Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306
303-441-3930 • www.BoulderCounty.gov

MEMO TO: Referral Agencies
FROM: Pete L'Orange, Planner II
DATE: April 22, 2024
RE: Docket SU-24-0002

Docket SU-24-0002: Pivot Solar Energy Facility

Request:	Special Use Review for an approximately 4-acre solar energy facility on a 13-acre parcel at 9215 Arapahoe Road.
Location:	9215 Arapahoe Road, located on the north side of Arapahoe Road approximately 0.3 mile west of the intersection of Arapahoe Road and N. 95th Street, in Section 29, Township 1N, Range 69W.
Zoning:	Rural Residential (RR) Zoning District
Owner:	Dewire Family Trust
Applicant:	Pivot Solar 48 LLC

Special Use Review / Site Specific Development Plan is required of uses which may have greater impacts on services, neighborhoods, or environment than those allowed with only Building Permit Review. This process will review compatibility, services, environmental impacts, and proposed site plan.

This process includes public hearings before the Boulder County Planning Commission and the Board of County Commissioners. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of these hearings.

The Community Planning & Permitting staff, Planning Commission, and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter to the Community Planning & Permitting Department at P.O. Box 471, Boulder, Colorado 80306 or via email to plorange@bouldercounty.gov. All comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to call the Community Planning & Permitting Department at 303-441-3930 or email planner@bouldercounty.gov to request more information. If you have any questions regarding this application, please contact me at 303-441-1418 or plorange@bouldercounty.gov.

Please return responses by **May 27, 2024.**

_____ We have reviewed the proposal and have no conflicts.
_____ Letter is enclosed.

Signed _____ PRINTED _____

Agency or Address _____

Date_____

Boulder County Land Use Department
Courthouse Annex Building
2045 13th Street • PO Box 471 • Boulder, Colorado 80302
Phone: 303-441-3930
Email: planner@bouldercounty.org
Web: www.bouldercounty.org/lu
Office Hours: Mon., Wed., Thurs., Fri. 8 a.m. to 4:30 p.m.
Tuesday 10 a.m. to 4:30 p.m.

Shaded Areas for Staff Use Only
Intake Stamp

Planning Application Form

The Land Use Department maintains a submittal schedule for accepting applications. Planning applications are accepted on Mondays, by appointment only. Please call 303-441-3930 to schedule a submittal appointment.

Project Number		Project Name	
❑ Appeal ❑ Correction Plat ❑ Exemption Plat ❑ Final Plat ❑ Limited Impact Special Use ❑ Limited Impact Special Use Waiver ❑ Location and Extent	❑ Modification of Site Plan Review ❑ Modification of Special Use ❑ Preliminary Plan ❑ Resubdivision (Replat) ❑ Rezoning	❑ Road Name Change ❑ Road/Easement Vacation ❑ Site Plan Review ❑ Site Plan Review Waiver ❑ Sketch Plan ☑ Special Use/SSDP	❑ Special Use (Oil & Gas development) ❑ State Interest Review (1041) ❑ Subdivision Exemption ❑ Variance ❑ Other:

Location(s)/Street Address(es) 9215 Arapahoe Rd, Boulder, CO 80301				
Subdivision Name				
Lot(s)	Block(s)	Section(s) 29	Township(s) 1N	Range(s) 69
Area in Acres 13.42 total/6.77 permit area	Existing Zoning Rural Residential	Existing Use of Property Residential		Number of Proposed Lots
Proposed Water Supply N/A, no potable water required		Proposed Sewage Disposal Method N/A, no sewage required		

Applicants:

Applicant/Property Owner Dewire Family Trust (Property Owner)			Email dewirefamily9215@gmail.com
Mailing Address 9215 Arapahoe Rd			
City Boulder	State CO	Zip Code 80301	Phone (303) 666-9459
Applicant/Property Owner/Agent/Consultant Pivot Solar 48 LLC (Applicant)			Email bradley.thomas@pivotenergy.net
Mailing Address 1601 Wewatta St #700			
City Denver	State CO	Zip Code 80202	Phone (415) 306-6332
Agent/Consultant			Email
Mailing Address			
City	State	Zip Code	Phone

Certification (Please refer to the Regulations and Application Submittal Package for complete application requirements.)

I certify that I am signing this Application Form as an owner of record of the property included in the Application. I certify that the information and exhibits I have submitted are true and correct to the best of my knowledge. I understand that all materials required by Boulder County must be submitted prior to having this matter processed. I understand that public hearings or meetings may be required. I understand that I must sign an Agreement of Payment for Application processing fees, and that additional fees or materials may be required as a result of considerations which may arise in the processing of this docket. I understand that the road, school, and park dedications may be required as a condition of approval.

I understand that I am consenting to allow the County Staff involved in this application or their designees to enter onto and inspect the subject property at any reasonable time, without obtaining any prior consent.

All landowners are required to sign application. If additional space is needed, attach additional sheet signed and dated.

Signature of Property Owner Laurent Dewire	Printed Name Larry Dewire Laurent Dewire	Date 2-15-21
Signature of Property Owner Laurent Dewire	Printed Name LAURENT DEWIRE	Date

The Land Use Director may waive the landowner signature requirement for good cause, under the applicable provisions of the Land Use Code.

