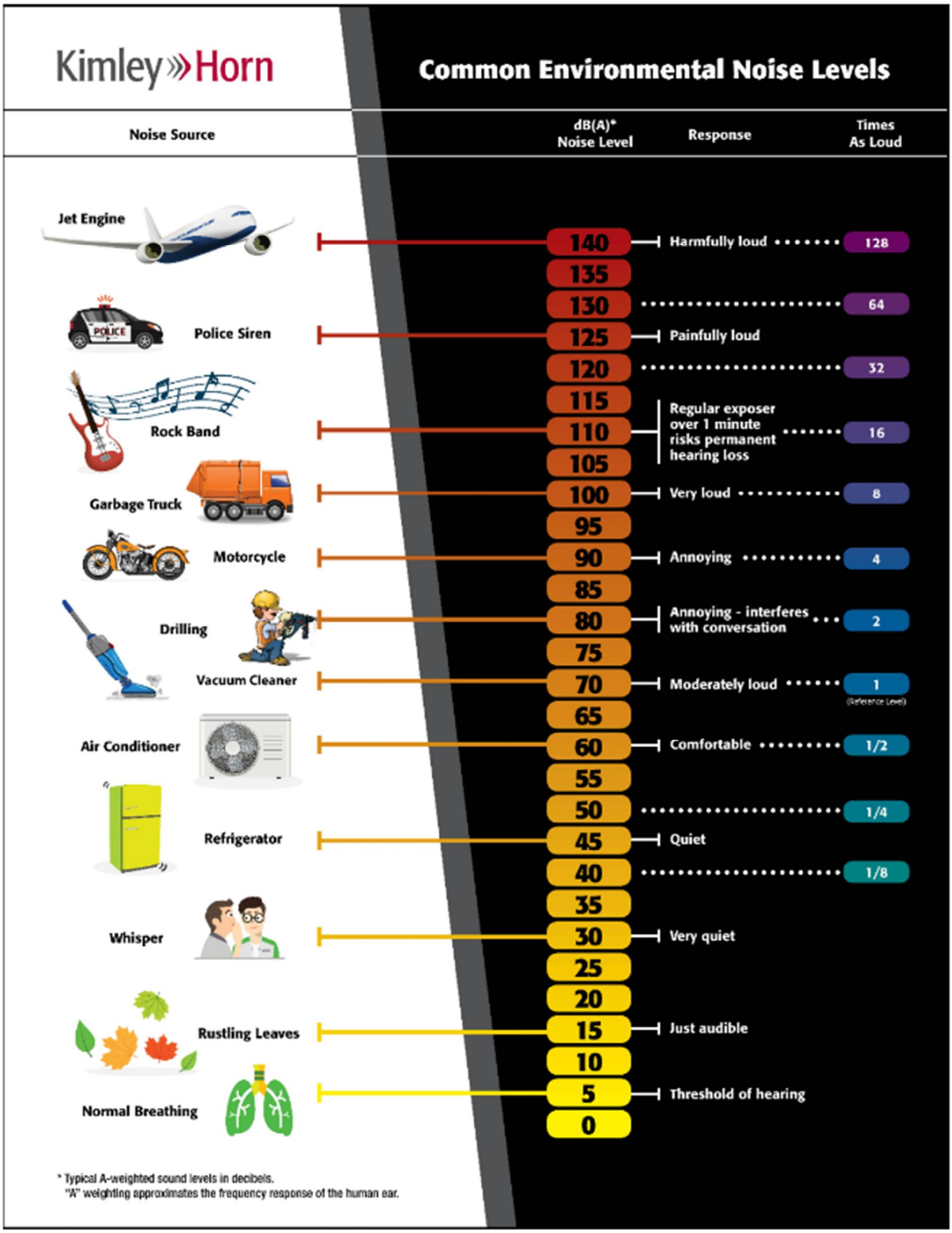
Reactivate

Kimley»Horn
Expect More. Experience Better.

individuals become increasingly upset if an unwanted noise persists. The time patterns and durations of noise(s) also affect perception as to whether or not it is offensive. For example, noises that occur during nighttime (sleeping) hours are typically considered to be more offensive than the same noises in the daytime. With regard to the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). A car horn blowing at night when background noise levels are low would generally be more objectionable than one blowing in the afternoon when background noise levels are typically higher. The response to noise stimulus is analogous to the response to turning on an interior light. During the daytime an illuminated bulb simply adds to the ambient light, but when eyes are conditioned to the dark of night, a suddenly illuminated bulb can be temporarily blinding. The third factor – situational noise – is related to the interference of noise with activities of individuals. In a 60 dB(A) environment such as is commonly found in a large business office, normal conversation would be possible, while sleep might be difficult. Loud noises may easily interrupt activities that require a quiet setting for greater mental concentration or rest; however, the same loud noises may not interrupt activities requiring less mental focus or tranquility.

As shown in **Figure 2**, most individuals are exposed to fairly high noise levels from many sources on a regular basis. To perceive sounds of greatly varying pressure levels, human hearing has a non-linear sensitivity to sound pressure exposure. Doubling the sound pressure results in a three decibel change in the noise level; however, variations of three decibels [3 dB(A)] or less are commonly considered “barely perceptible” to normal human hearing. A five decibel [5 dB(A)] change is more readily noticeable. A ten-fold increase in the sound pressure level correlates to a 10 decibel [10 dB(A)] noise level increase; however, it is judged by most people as only sounding “twice as loud”.

Figure 2: Common Noise Levels



Over time, individuals tend to accept the noises that intrude into their lives on a regular basis. However, exposure to prolonged and/or extremely loud noise(s) can prevent use of exterior and interior spaces and has been theorized to pose health risks.

Local Regulations

The Solar Site is in Alamosa County, CO. Alamosa County require a HB 1041 Permit process for utility-scale solar installations. Article 3, Section 5.303(6)(e) of Alamosa County HB 1041 Permit Regulations states that “any significant deterioration of existing natural aesthetics, creation of visual blight, noise pollution or obnoxious odors which may stem from the proposed development” must be identified; however, no specific noise level limits are established.

Section 25-12-103 of the Colorado Revised Statutes also contains general maximum permissible noise levels for different land uses, which are shown in **Table 1**.

Table 1: Maximum Permissible Sound Levels Contained in Colorado Revised Statutes

Zone of Noise Source	Maximum Noise from 7 am – 7 pm	Maximum Noise from 7 pm – 7 am
Residential	55 dB(A)	50 dB(A)
Commercial	60 dB(A)	55 dB(A)
Light Industrial	70 dB(A)	65 dB(A)
Industrial	80 dB(A)	75 dB(A)

Based on the maximum permissible sound levels contained Section 25-12-103 of the Colorado Revised Statutes, sound level limits of 55 dB(A) between 7:00 am and 7:00 pm and 50 dB(A) between 7:00 pm and 7:00 am were used for reference purposes. Since the site is not anticipated to operate during nighttime hours, the 55 dB(A) daytime noise level limit was used for this site.

Noise Analysis

The inverse Square Law was used to calculate sound attenuation from the source of noise. This calculation computes predicted sound levels at noise-sensitive areas through a series of adjustments to reference sound levels. Sound generated from inverters are anticipated to be the primary source of regular sound from the project once in operation.

It should be noted that noise from surrounding roadways was not modeled in this analysis, although Highway 160 and County Road 116S, and other rural roadways are anticipated to contribute to the ambient noise environment throughout the entire day.

Inverters

Photovoltaic (PV) inverter equipment generates steady, unvarying sound that can create issues when located near noise-sensitive areas. PV inverters were modeled throughout the solar site based on the current layout. Based on measured noise emissions levels and octave band data for the Sunny Highpower PEAK3 150-US PV inverter, a reference sound level of 65 dB(A) at 1

meter was used for each PV inverter. The sound from the simultaneous operation of the PV inverter equipment was calculated at the closest project boundary.

Sound generated by the inverters is not anticipated to significantly contribute to the existing environmental sound levels surrounding the site.

Transformers

Transformers also generate steady, unvarying sound that can create issues when located near noise-sensitive areas. It was assumed that transformers would be located at the proposed equipment pad in the southwest corner of the project development area. A reference sound level for a transformer of approximately 65 dB(A) at 1 meter was used.

Sound generated by the transformers is not anticipated to significantly contribute to the existing environmental sound levels surrounding the site. Also, sound generated by the transformers is expected to be mitigated by providing sufficient offsets between the transformers and surrounding noise-sensitive land uses.