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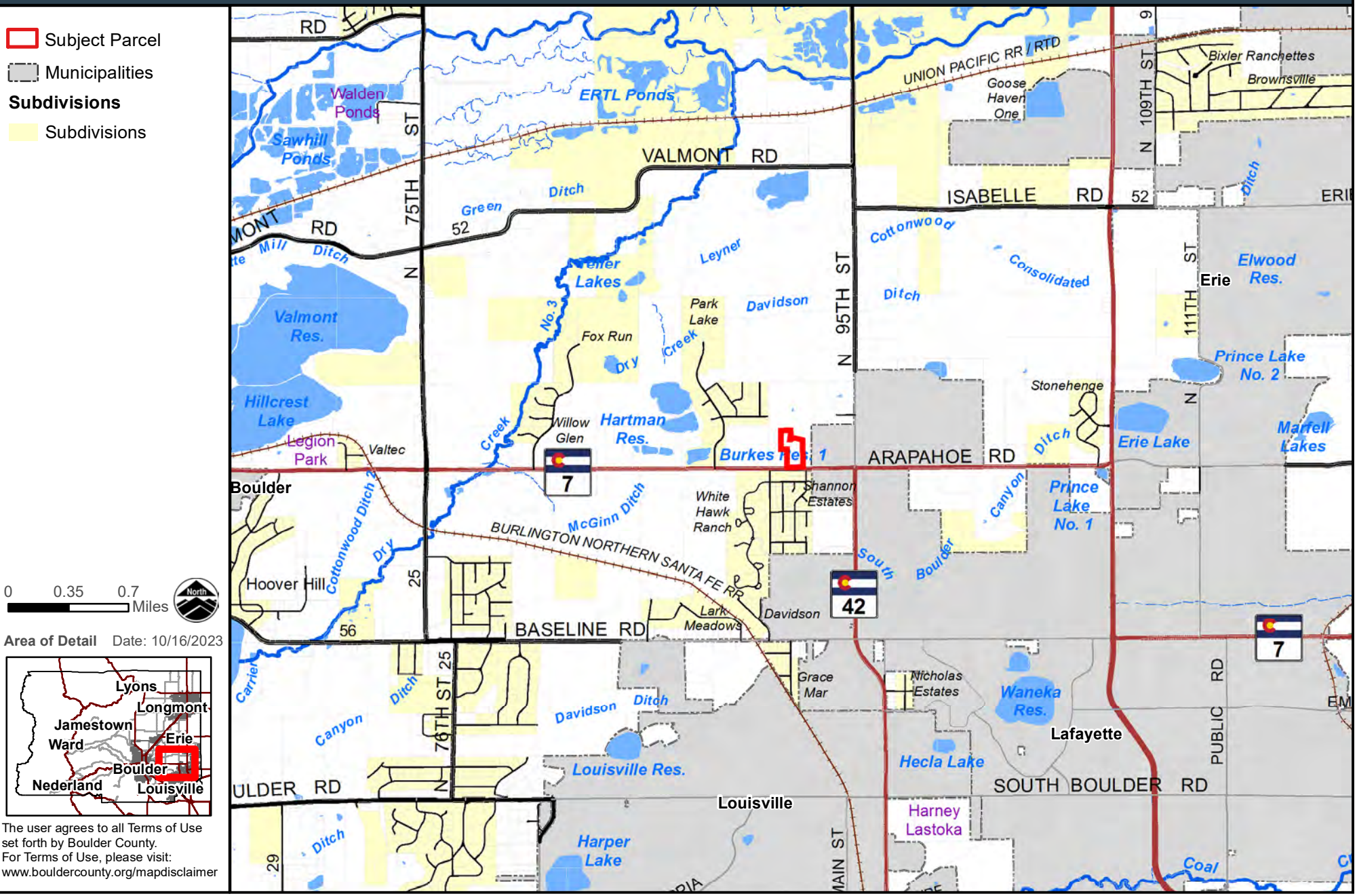
Vicinity

9215 ARAPAHOE RD



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Aerial

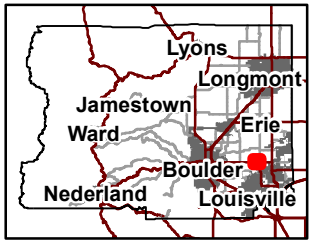
9215 ARAPAHOE RD

Subject Parcel

0 0.05 0.1 Miles

North

Area of Detail Date: 10/16/2023



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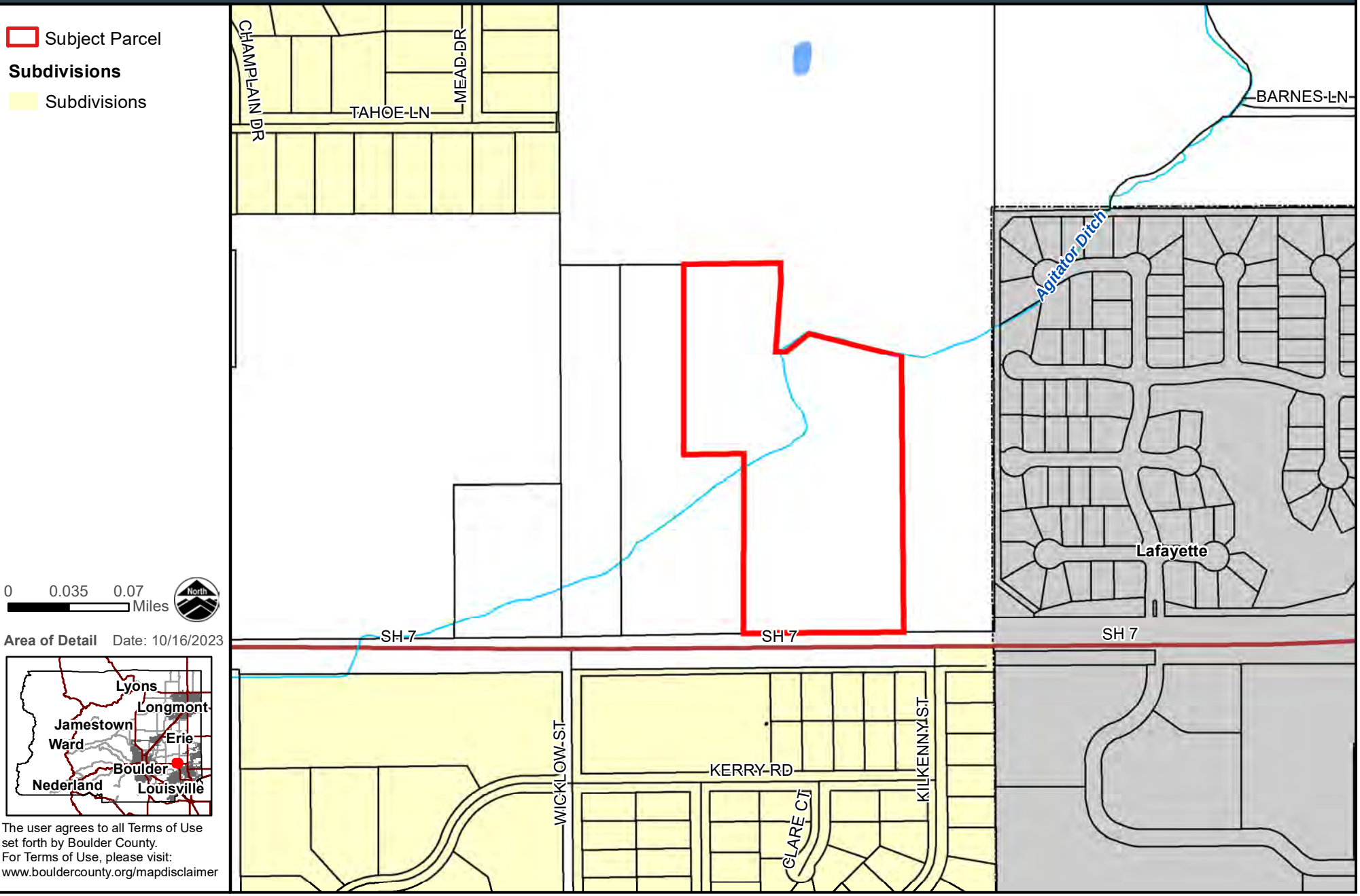
Location

9215 ARAPAHOE RD



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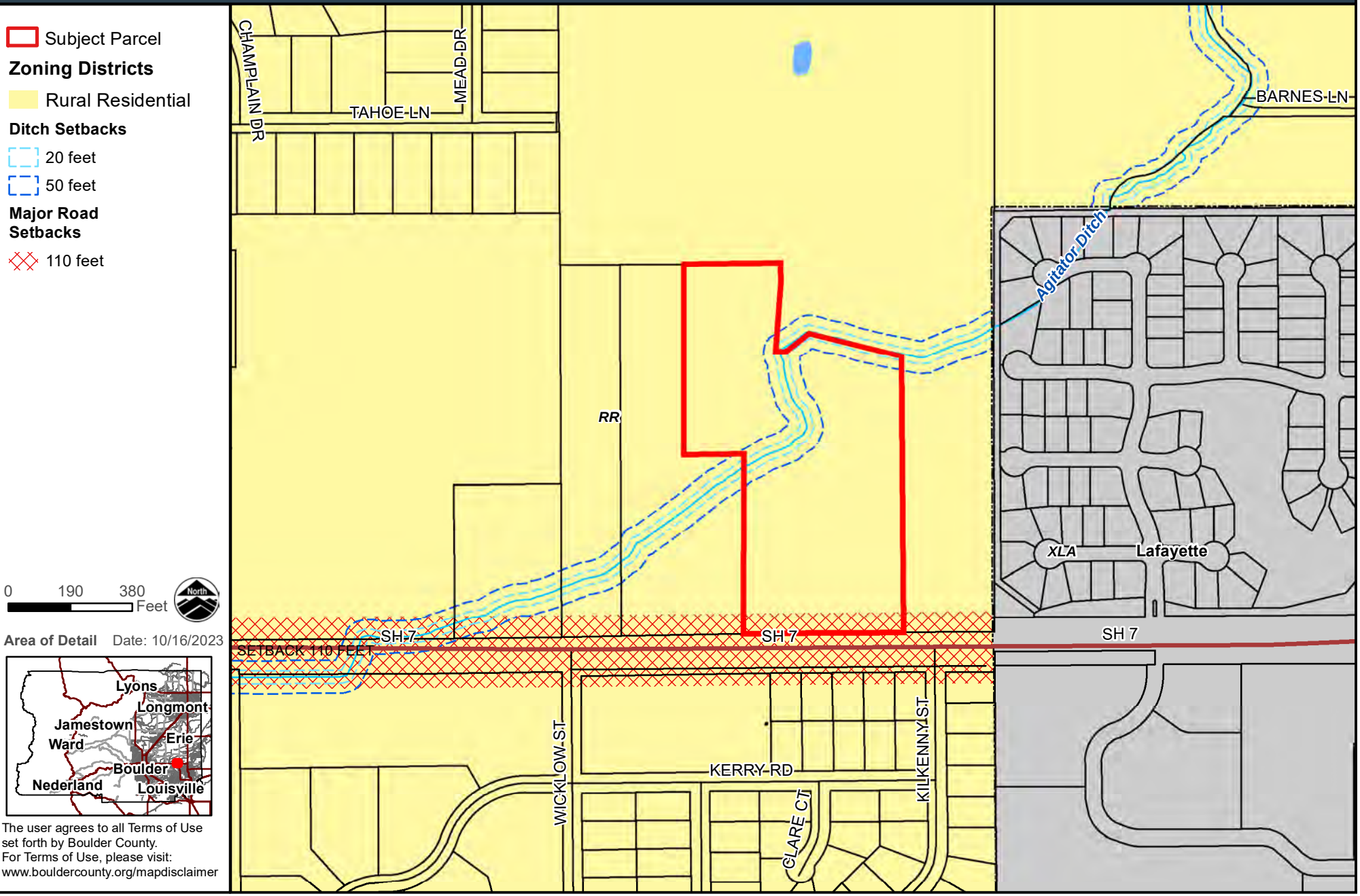
Zoning