The inverse Square Law was used to calculate sound attenuation from the source of the tracker noise. Using the known noise level of 53 db at 3 meters from the tracker the following results were obtained:

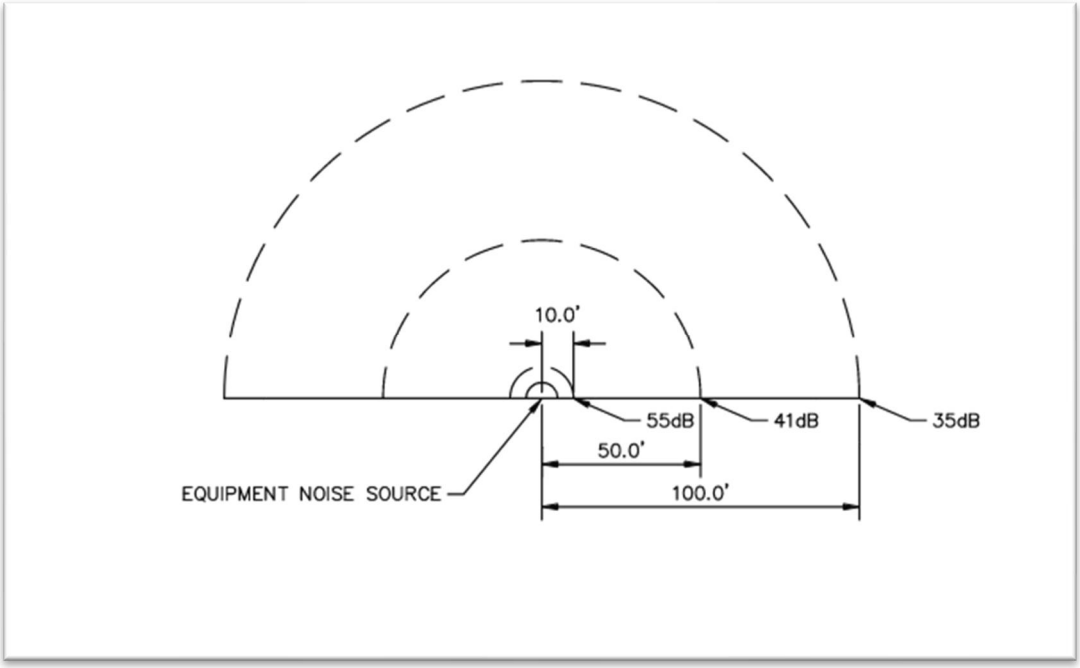


Figure 3 -Inverse Square Law: Sound Attenuation

Results

The Sound Attenuation maximum operational sound levels at the project property boundary are anticipated to be near or below approximately 50 dB(A), which is below the reference sound level limit at the project property boundary established in the Colorado Revised Statutes.

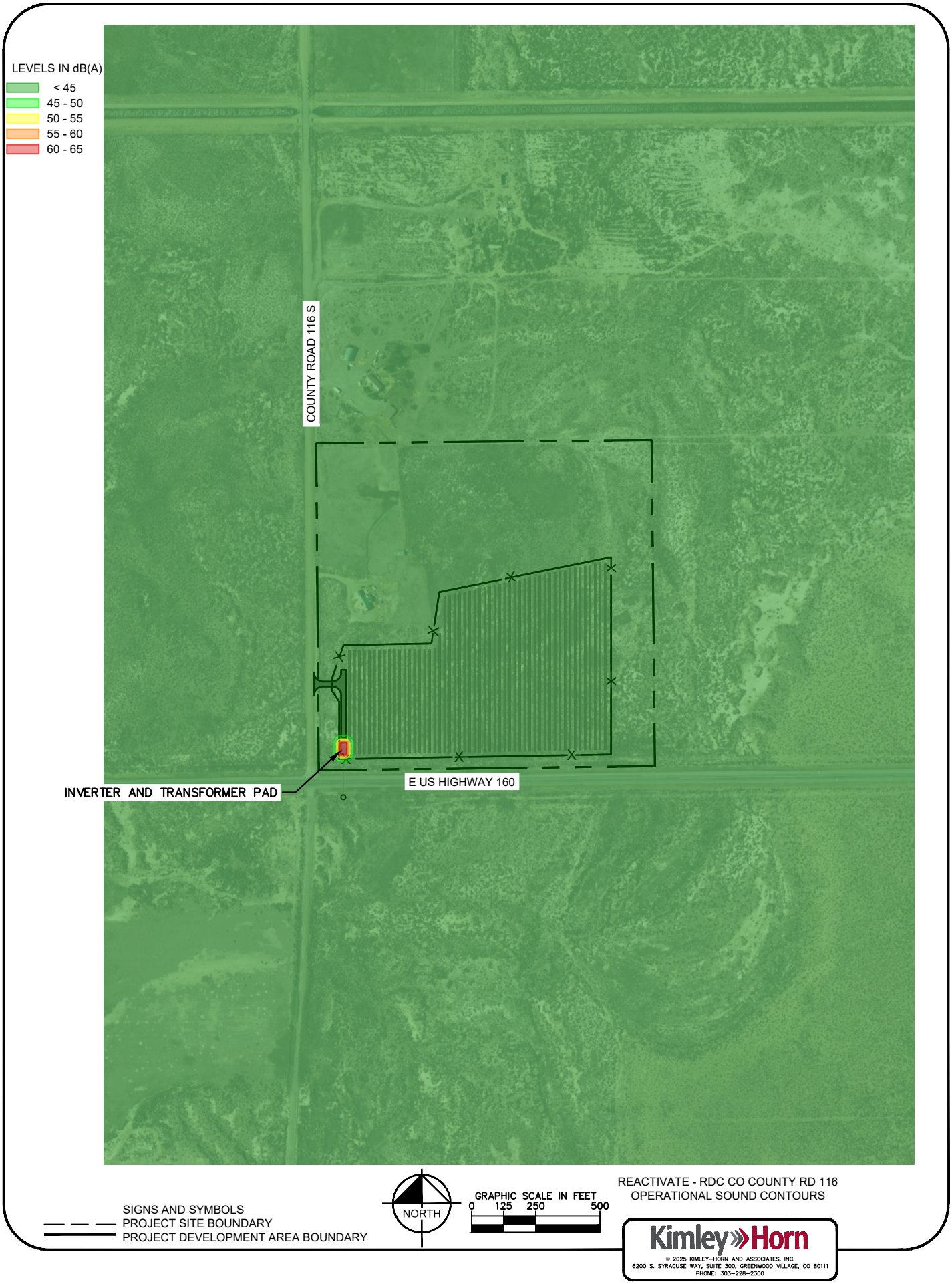
Since the Sound Attenuation maximum noise levels at project property boundaries are not anticipated to exceed the limits established in the Colorado Revised Statutes, noise mitigation measures do not need to be in the project design at this time. The anticipated operational sound contours are shown in **Figure 4.**

Conclusions

The site is surrounded by Highway 160 to the south, County Road 116 S to the west and agricultural land to the north and east. The solar site will be located on vacant or agricultural land with rural residential land north and east of the project area.

After modeling and analyzing the anticipated operational sound levels throughout the proposed solar site, it was determined that noise mitigation measures are not needed at this time since the predicted operational sound levels are anticipated to remain below the reference noise level limit established in the Colorado Revised Statutes.

FIGURE 4: OPERATIONAL SOUND CONTOURS



Attachment Q:

Hazard and Emergency Procedures Report

Table of Contents

1.0 Introduction

Kimley-Horn and Associates, Inc. (Kimley-Horn) was asked by to develop a Hazards and Emergency Procedures Report for the proposed RDC CO County Rd 116 (Project) located on 40 acres of disturbed rangeland located about 7 miles east of the City of Alamosa in unincorporated Alamosa, County, Colorado (Project area). Within the Project area, the portion of land proposed to be impacted by development of the project is 17 acres.

The Project is proposed as a 3.9-megawatt (MW) solar photovoltaic generation (PV) facility. The Project would interconnect to an existing distribution line located at the southern edge of the project area. The Project area is bordered by US Highway 160 to its south and County Road 116 S to its west. A Project Site Plan is shown in **Attachment A**.

1.1 Overview

Reactivate aims to create an operational environment that will limit possible hazards, but in the event of unexpected incidents, this plan will assist Alamosa County in addressing onsite and project-related emergencies during both construction and the operational lifespan. Alamosa County is in the San Luis All Hazards Planning Region of Colorado.

While Alamosa County does not have its own comprehensive Hazard Mitigation Plan, county leaders assisted in preparing the *San Luis Valley Regional Hazard Mitigation Plan 2023-2028*. The Hazard Mitigation Plan outlines the region's goals and objectives to reduce future hazard related losses, identifying specific areas of concern, and coordinating specific mitigation activities. The *San Luis Valley Regional Hazard Mitigation Plan 2023-2028* also details emergency preparedness and how emergency management training is provided.

The Alamosa County Fire Protection District is the closest emergency response service provider to the Project site and is considered the main stakeholder in this Hazards and Emergency Procedures Report. As such, the Project team coordinated with the Alamosa County Fire Protection District in March of 2025 to discuss any concerns with the Project, get details on the district's fleet information, and outline any training methods to incorporate in this Hazards and Emergency Procedures Report.

Following feedback from Bill Stone, fire chief of the Alamosa County Fire Protection District, on March 6, 2025, the proposed panel and access road layout does not create any barriers to access for the fire department in the event of a fire emergency. All access and facility roads will be kept in generally good condition to allow for full site access, and access to areas of the site that cannot be directly reached by an access road can be conducted through off-road mobilization by fire emergency vehicles. On-site vegetation will be managed to ensure any accessory structures and electrical equipment have defensible space around them and to keep ignition hazards at a minimum. There will be a gate with a cuttable chain lock at all primary access points to allow quick first responder access.

It is anticipated that construction of the Project will occur from approximately July 2026 to October 2026. The Project is anticipated to be operational in early 2027, and will have a 50-year life.

Emergency response procedures are outlined in this Hazards and Emergency Procedures Report. Reactivate will comply with all Alamosa County Fire Protection District requests and has incorporated these into site plan development.