9215 ARAPAHOE RD



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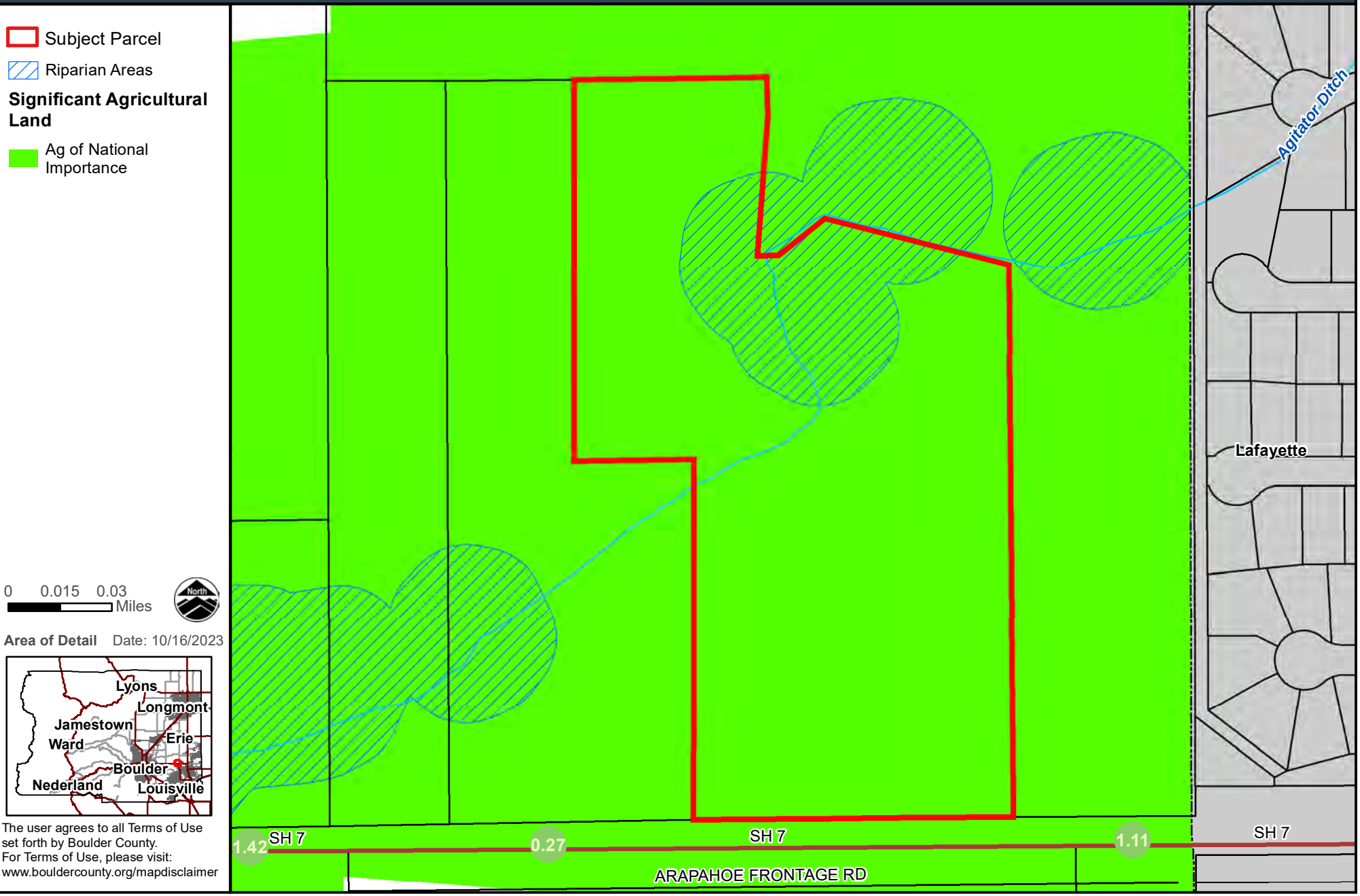
Comprehensive Plan

9215 ARAPAHOE RD



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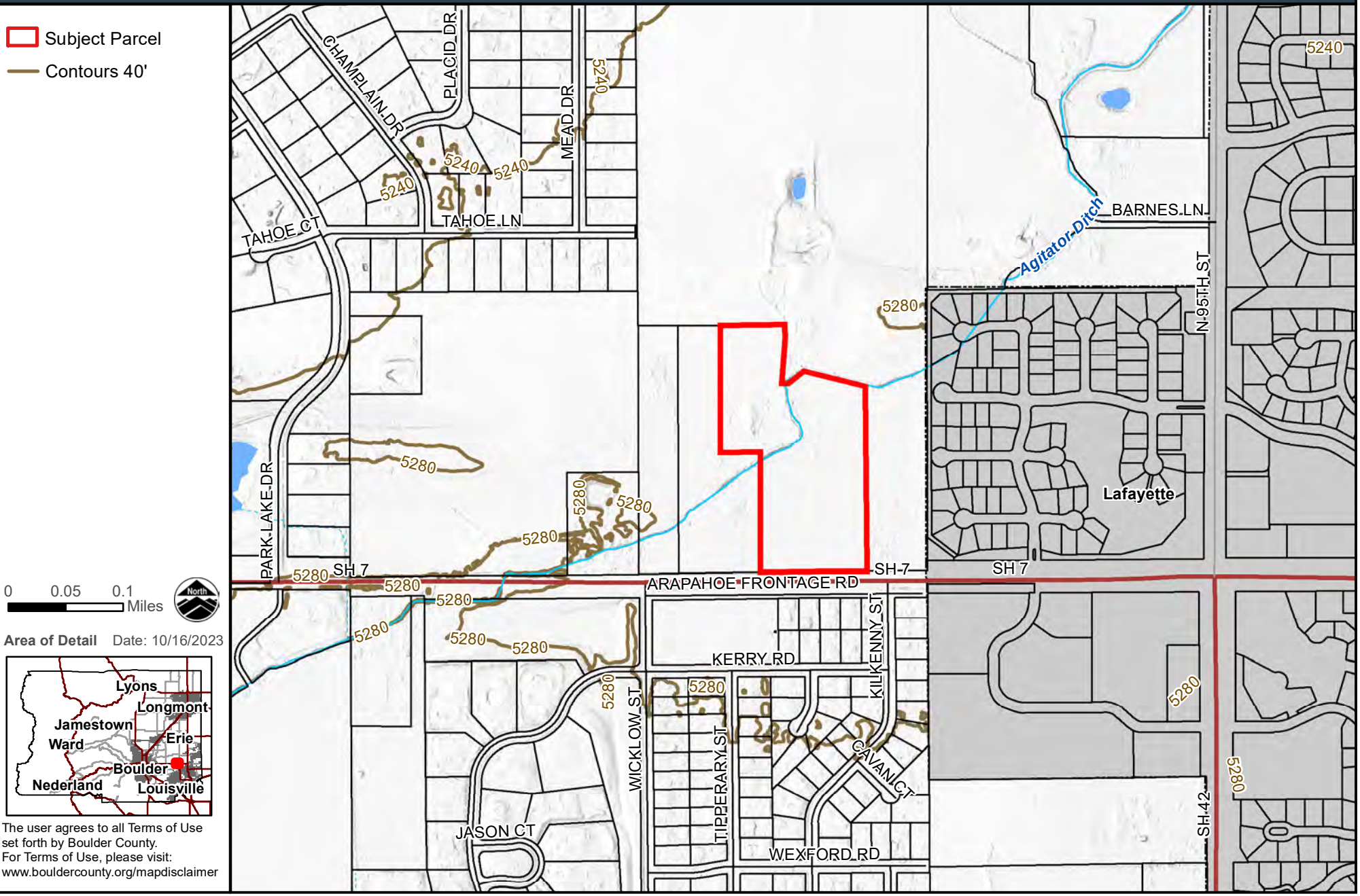
Elevation Contours