1.2 Project Contacts

The Alamosa County Office of Emergency Management is the county's center for all-hazard emergency preparation, prevention, response, and recovery. The designated Project Emergency Response Coordinators with Alamosa County are:

Name	Phone	Email	Physical Address
Bill Stone Fire Chief Alamosa County Fire Protection District	208-860-6139	BStone@ci.alamosa.co.us	425 4th Street, Alamosa, CO 81101
Eric Treinen Alamosa County Emergency Manager	719-589-1131	etreinen@alamosacounty.org	8900-A Independence Way Alamosa, CO 81101
Remainder of Project Coordinator Contacts will be populated prior to the start of construction in 2026.			

2.0 Equipment Specifications and Layout

The Project's site layout, including site access points, can be referenced in **Attachment C - Site Plan**. The following equipment will be installed onsite and used during actual operations:

Equipment Type	Quantity	Model	Manufacturer	Component Access
Solar Panels	8,658	JAM72S30-540/MR/1500V	JA Solar	Can be accessed using facility roadways throughout site
Inverters	26	Sunny Highpower PEAK3 150-US (600V, 150kW)	SMA	Can be accessed using facility roadways throughout site

Please reference **Appendix A: Equipment Cut Sheets** for additional information regarding the equipment onsite.

The electrical collection system will consist of solar PV panels, which will be connected to inverters to convert DC current to alternating current (AC). Medium voltage lines will carry the AC current to the distribution line.

The Project Emergency Response Coordinator must track, and report annually, the quantity, locations, and potential hazards of any onsite hazardous chemicals to local emergency service providers, per the reporting requirements outlined in the federal Emergency Planning and Community Right to Know Act (EPCRA). The submittal of the Material Safety Data Sheets associated with hazardous materials is included in these reporting requirements. As the Project is constructed and hazardous materials come on-site, a complete inventory and subsequent reporting will be completed.

3.0 Solar Electrical Generation and System Shutdown

Solar photovoltaic panels are grouped together to form strings, which are in turn grouped into blocks. A solar PV system's voltage can reach up to 1500 volts of direct current (vdc). The power generated by a block (or a group of blocks) is carried back to the Point of Common Coupling (POCC) by an underground 13.2 kV conductor. Inverters convert the direct current (DC) to alternating current (AC). Regardless of opening the AC disconnect; the DC side of the inverter will always be energized. Hazardous voltage will always exist throughout the DC system. Utilizing a dry chemical extinguisher is recommended on any energized components.

PV systems are addressed in the following National Fire Protection Association Codes:

- NFPA 1, Fire Code
- NFPA 70, National Electrical Code®
- NFPA 70B, Recommended Practice for Electrical Equipment Maintenance (Chapter 33) NFPA 70E, Standard for Electrical Safety in the Workplace®
- NFPA 5000, Building Construction and Safety Code®

In addition to an autonomous supervisory control and data acquisition (SCADA) system and automatic system protection, the Project will have a single manually operable disconnect switch that disconnects the entire system from the electrical distribution system to which it is connected. Upon disconnection from this system, all electric power generation ceases within two seconds as required by industry standards. The manually operated switch has a design life equal or greater than the life of the system. The emergency disconnect switch is located at the Project substation and will be clearly designated for emergency personnel.

4.0 Pre-Emergency Planning

The Project will have a designated Emergency Response Coordinator, who will also serve as the onsite Safety Manager. The Safety Manager will perform applicable pre-emergency planning tasks before starting field activities and will coordinate emergency response with onsite personnel, the facility, and the local emergency service providers. The name and contact information for the Coordinator will be provided to the Alamosa County Fire Protection District and the County Emergency Response Manager, once designated. Visible and accessible safety signage will also be placed throughout the site.

The Project Emergency Response Coordinator will be responsible for the following activities:

- Ensure that there is an up-to-date contact list for all personnel onsite.
- Verify that two-way radio communications are available and serviceable.
- Verify that all emergency contact information is correct and up to date.
- Evaluate site condition, onsite operations, and personnel availability for emergency response procedures.
- Take an inventory of the site's equipment, supplies and potable water.
- Visit with local fire department districts, EMS, and coordinate with a local doctor's office to handle advanced first-aid incidents.
- Communicate emergency procedures for site hazards such as personal injury, exposures, fires, explosions, and releases.
- The Project Emergency Response Coordinator will coordinate with local first responders to ensure adequate training for on-site hazards is happening annually.
- The Project Emergency Response Coordinator will brief new workers on this Hazards and Emergency Procedures Report and evaluate emergency response actions during a new hire orientation.

5.0 Emergency Equipment and Supplies

The onsite designated Project Emergency Response Coordinator will ensure the following emergency equipment is on site and that the equipment is functional and serviceable. The Safety Coordinator will also note the locations of safety equipment and communicate that to all employees. Onsite Emergency Equipment and Supplies will include:

- Appropriate number and size of Class A, B, and C Fire Extinguisher based on construction site and construction activities.
- Medical Jump Bag
- First Aid kit located in office.
- AED
- Potable water
- Blood borne Pathogen Kit

- Additional equipment needed for site specific reasons.
- Spill Kits
- Spill containment systems as required.
- Lightning monitor
- Wet bulb globe temperature (WBGT) meter

6.0 Incident Response

All personnel working at County Road 116 Solar are to be trained and should know how to prevent and respond to a fire emergency. In case of a fire, explosion or chemical release, the following steps will be taken:

- Alert the appropriate response personnel by dialing 911.
- Shut down operations and evacuate the immediate work area.
- Perform a head count of the designated assembly area(s).
- Assess the need for site evacuation and evacuate the site as warranted.
- Conduct Incident Notification, Reporting, and Investigation as required by OSHA and employer.
- Notify and submit reports to clients, to owner, and municipals as required.

Please note: Fires or spills that present a minimal safety or health hazard may be controlled with onsite spill kits or fire extinguishers without activating the sites evacuation procedure. When in doubt, evacuate the site immediately.

7.0 Emergency Medical Treatment

If emergency medical treatment is needed whether life threatening or not, it must be immediately reported to the Project Emergency Response Coordinator. The Project Emergency Response Coordinator will evaluate the course of action that is needed. Major medical emergencies include injuries of severe bleeding, loss of consciousness, loss of breathing, or heart failure. A minimum of two first aid, CPR, and AED trained persons shall be onsite at all times for medical emergencies. In the event of such, please follow the steps below:

- Notify Project Emergency Response Coordinator.
- Notify 911 or other appropriate emergency response authorities that are listed at the site.
- Initiate first aid, CPR, and AED if needed.
- Make certain that the injured person is accompanied by Safety personnel to the doctor or emergency room.

8.0 Evacuation

The site map should have clear detailed evacuation routes, assembly areas, and severe weather shelters as well as any alternative routes and assembly locations.

- The primary muster point is the primary access point to the site.
- If site evacuation is needed, San Luis Valley Regional Airport will become the muster point.
- All members of staff will gather at the muster point upon hearing the emergency signal for evacuation.
- The Safety personnel and a "buddy" will remain on the site after the site has been evacuated if the situation is safe to assist local responders.
- The Safety team will account for all personnel in the onsite assembly area.
- A designated person will account for personnel at alternate muster area(s).
- The Project Emergency Response Coordinator will follow the incident reporting protocols.

9.0 Inclement Weather

Sudden inclement weather can infringe upon field personnel. Emergency preparedness and caution are the best defense. Field crew members performing work outdoors should carry the appropriate clothing for inclement weather. Staff should pay close attention to the weather forecast daily to look for signs of inclement weather. These signs include towering thunderheads, darkening skies, or a sudden increase in wind. If stormy weather ensues, field personnel should discontinue work and seek shelter until the storm has passed. Stay away from open water, metal equipment, wire fences, and metal pipes. Other general precautions include, but are not limited to:

- Know where to go and how long it will take to get there. If possible, take refuge in a large building or vehicle. Do not go into a shed in an open area.
- The inclination to see trees as enormous umbrellas is a frequent and deadly mistake. Avoid standing under large trees, poles, antennas, and towers.
- If the area is wide open, go to a valley or ravine, but be aware of flash flooding.
- If you are caught in a level open area during an electrical storm and start to feel your hair stand on top of your head then you should drop to your knees, bend forward, and crouch. This technique will make you less vulnerable to electrocution.
- Do not lie down. This is dangerous and can cause the wet earth to conduct electricity.
- Do not touch the ground with your hands.
- Do not use telephones during electrical storms, except in the case of emergency.
- Remember: Lightning can strike several miles from the parent cloud, so work should be stopped and restarted accordingly.
- Lightning safety recommendation is 30-30; this translates to seek protection when thunder sounds within 30 seconds after a lightning flash and do not resume work until 30 minutes after the last thunderclap. Stay alert for high winds that can cause unsafe conditions. Working in high wind conditions should be avoided. If continuous high wind persists, then staff should seek shelter. All employees will stand down when lightning reaches a range of 8 miles.

10.0 Emergency Directions

The San Luis Valley Regional Medical Center is located 7.9 miles and approximately a 13-minute drive from the Project site.