9215 ARAPAHOE RD



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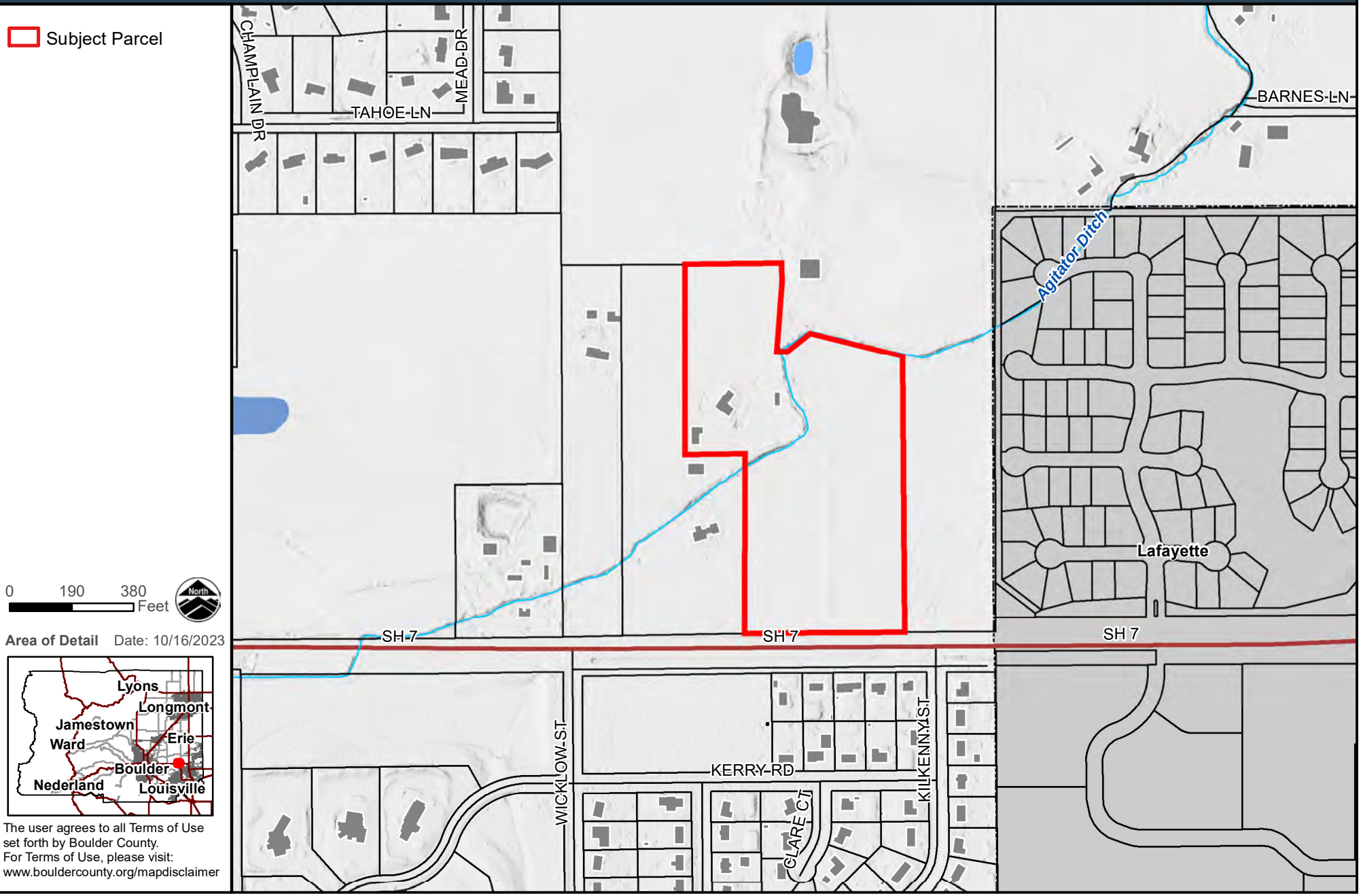
Geologic Hazards