Hospital Directions to San Luis Valley Regional Medical Center from the Project location:

- Head south on County Rd 116 S toward US Hwy 160.
  (0.2 miles)
- Turn right at the first cross street onto US Hwy 160.
  (6.4 miles)
- Turn right onto Main Street.
  (1.2 miles)
- Turn left onto Blanca Avenue.
  (0.1 miles)
- Turn right within the San Luis Valley Regional Medical Center parking lot.
  (69 feet)
- Turn left within the San Luis Valley Regional Medical Center parking lot.
  (223 feet)
- The destination will be on the right:
  San Luis Valley Regional Medical Center
  (106 Blanca Ave, Alamosa, CO 81101)

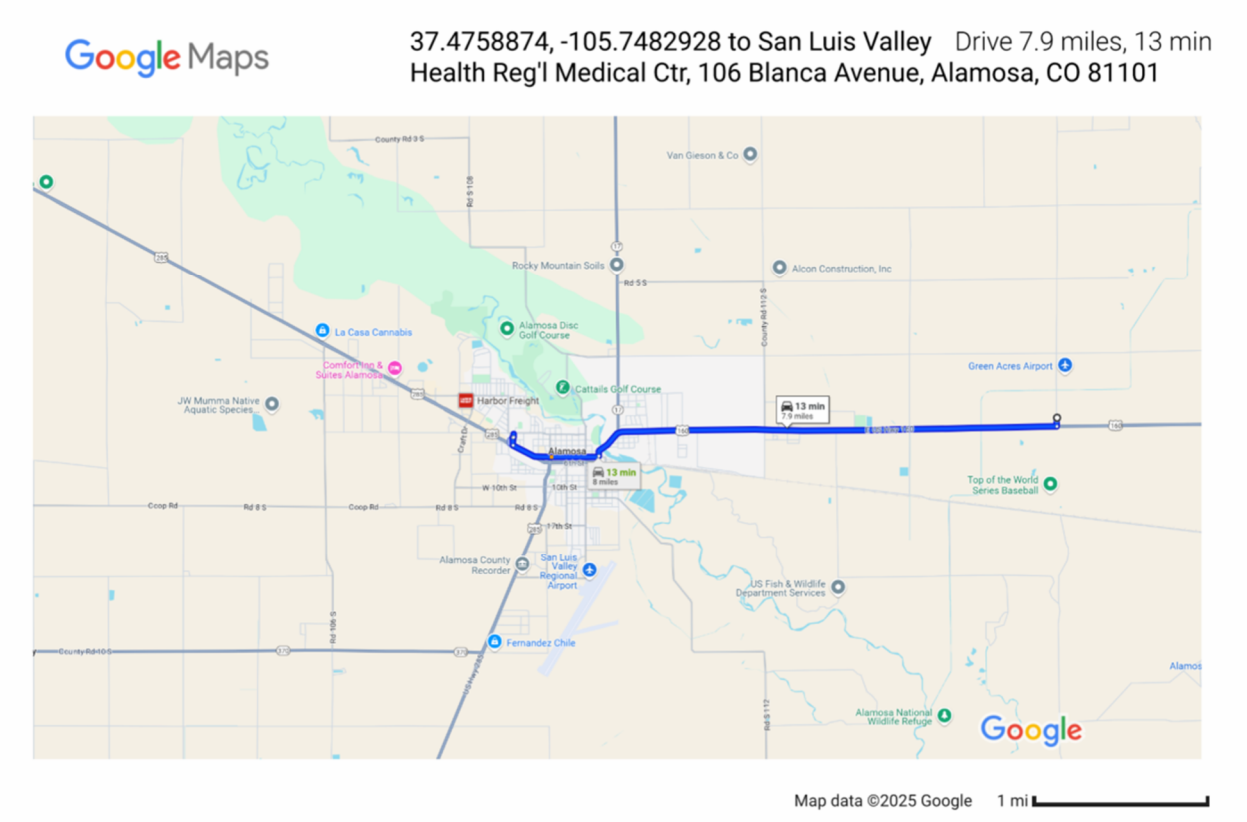


Figure 1. Directions from Project Site Area to San Luis Valley Regional Medical Center

11.0 Emergency Contacts

In the event there is an emergency, the air horn will sound. After the horn, there will be a message indicating the type of emergency followed by directions. In the event of an emergency, the first contact will be to 9-1-1.

FIRE:

Alamosa County Fire Protection District	*Phone*: Fire Station 2: (719) 587-2533	*Address*: 2827 Vigil Way Alamosa, CO 81101

MEDICAL/FIRST AID FACILITY:

San Luis Valley Regional Medical Center	*Phone*: (719) 589-3000	*Address*: 106 Blanca Avenue Alamosa, CO 81101

POLICE DEPARTMENT:

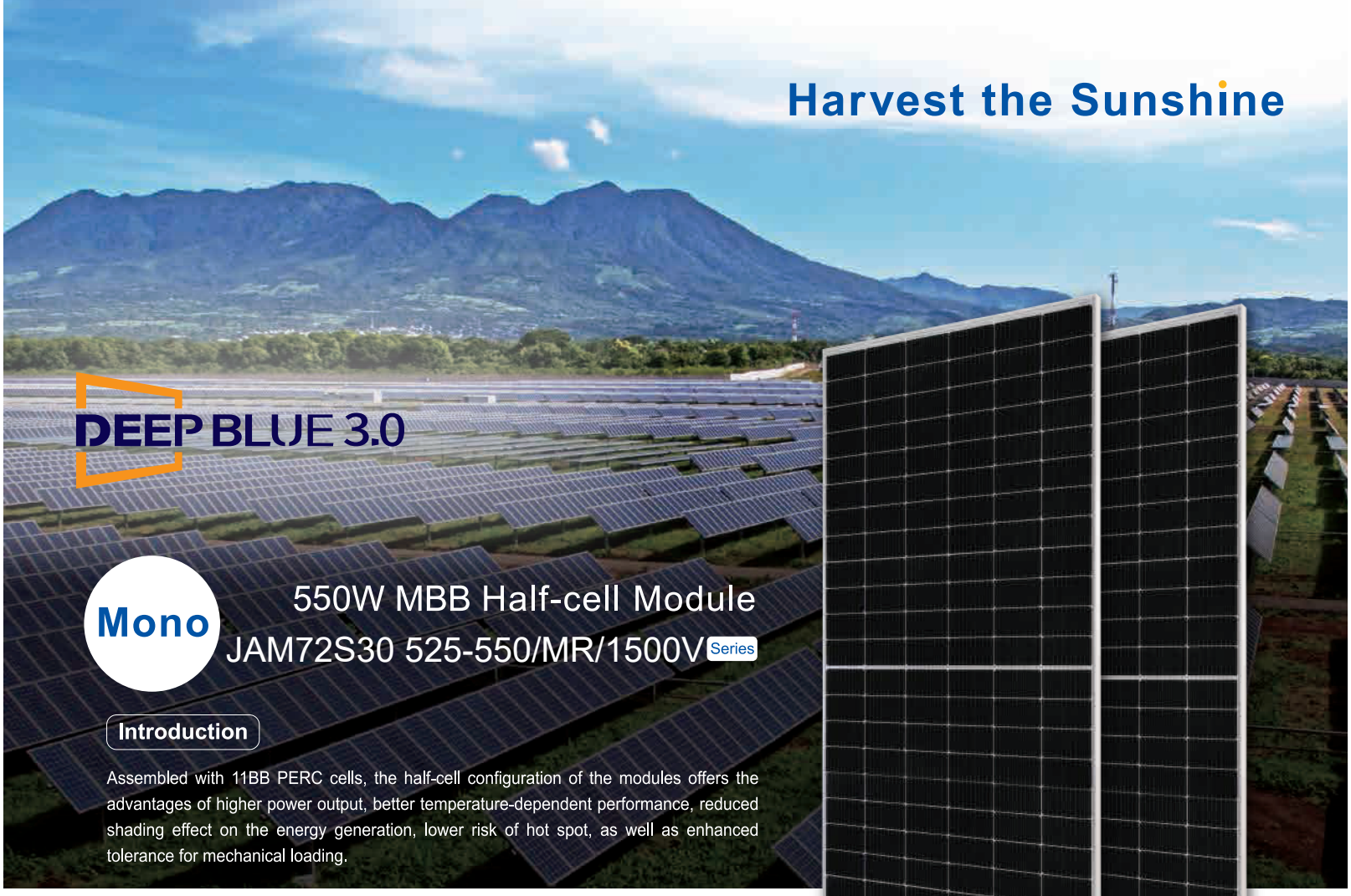
Alamosa County Sheriff (Robert Jackson)	*Phone*: (719) 589-6608	*Address*: 1315 17th Street Alamosa, CO 81101

SPILLS:

In the Event of an Oil or Chemical Spill	To report an oil or chemical spill, contact the Environmental Protection Agency (EPA) at (800) 424-8802, the Alamosa County Public Health Director at (719) 589-6639 Ext. 1187, or by dialing 9-1-1.

Attachment A: Equipment Cut Sheets

Harvest the Sunshine



DEEP BLUE 3.0

Mono

550W MBB Half-cell Module
JAM72S30 525-550/MR/1500V Series

Introduction

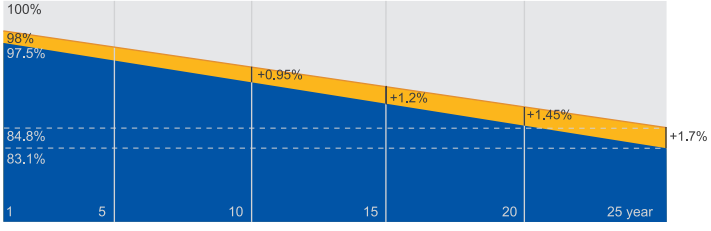
Assembled with 11BB PERC cells, the half-cell configuration of the modules offers the advantages of higher power output, better temperature-dependent performance, reduced shading effect on the energy generation, lower risk of hot spot, as well as enhanced tolerance for mechanical loading.

- Higher output power
- Lower LCOE
- Less shading and lower resistive loss
- Better mechanical loading tolerance

Superior Warranty

- 12-year product warranty
- 25-year linear power output warranty

0.55% Annual Degradation Over 25 years



New linear power warranty Standard module linear power warranty

Comprehensive Certificates

- IEC 61215, IEC 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems

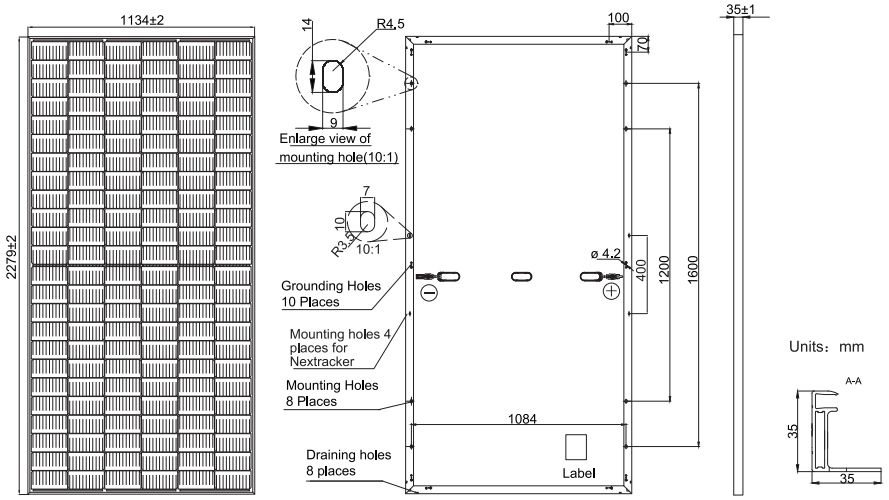
JA SOLAR

www.jasolar.com

JA SOLAR

JAM72S30 525-550/MR/1500V Series

MECHANICAL DIAGRAMS



Remark: customized frame color and cable length available upon request

SPECIFICATIONS

Cell	Mono
Weight	28.6kg±3%
Dimensions	2279±2mm×1134±2mm×35±1mm
Cable Cross Section Size	4mm²（IEC），12 AWG(UL)
No. of cells	144(6×24)
Junction Box	IP68, 3 diodes
Connector	Genuine MC4-EVO2 QC 4.10-35/45
Cable Length (Including Connector)	Portrait: 300mm(+)/400mm(-); Landscape: 1300mm(+)/1300mm(-)
Country of Manufacturer	China/Vietnam

ELECTRICAL PARAMETERS AT STC

TYPE	JAM72S30 -525/MR/1500V	JAM72S30 -530/MR/1500V	JAM72S30 -535/MR/1500V	JAM72S30 -540/MR/1500V	JAM72S30 -545/MR/1500V	JAM72S30 -550/MR/1500V
Rated Maximum Power(Pmax) [W]	525	530	535	540	545	550
Open Circuit Voltage(Voc) [V]	49.15	49.30	49.45	49.60	49.75	49.90
Maximum Power Voltage(Vmp) [V]	41.15	41.31	41.47	41.64	41.80	41.96
Short Circuit Current(Isc) [A]	13.65	13.72	13.79	13.86	13.93	14.00
Maximum Power Current(Imp) [A]	12.76	12.83	12.90	12.97	13.04	13.11
Module Efficiency [%]	20.3	20.5	20.7	20.9	21.1	21.3
Power Tolerance	0~+5W					
Temperature Coefficient of Isc(α_Isc)	+0.045%°C					
Temperature Coefficient of Voc(β_Voc)	-0.275%/°C					
Temperature Coefficient of Pmax(γ_Pmp)	-0.350%/°C					
STC	Irradiance 1000W/m², cell temperature 25°C, AM1.5G					

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer.They only serve for comparison among different module types.
Measurement tolerance at STC: Pmax ±3 %, Voc ±3% and Isc ±4%.

ELECTRICAL PARAMETERS AT NOCT

TYPE	JAM72S30-525 /MR/1500V	JAM72S30-530 /MR/1500V	JAM72S30-535 /MR/1500V	JAM72S30-540 /MR/1500V	JAM72S30-545 /MR/1500V	JAM72S30-550 /MR/1500V
Rated Max Power(Pmax) [W]	397	401	405	408	412	416
Open Circuit Voltage(Voc) [V]	46.05	46.18	46.31	46.43	46.55	46.68
Max Power Voltage(Vmp) [V]	38.36	38.57	38.78	38.99	39.20	39.43
Short Circuit Current(Isc) [A]	10.97	11.01	11.05	11.09	11.13	11.17
Max Power Current(Imp) [A]	10.35	10.39	10.43	10.47	10.51	10.55
NOCT	Irradiance 800W/m², ambient temperature 20°C,wind speed 1m/s, AM1.5G					

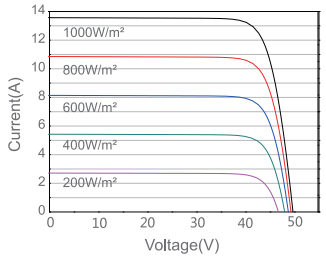
OPERATING CONDITIONS

Maximum System Voltage	1500V DC (IEC)
Operating Temperature	-40℃~+85℃
Maximum Series Fuse Rating	25A
Maximum Static Load,Front* Maximum Static Load,Back*	3600Pa, 1.5 1600Pa, 1.5
NOCT	45±2℃
Safety Class	Class Ⅱ
Fire Performance	UL Type 1

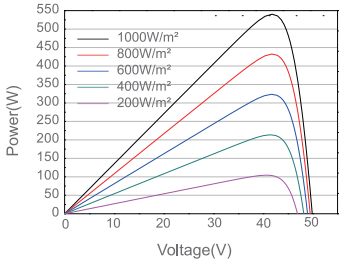
*For NexTracker installations, Maximum Static Load, Front is 2000Pa while Maximum Static Load, Back is2000Pa .

CHARACTERISTICS

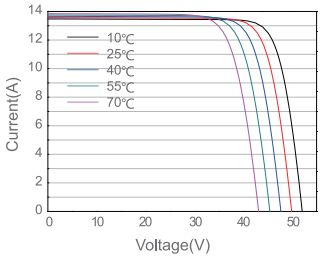
Current-Voltage Curve JAM72S30-540/MR/1500V



Power-Voltage Curve JAM72S30-540/MR/1500V



Current-Voltage Curve JAM72S30-540/MR/1500V



Cost effective

- Modular architecture reduces BOS and maximizes system uptime
- Compact design and high power density maximize transportation and logistical efficiency

Maximum flexibility

- Scalable 1,500 VDC building block with best-in-class performance
- Flexible architecture creates scalability while maximizing land usage

Simple install, commissioning

- Ergonomic handling and simple connections enable quick installation
- Centralized commissioning and control with SMA Data Manager

Highly innovative

- SMA Smart Connected reduces O&M costs and simplifies field-service
- Powered by award winning ennexOS cross sector energy management platform

SUNNY HIGHPOWER PEAK3 125-US / 150-US

A superior modular solution for utility power plants

The new Sunny Highpower PEAK3 is SMA's latest addition to a comprehensive portfolio of utility solutions. This 1,500 VDC inverter offers high power density in a modular architecture that achieves a cost-optimized solution for utility-scale PV integrators. With fast, simple installation and commissioning, the Sunny Highpower PEAK3 is accelerating the path to energization. SMA has also brought its field-proven Smart Connected technology to the PEAK3, which simplifies O&M and contributes to lower lifetime service costs. The PEAK3 utility system solution is powered by the ennexOS cross sector energy management platform, 2018 winner of the Intersolar smarter E AWARD.