9215 ARAPAHOE RD



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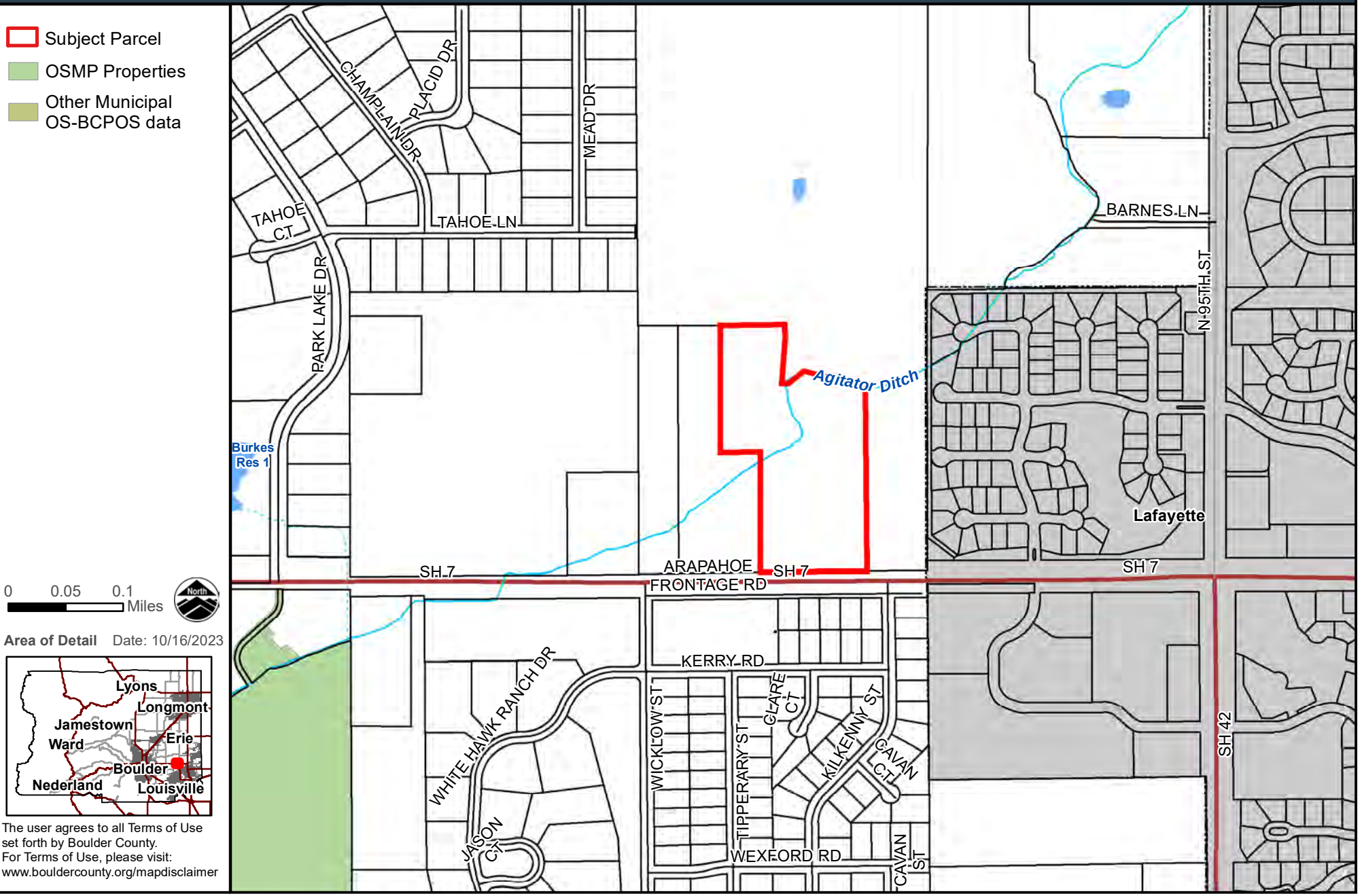
Public Lands & CEs

9215 ARAPAHOE RD



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Pivot Solar 48: Development Narrative

April 1, 2024

Project Background and Overview

Public Service Company of Colorado ("Xcel Energy") has contracted with Pivot Energy to design, permit, and build a 550 kilowatt (kW) solar energy facility on a parcel of land owned by Dewire Family Trust, located at 9215 Arapahoe Rd (Parcel # 146529000018). Pivot has an active ground lease in place with the Dewire Family Trust for twenty-one years with two additional ten-year option periods. The ground lease includes approximately 8 acres of the larger 13-acre parcel. All 8 acres under lease are currently vacant. The parcel is zoned as Rural Residential and is primarily undeveloped open land. Months in advance of this application's submission, Pivot Energy began working directly with neighbors of the project to ensure their feedback was incorporated into the application. This is discussed in the community outreach and engagement section below.

The facility will participate in Xcel Energy's Solar*Rewards Offsite Program, generating clean energy for a large local offtaker. This 550-kW project will generate enough energy to power the equivalent of approximately 134 average Colorado homes annually, offsetting approximately 526 tons of CO2 emissions per year based on Xcel Energy's 2022 generation mix. Pivot Energy will own and operate the solar energy facility for its operational life, which is expected to be 21-41 years.

Pivot Solar 48 is being evaluated as part of a new and innovative "agrivoltaics" (agriculture + photovoltaics) initiative at Pivot Energy, going above and beyond industry standard practices and Boulder County requirements. If determined to be feasible at the site, Pivot will work with a local tenant farmer to cultivate low-growth vegetables and herbs underneath the rows of solar panels using water already available onsite via the Agitator Ditch and an existing well. Notably, cultivation of low-growth crops will not require the solar racking to be increased in height as has been required at other local agrivoltaics sites – this comes with the same benefits of improving the agricultural integrity of the land without the additional visual impact of taller rows of solar panels.

If crop production is not feasible, Pivot plans to utilize sheep grazing as a means of vegetation management, returning the property to its historic use. A mix of forbs, fescues, and clovers will be planted on site. Pivot works with professional ecologists and civil firms to specify the seed mixes in order to ensure that the chosen plants will provide the right balance of biodiversity and high forage content to support the herd and improve soil quality over time. Pivot also aims to include a mixture of some nitrogen fixing and some nitrogen feeding varietals, which eliminates the need for using chemical fertilizers onsite. Sheep grazing helps to further establish plants via animal hooves integrating seeds into the soil, and their waste acts as a natural and low-odor fertilizer to enrich the soil, improving the land's agricultural integrity.

888.734.3033 | info@pivotenergy.net | pivotenergy.net

The project will use industry standard solar equipment including photovoltaic (PV) solar modules and single axis tracking racks. The racks follow the angle of the sun during the day, maximizing the amount of energy produced by the solar modules. Pivot Energy has completed a review of any potential impacts to air traffic and has received a generated conclusion that no additional FAA review is required, which has been included in this narrative as Appendix A.

During construction, crews of manual laborers, equipment operators, and deliveries will access the site via Arapahoe Rd. On any given day, up to 15-20 people could be on site working on the project. The construction period will last approximately 16 to 20 weeks. Once construction is complete, the solar array operates with no on-site personnel. Periodic site visits with a pickup truck are required to ensure mechanical and electrical connections and communications equipment are operating as expected. These operation and maintenance visits typically occur 4-8 times per year with a single pickup truck and a crew of up to four people. If crop production is determined to be feasible onsite, tenant farmer operations may require additional visits. In either case, crop production or not, site visits during operations will not impact area roads and traffic, as the total number of annual visits will be less than that of even a single-family residence.