Technical Data *	Sunny Highpower PEAK3 125-US	Sunny Highpower PEAK3 150-US
Input (DC)		
Maximum array power	187500 Wp STC	225000 Wp STC
Maximum system voltage	1500 VDC	
MPP voltage range	710 V ... 1425 V	855 V ... 1425 V
MPP trackers	1	
Maximum operating input current	180 A	
Maximum input short-circuit current	325 A	
Output (AC)		
Nominal AC power	125000 W	150000 W
Maximum apparent power	125000 VA	150000 VA
Output phases / line connections	3 / 3-PE	
Nominal AC voltage	480 V	600 V
Compatible transformer winding configuration	Wye-grounded	
Maximum output current	151 A	
Rated grid frequency	60 Hz	
Grid frequency / range	50 Hz, 60 Hz / -6 Hz ... +6 Hz	
Power factor at rated power / adjustable displacement	1 / 0.0 leading ... 0.0 lagging	
Harmonics (THD)	<3%	
Efficiency		
CEC efficiency (preliminary)	98.5 %	98.5 %
Protection and safety features		
Ground fault monitoring: Riso / Differential current	● / ●	
DC reverse polarity protection	●	
AC short circuit protection	●	
Monitored surge protection (Type 2): DC / AC	● / ●	
Protection class / overvoltage category (as per UL 840)	I / IV	
General data		
Device dimensions (W / H / D)	770 / 830 / 444 mm (30.3 / 32.7 / 17.5 in.)	
Device weight	85 kg (185 lbs)	
Operating temperature range	-25°C ... +60°C (-13°F ... +140°F)	
Storage temperature range	-40°C ... +70°C (-40°F ... +158°F)	
Audible noise emission (full power @ 1m and 25°C)	< 65 dB(A)	
Internal consumption at night	< 5 W	
Topology	Transformerless	
Cooling concept	OptiCool (forced convection, variable speed fans)	
Enclosure protection rating	Type 4X (as per UL 50E)	
Maximum permissible relative humidity (non-condensing)	100%	
Additional information		
Mounting	Rack mount	
DC connection	Terminal lugs - up to 600 kcmil CU/AL	
AC connection	Screw terminals - up to 300 kcmil CU/AL	
LED indicators (Status/Fault/Communication)	●	
SMA Speedwire (Ethernet network interface)	● (2 x RJ45 ports)	
Data protocols: SMA Modbus / SunSpec Modbus / Webconnect	● / ● / ●	
OptiTrac Global Peak (shade tolerant MPP tracking)	●	
PID Mitigation Solution	O	
Integrated Plant Control / Q on Demand 24/7	● / ●	
Off-grid capable / SMA Fuel Save Controller compatible	● / ●	
SMA Smart Connected (proactive monitoring and service)	●	
Certifications (pending as of June 2018)		
Certifications and approvals	UL 1741, UL 1998, IEEE 1547, CAN/CSA-C22.2 No.62109	
FCC compliance	FCC Part 15, Class A	
Grid interconnection standards	UL 1741 SA - CA Rule 21, HECO Rule 14H, PRC-024-02	
Advanced grid support capabilities	L/HFRT, L/HVRT, Volt-VAr, Volt-Watt, Frequency-Watt, Ramp Rate Control, Fixed Power Factor	
Warranty		
Standard	5 years	
Optional extensions	10 / 15 / 20 years	
Type designation	SHP 125-US-20	SHP 150-US-20

* Preliminary data as of June 2018 ● Standard features O Optional features

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

DC Combiners

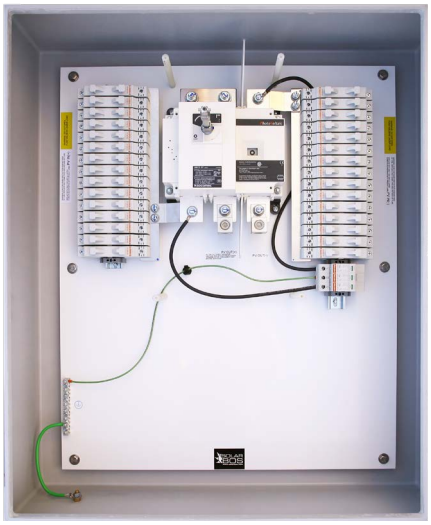
Terrasmart Combiners are used for DC aggregation before the input of an inverter or charge controller. They provide a convenient location for O&M and disconnecting means. Combiners are highly configurable to fit any application.

Product features

- Listed to UL-1741
- Up to 36 input circuits
- Rated for 1000 or 1500 VDC
- 275, 320, 400, and 600 Amp load break disconnects
- 75/90C Al/Cu output terminals
- NEMA-3R, 4 & 4X enclosures
- Rated for continuous duty

Available options

- Mechanical lugs
- Provisions for compression lugs
- Isolating / grounded / floating configurations
- Touch safe protective cover
- Custom layouts
- Pre-terminated input conductors
- 10kA SCCR and greater
- Battery and energy storage
- Transient surge suppression
- Breather and drain vents
- Pad-lockable enclosures
- Lockout / tagout provision



Floating Disconnect Combiner, 1500VDC, 275A disconnect, 15 input circuits, transient surge protection, NEMA-4X fiberglass enclosure

Specifications

Voltage (Vdc)	1000 / 1500
Disconnect Ampacity	None / 275 / 320 / 400 / 600
Number of Input Circuits	1 to 36
Input Conductor Size (AWG)	#14 - 8 / #12-4
Fuse Size (Amps)	4 to 32 / 35 to 65
Number of Output Conductors Per Polarity	1 or 2
Output Conductor Size Range (MCM)	#6-350 / #2-600 / 300-800
Enclosure Dimensions (Inches)*	24×24×8 / 30×24×8 / 30×30×8
Enclosure NEMA Ratings	3R / 4 / 4X

*Other options available upon request. Please note dimensions and weight may vary for any custom solutions. Contact us for details.

Attachment R:

Public Involvement Materials

May 14, 2025

Dear Valued Neighbor,

I hope this letter finds you well. My name is James, and I am a developer with Reactivate, a mission-driven company dedicated to creating renewable energy solutions that benefit communities across the country, especially working-class neighborhoods.

We are committed to building a more resilient, affordable, and reliable energy future. Our projects are built on strong partnerships with local stakeholders to ensure they bring meaningful and impactful benefits to the communities we serve. In 2024 alone, Reactivate has invested $11 million in local suppliers and contractors, creating American jobs with family-sustaining wages.

We are excited to share that a landowner nearby has expressed interest in exploring the potential for a small-scale community solar project on their property. This is a fantastic opportunity to bring clean energy to our area and support local economic growth.

As such, we are thrilled to announce preliminary plans for the RDC CO County Rd 116 Community Solar Energy Facility, a new 3.9 megawatt (MW) solar photovoltaic project right here in Alamosa County. This initiative aims to provide our community with affordable, locally sourced energy, benefiting all of us.

If successful, the County Rd 116 project is expected to create dozens of construction jobs throughout its development, construction, and operation phases, supporting local employment and boosting our economy. Additionally, the facility will contribute approximately $500 thousand dollars over the project lifecycle through taxes and other benefit programs, further investing in our community's growth and well-being.

As we prepare to begin permitting the project, we are eager to share more information and answer any questions you may have. Your input and engagement are invaluable to us, and we look forward to your feedback.

We warmly invite you to join us at our upcoming community meeting:

Date and time	**Location**
June 18, 2025 6:30 pm - 8:30 pm (Mtn)	Adams State University 208 Edgemont Blvd Alamosa, Colorado Room: Porter 130

Registration Link

To attend, please register in advance. Scan the QR code using your phone's camera device or register via link below

https://zoom.us/webinar/register/WN_779mjMC0R8WVrDUGeJT95A

SCAN ME

You’re a valued member of the community, and we’re committed to keeping you informed and involved as we move forward. If you have any questions, please call me at 720-994-3183, email reactivateoutreachco@reactivate.com, or visit our website: www.reactivate.com.

Warm regards,

James Bentley

Reactivate
An Invenergy Company

Reactivating Communities Through Renewable Energy

Solar technology uses the power of the sun to deliver affordable, reliable, and locally sourced energy and is one of the lowest-cost energy sources available.

Reactivate partners with landowners, communities, and businesses to create long-term benefits—not just short-term projects. From development through construction and operations, we're committed to being a steady, supportive presence for decades to come.

Our projects are rooted in collaboration. We work closely with community members to make sure our work delivers meaningful benefits—like good-paying jobs, local investment, and a more resilient energy future. In 2024 alone, we've invested $11 million in local suppliers and contractors, helping grow local businesses and support American workers.

We're excited to propose a 3.9 megawatt (MW) solar project in your area. We believe in transparency and want to keep you informed every step of the way. Your voice matters, and we welcome your feedback.

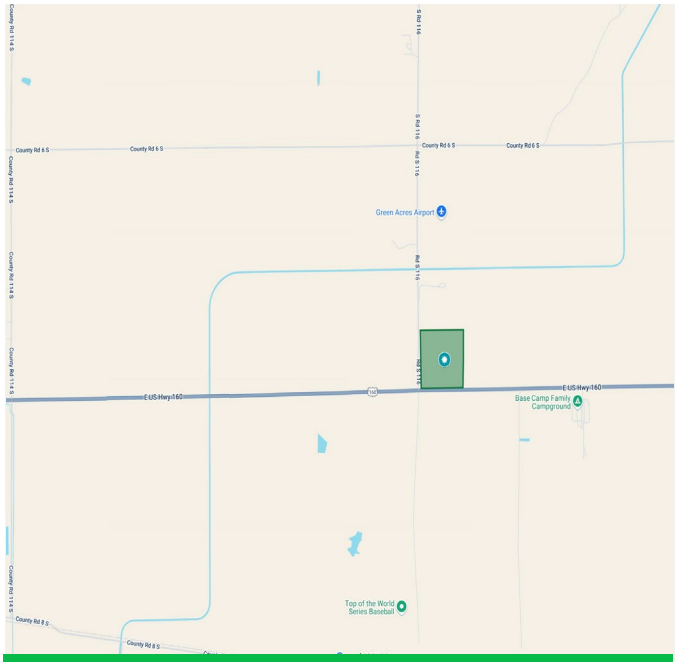
If you have any questions or thoughts to share, we'd love to hear from you.