The solar equipment will operate with minimal noise, and importantly, only during daylight hours. The racks follow the sun during the day and are powered by electric motors that advance the racks at small increments. Located on the equipment pad, inverters and an Xcel-owned transformer work together to convert the direct current electricity (“DC”) produced by the solar panels to alternating current electricity (“AC”) at a suitable voltage for injection to the local electrical grid. This process creates roughly as much noise as a residential air conditioner unit during daylight hours. At a distance of 150 feet from the inverters, noise levels generally approach background levels, per a study conducted by the Massachusetts Clean Energy Center. The nearest residential home to this project is roughly 415 feet away from the equipment pad. It is also important to note that there is a major boulevard immediately adjacent to the site, and even within 150 feet of the equipment pad, the sound of traffic is likely to be louder than any perceptible noise from the solar array. The energy produced by the array is clean, eliminating the greenhouse gas and pollutant emissions associated with traditional fossil-fuel energy generators. The proposed project will not generate any odors and the site will have no onsite lighting.

The proposed project will not require potable water, septic system, public water, or sewer because the site will be mostly unmanned once construction is complete. During construction and any maintenance visits, appropriate on-site services will be maintained to ensure work crews have adequate access to portable toilets and potable water for drinking and washing hands. Because the site will generally not be staffed, a minimal level of emergency service will be required. Emergency services will have full access to the site off Arapahoe Road.

Partially as a result of the multiple community meetings that were hosted in advance of this applications submission, Pivot has designed the site from the ground up to mitigate visual impacts to the greatest degree possible. Array locations have been moved as far

as possible away from neighboring property lines, and vegetative screening measures are being taken, as further described in the landscaping plan. In front of the fence lines, larger landscaping is proposed to help break up the bulk and mass of the system. Underneath the panels, crop production is currently being evaluated as a secondary use. Areas not being cultivated will have native, pollinator-friendly, low-growth vegetation that will help the array blend into the natural surroundings and act as screening from adjacent landowners. Included in figure 1 below are photos of past projects as an example.

Figure 1: Vegetation before and after construction at a local site

Community Outreach and Engagement

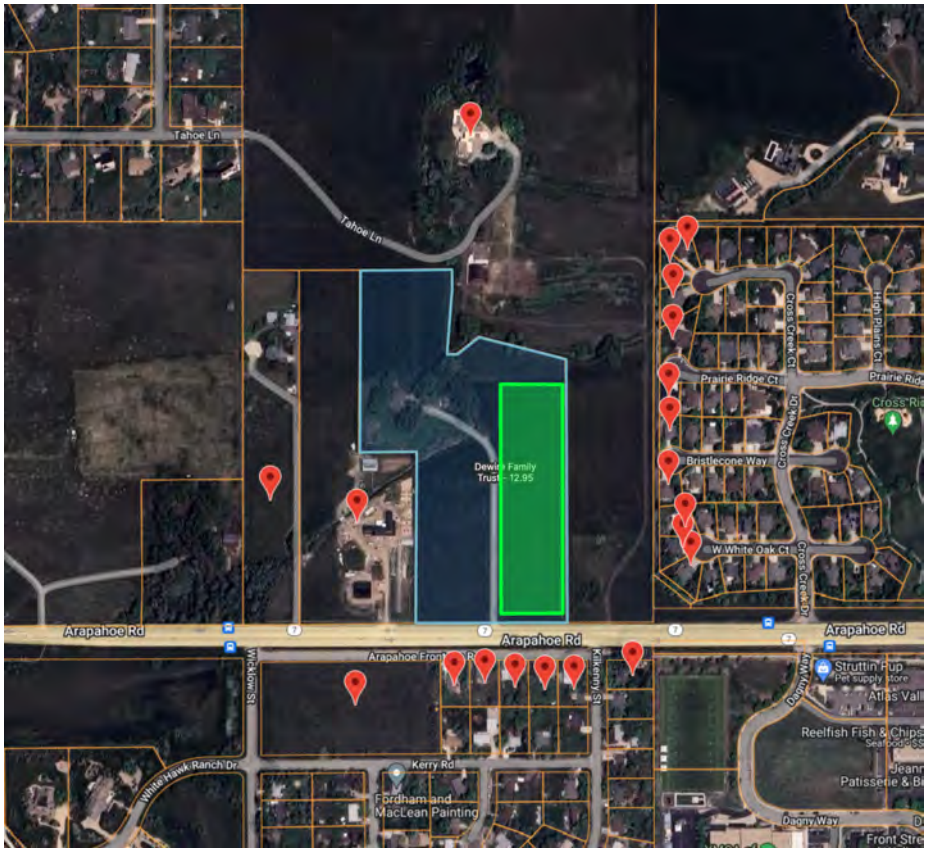

Figure 2: Map of abutters contacted prior to application

Community engagement is a critical piece of the way Pivot Energy develops solar projects – in fact, we even have a dedicated community engagement team that works alongside our developers to facilitate this process. Unlike many other developers, we aim to proactively address questions and incorporate feedback from neighbors well in advance of permit application submission. Though it is difficult and time consuming to incorporate feedback from many additional stakeholders, Pivot is committed to thoughtfully developing projects to suit the unique needs of the neighborhoods we work in.

In preparation for application submission, all adjacent residential property owners were sent USPS Priority mail flat envelopes on February 6th, 2024, including information about the project, contact information, a request to provide feedback and questions, and an invitation to a community meeting on 2/15/24. A total of 20 letters were sent to adjacent neighbors (as indicated in the aerial image above). No direct responses from the landowners received, but there was a strong turnout of roughly 20-30 people to the community meeting. As requested by the neighbors, a second community meeting, complete with a presentation, was held on 3/14/24. Pivot answered questions and solicited feedback from neighbors regarding the use for extra space on the parcel, landscaping, and site layout, which has been incorporated into this application. Select neighbors also requested to visit an operating Pivot Energy solar facility in order to view firsthand what our projects look like, which is scheduled for mid-April.