James Bentley

Phone: 720-994-3183

Email: reactivateoutreachco@reactivate.com

Website: www.reactivate.com



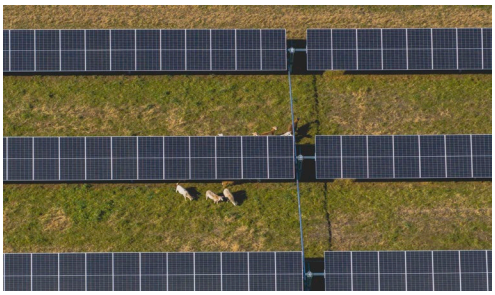
Alamosa County Project Highlights

3.9 MW of enough electricity to power more than **3,500 American homes**

Provide **direct**, **on-bill savings** to households, businesses over the minimum 20-year lifecycle of the project

Your partnership with Reactivate goes beyond producing energy—it directly contributes to local tax revenue, benefiting essential community services and improvements.

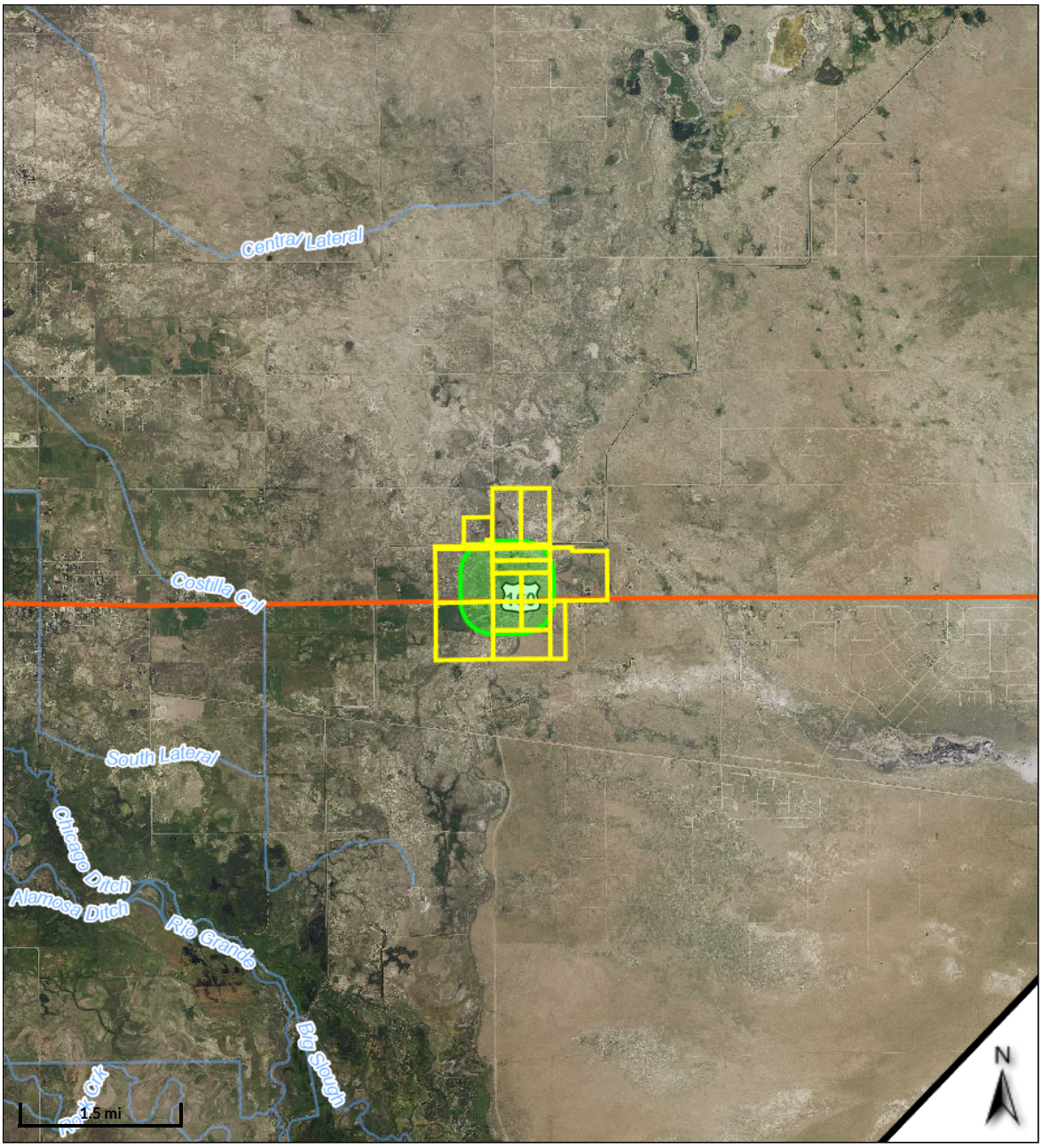
Dozens of jobs supported during development, construction, and operation of our projects



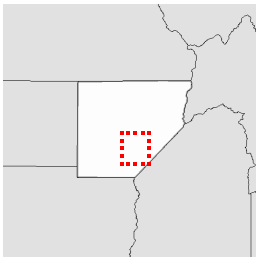
A Proven Track Record in Energy Development

Reactivate, an Invenergy company, is a mission-driven organization that develops, owns, and operates renewable energy solutions that are designed to improve quality of life for communities, with a focus on meaningful benefits for working-class people across the country. Focus areas include community solar, commercial & industrial solar, small utility-scale solar, energy storage, and EV charging projects. By delivering economic development and energy resiliency with renewable energy solutions, Reactivate provides energy cost savings, job opportunities, workforce training, and opportunities for businesses, creating positive social and environmental impact. Reactivate was founded by Invenergy and Lafayette Square.

qPublic.net™ Alamosa County, CO



Overview



Legend

- Parcels
- Roads
- USA Major Highways
- Highway
- Major Road
- Local Road
- Streams and Rivers
- Lakes

Date created: 3/6/2025
Last Data Uploaded: 3/5/2025 11:26:47 PM

Developed by SCHNEIDER GEOSPATIAL

Stakeholder Mailing List

Stakeholder Name, Title	Agency/ Department	Mailing Address	City	State	Zip	
Monte Vista National Wildlife Refuge	USFWS	6120 South Hwy 15	Monte Vista	CO	81144	
J.W. Mumma Native Aquatic Species Restoration Facility	CPW	6655 South County Rd 106	Alamosa	CO	81101	
Patrick Naranjo Alamosa Service Center	NRCS, Area Conservationist	101 South Craft Drive	Alamosa	CO	81101	
Richard Hubler, Land Use & Building Director	Alamosa County	8999 Independence Way Suite 100	Alamosa	CO	81101	
Ronnie Medina, Road and Bridge Director	Alamosa County	8663 South County Rd 109	Alamosa	CO	81101	
Joe Martinez, Commisioner	Alamosa County Planning Commission	8900 Independence Way	Alamosa	CO	81101	
Pat McDermott, Commisioner	Alamosa County Planning Commission	8901 Independence Way	Alamosa	CO	81101	
Annette Ostrander, Commissioner	Alamosa County Planning Commission	8902 Independence Way	Alamosa	CO	81101	
Leroy Teem, Commissioner	Alamosa County Planning Commission	8903 Independence Way	Alamosa	CO	81101	
Les Petersen, Alternate Commissioner	Alamosa County Planning Commission	8904 Independence Way	Alamosa	CO	81101	
Lori Laske, Commissioner	Alamosa County District 1 Commissioner	8900-A Independence Way	Alamosa	CO	81101	
Arlan Van Ry, Commissioner	Alamosa County District 2 Commissioner	8900-A Independence Way	Alamosa	CO	81101	
Vern Heersink, Commissioner	Alamosa County District 3 Commissioner	8900-A Independence Way	Alamosa	CO	81101	
Robert Jackson, Sheriff	Alamosa County Sheriff's Office	1315 17th Street	Alamosa	CO	81101	
Bill Stone, Chief	Alamosa County Fire Protection District	425 fourth Sreet	Alamosa	CO	81101	
Planner	Alamosa County Planner	8900-A Independence Way	Alamosa	CO	81101	
San Luis Valley National Wildlife Refuge Complex	U.S. FISH AND WILDLIFE SERVICE	9383 El Rancho Lane	Alamosa	CO	81101	
Auduban of the Rockies	Auduban of the Rockies	320 E Vine Dr Suite 312	Fort Collins	CO	80524	
Monte Vista Historical Society	Monte Vista Historical Society	110 Jefferson Street PO Box 323	Monte Vista	CO	81144	
Anthony Garcia	NRCS Soil Conservationist	101 South Craft Drive	Alamosa	CO	81101	
Cody Duran	NRCS Soil Conservationist	101 South Craft Drive	Alamosa	CO	81101	
Ty Coleman, Mayor	City of Alamosa	300 Hunt Avenue	Alamosa	CO	81101	

Landowner Mailing List

Owner Name	Mailing Address	OwnerCityStZip
STRANG JIM &, STRANG LISA	6344 S ROAD 116	ALAMOSA CO 81101
BRYANT EDWARD J &, KOOP PETER J	613 MAPLE	ROCKY FORD CO 81067
SANDOVAL MARICELA &, MORALES JOEL O RUBIO	6544 CNTY RD 116 SO	ALAMOSA CO 81101
GREEN COLLEEN	6620 CNTY RD 116 SO	ALAMOSA CO 81101
OUTMAN TIMOTHY JAMES	6860 COUNTY ROAD 116 SOUTH	ALAMOSA CO 81101
CANO EVER &, CANO AMY LYNETTE	16500 E US HWY 160	ALAMOSA CO 81101
FRANSEN GILBERT & BARBARA E	16855 E HWY 160	ALAMOSA CO 81101
FRIESELL CHISTOPHER ELKIN, KELLY ASHLEY ANN	1217 3RD STREET	ALAMOSA CO 81101
BALLANCE TERRY L &, BALLANCE VIVIAN R	P O BOX 1104	ALAMOSA CO 81101
ZIMMERMAN TREVER DEAN &, ZIMMERMAN CAROLINE ANDREA	15548 E US HWY 160	ALAMOSA CO 81101
TECOLOTE MILAGRO TRUST, TRUSTEE ERVAN ZAMORA-MARTINEZ	16552 E HWY 160	ALAMOSA CO 81101
NOLAND DAVID	P O BOX 662	FOUNTAIN CO 80817
ASHBY KENNETH SHON	3274 JERUSALEM ROAD	LEXINGTON NC 27292
CANO EVER	16500 E US HWY 160	ALAMOSA CO 81101
TECOLOTE MILAGRO TRUST	16552 E US HWY 160	ALAMOSA CO 81101

Attachment S:

Mineral and Energy Resources

WESTERN LAND SERVICES
AN EMPLOYEE OWNED COMPANY

Subsurface Ownership Report

Client Order/File No.: WS10763
Scope of Search: Subsurface search from Severance forward
Certification Period: 02/16/1933 to 01/28/2025

Property Description

Parcel: 541502300147 **Acreage:** 40.00
County: Alamosa **State:** Colorado
(S-T-R): Section 2-T37N-R11E, N.M.P.M
Tax Amount: $ 389.46 **Tax Status:** Unpaid for 2024
Legal Description: SWSW of Section 2-T37N-R11E, N.M.P.M.

Surface Ownership (Per Reported Assessment)

Owner:	Interest:	Net Acres:	Status:	Vesting Doc:
Timothy James Outman 6860 County Road 116 South Alamosa, Colorado 81101 (Circa 2025; Property Card)	1.00000	40.00000	Not Examined	323633
TOTALS:	1.0000	40.0000		

Subsurface Ownership

Description: SWSW of Section 2-T37N-R11E, N.M.P.M.				40.00000
Owner:	**Interest:**	**Net Acres:**	**Status:**	**Vesting Doc:**
Claudio Rael Taos, New Mexico (Address not located)	0.50000	20.00000	Unleased	148/49 (131477)
William James Oakley, Trustee of the Oakley Mineral Trust 8113 Tramore The Colony, Texas 75056 (Circa 2018: 369710)	0.25000	10.00000	Unleased	369710
Timothy James Outman 6860 County Road 116 South Alamosa, Colorado 81101 (Circa 2025; Property Card)	0.25000	10.00000	Unleased	323633 See Note 1
TOTALS:	1.0000	40.0000		

Current Lease of Record

Notes: None of record

Mortgages

Instrument: 393135
Date: 10/1/2024
Mortgagor: Timothy James Outman
Mortgagee: Mortgage Solutions of Colorado
Amount: $ 300,000.00
Term: 11/1/2054
Notes: No release found of record

Judgments/Liens

Notes: None of record

Well Information

No active or producing wells found located upon property or unitized with property.

Unit Information

None Found.

Title Notes

Note 1:

By Warranty Deed, dated 08/05/1932 and recorded on 02/16/1933 at Book 55 Page 183, Fred L. Morris conveyed a strip of land 120 feed wide, being the south 60 feet of the SW of Section 2 and the north 60 feet of the NW Section 11 for Highway 10. The Grantor reserved all mineral rights under this land. Morris then lost the parent tract for unpaid taxes. Examiner credited the mineral ownership under the highway to McClain Fink Land Company in resulting Treasurer's Deed 86/164 for nonpayment of taxes.

DISCLAIMER STATEMENT:
The information set forth herein is based on a limited search of the records of the County(ies) and State(s) as directed by the party requesting the report, and this report has been prepared for the exclusive use of such party. Western Land Services, Inc. ("WLS") is not a law firm and does not offer certified opinions of title for which a licensed title attorney is required. Accordingly, no warranty or certification of title is being made herein. By your acceptance of this Report, you agree to waive any recourse against and hold harmless WLS and its employees and contractors for any title errors or omissions beyond the scope of the work requested and payment received for preparing this report.

Examined By: Frankie Martinez
Reviewed By: Dave Edwards

Reactivate

William James Oakley, Trustee of the Oakley Mineral Trust

8113 Tramore

The Colony, Texas 75056

Re: Notice of Surface Rights

Dear Mr. Oakley:

Please be advised that RDC CO County Rd 116 LLC, a subsidiary of Reactivate DevCo, LLC ("Reactivate") has entered into a Solar and Storage Easement Agreement (the "Option") with the surface title owner of the property located at 6860 S County Rd 116, Colorado 81101, United States located in Alamosa County, Colorado (the "Property"). You are receiving this letter because, based on our research, you possess certain mineral rights on the Property.

Though Reactivate has not yet exercised the Option, should Reactivate exercise the Option, we plan to site a commercial energy solar and battery facility on the Property and apply for a siting permit with Alamosa County.

It is Reactivate's belief that our solar and battery facilities can be developed and operate while still allowing you to enjoy your rights and interests in the mineral estate and we fully intend to reasonably accommodate your subsurface activities. Accordingly, should Reactivate exercise the Option, we will contact you again to discuss a surface waiver agreement or other similar accommodation agreement.

Thank you for your time and attention to this matter. Should you have any questions regarding this notice, please do not hesitate to contact us.

Sincerely,

RDC CO County Rd 116 LLC

DocuSigned by:
Utopia Hill
C5EEE48C1F87480...

Utopia Hill, Manager

Reactivate

Claudio Rael

PO Box 122

Questa, NM 87556

Re: Notice of Surface Rights

Dear Mr. Rael:

Please be advised that RDC CO County Rd 116 LLC, a subsidiary of Reactivate DevCo, LLC ("Reactivate") has entered into a Solar and Storage Easement Agreement (the "Option") with the surface title owner of the property located at 6860 S County Rd 116, Colorado 81101, United States located in Alamosa County, Colorado (the "Property"). You are receiving this letter because, based on our research, you possess certain mineral rights on the Property.

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Thank you for your time and attention to this matter. Should you have any questions regarding this notice, please do not hesitate to contact us.

Sincerely,

RDC CO County Rd 116 LLC

Utopia Hill

C5EEE48C1F87480...

Utopia Hill, Manager

9589 0710 5270 1424 1649 31

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Questa, NM 87556

OFFICIAL USE

Certified Mail Fee	$4.85
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

Postmark Here
APR 17 2025
GREENWOOD VILLAGE BR. ENGLEWOOD CO 0181 07
USPS 80112
04/17/2025

Sent To: Claudio Rael
Street and Apt. No., or PO Box No.: PO Box 122
City, State, ZIP+4®: Questa, NM 87556

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 1424 1649 48

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The Colony, TX 75056

OFFICIAL USE

Certified Mail Fee	$4.85
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

Postmark Here
APR 17 2025
GREENWOOD VILLAGE BR. 0181 07
USPS 80112
04/17/2025

Sent To: William James oakley
Street and Apt. No., or PO Box No.: 8113 Tramore
City, State, ZIP+4®: The Colony, TX 75056

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

UNITED STATES POSTAL SERVICE.

GREENWOOD VILLAGE
6855 S DAYTON ST
GREENWOOD VILLAGE, CO 80112-9998
(800)275-8777

04/17/2025 05:20 PM

Product	Qty	Unit Price	Price
First-Class Mail® Letter Questa, NM 87556 Weight: 0 lb 0.30 oz Estimated Delivery Date Mon 04/21/2025	1		$0.73
Certified Mail® Tracking #: 9589 0710 5270 1424 1649 31			$4.85
Total			$5.58
First-Class Mail® Letter The Colony, TX 75056 Weight: 0 lb 0.30 oz Estimated Delivery Date Mon 04/21/2025	1		$0.73
Certified Mail® Tracking #: 9589 0710 5270 1424 1649 48			$4.85
Total			$5.58
Grand Total:			$11.16

Credit Card Remit $11.16
Card Name: AMEX
Account #: XXXXXXXXXXX1006
Approval #: 861586
Transaction #: 560
AID: A0000000025010801 Contactless
AL: AMERICAN EXPRESS
PIN: Not Required

Text your tracking number to 28777 (2USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com USPS Tracking or call 1-800-222-1811.

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or call 1-800-410-7420.

UFN: 072882-0181
Receipt #: 840-58000029-1-6859220-2
Clerk: 07

Label 200, August 2005

See DMM 503.2.1.1 and 503.2.2.1 at https://pe.usps.com/cpi