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Response to Boulder County Land Use Code Article 4 • 4-514 Utility and Public Service Uses

M. Solar Energy – Ground-Mounted System

1. Definition: A solar energy system mounted on a rack or poles that rests on or is attached to the ground, not including a solar energy system mounted on parking canopies. Applicant Response: noted.
2. Districts Permitted:

Zoning District	Small < 2.5 acres disturbed area	Medium 2.5 to 10 acres disturbed area	Large 10+ acres disturbed area
MF, MH, MI, SR, H	SPR	Not allowed	Not allowed
A, ER, RR, F	SPR/**SU***	LU/SU*	SU*
LI, GI, C, B, T	SPR	SPR	LU

*Note: Special Review is required for Significant Agricultural Lands in A, RR, ER, as listed in the additional provisions, below. Medium and Large systems are not permitted in platted subdivisions in ER and RR.

3. Parking Requirements: To be determined through review. Applicant Response: noted.
4. Loading Requirements: None. Applicant Response: noted.
5. Additional Provisions:
    a. This use is required to be located on a building lot, or an outlot platted for this purpose. Applicant Response: the proposed project is located on a building lot.
    b. The use may be allowed on right-of-way, as permitted by the right-of-way owner and if compatible with the use of the right-of-way. For right-of-way systems, further requirements may be stipulated by the Boulder County Public Works Department or the Colorado Department of Transportation to ensure compatibility with transportation-related uses of the right-of-way. Applicant Response: this project is not located within right-of-way.
    c. The appropriateness of a site, the specific location on the site, and the extent of site disturbance will be determined through the applicable review process. Applicant Response: noted.
    d. Ground-mounted systems with disturbed area greater than 0.5 acre cannot be located on areas designated by the Boulder County Comprehensive Plan as Natural Landmarks, Natural Areas, Critical Wildlife Habitats, or Wildlife Migration Corridors. Applicant Response: the proposed project is not located in an area designated any of the above categories.
    e. Ground-mounted systems are allowed as a second Principal Use on parcels subject to the review process applicable for the proposed new ground-mounted system. Applicant Response: noted.
    f. Ground-mounted systems shall not exceed 15 feet in height, except to accommodate site specific needs and as approved through review.

Systems exceeding 15 feet in height require an increased setback of 75 feet from all property lines, unless it is demonstrated that a lesser setback or topographical or vegetative screening adequately mitigates visual impacts. In no case shall a system exceed 25 feet in height. Applicant Response: noted - the proposed project will conform to this design standard.

g. Ground-mounted systems with disturbed area greater than 2.5 acre are not permitted in the Forestry Zoning District unless the site has been previously contaminated or the soil otherwise damaged, making it unsuitable for agricultural or forestry uses. Qualifying areas may include properties that have previously undergone intensive development and where it is determined, through the review process, that installation of a ground-mounted system will not have additional significant impacts. Applicant Response: N/A

h. Ground-mounted systems with a disturbed area greater than 0.5 acre on lands designated as Significant Agricultural Lands under the Boulder County Comprehensive Plan, and located in the Agricultural, Estate Residential, or Rural Residential zone districts, require Special Review and are subject to the following additional requirements intended to preserve and maintain soil and agricultural integrity:

    i. The total disturbed area associated with the ground-mounted system cannot exceed 7 acres on parcels smaller than 70 acres in size, or 14 acres on parcels larger than 70 acres in size. Applicant Response: the proposed project conforms to this design standard.

    ii. Application for the ground-mounted system must contain a solar energy system development report as set forth in Article 3-203. Applicant Response: attached.

Response to Boulder County Land Use Code Article 4 • 4-601 Review Criteria

A. A use will be permitted by Special Review or Limited Impact Special Review only if the Board finds that the proposed use meets the following criteria as applicable:

1. Except as otherwise noted, the use will comply with the minimum zoning requirements of the zoning district in which the use is to be established, and will also comply with all other applicable requirements;

   Applicant Response: the proposed project complies with requirements laid out in Boulder County Land Use Code Article 4 • 4-514(M), as noted above.

2. The use will be compatible with the surrounding area. In determining compatibility, the Board should consider the location of structures and other improvements on the site; the size, height and massing of the structures; the number and arrangement of structures; the design of structures and other site features; the proposed removal or addition of vegetation; the extent of site disturbance, including, but not limited to, any grading and changes to natural topography; and the nature and intensity of the activities that will take place on the site. In determining the surrounding area, the Board should consider the unique location and environment of the proposed use; assess the relevant area that the use is expected to impact; and take note of important features in the area including, but not limited to, scenic vistas, historic townsites and rural communities, mountainous terrain, agricultural lands and activities, sensitive environmental areas, and the characteristics of nearby development and neighborhoods;

   Applicant Response: The proposed project is compatible with the surrounding area. The site sits on undeveloped private land near low-density residences and will be a significantly lower impact than further residential or commercial development in the area would be. The solar panels are shorter than a single-story residence and conform to the maximum height restrictions in Boulder County Land Use Code Article 4 • 4-514(M)(5)(F). While final engineering has not yet been completed and thus a maximum height above grade cannot be determined with certainty, Pivot is financially incentivized to make the panels as short as possible and commits to adhering to applicable code.

   The equipment itself maintains neat, orderly, and consistent spacing and appearance across the project area. Existing site drainage patterns will not be changed. Infiltration rates across the site will also remain consistent with current rates due to the extremely limited increases in site imperviousness (racking posts and the equipment pad). The power generated onsite will be clean, renewable energy that will help the County meet its carbon reduction goals by keeping the electricity local.

   As mentioned earlier in this narrative, the proposed project is evaluating crop production onsite as a secondary use, which will increase the utilization of the currently unused significant agricultural lands within the project footprint. In the

past, the Dewire property has been used for sheep grazing – if crop production is not feasible, sheep grazing will be the preferred method of vegetation management, restoring the property to its historic use.

After a construction period of approximately 4 – 5 months, the proposed project will operate for at least 20 years. During operation, no personnel will be stationed on the site. No external lighting is required, and the system only generates energy during daylight hours. Any noise associated with the system will be negligible to nearby residences due to their distance from the equipment. Semi-annual equipment maintenance will be supplemented with infrequent visits to manage vegetation (total visits anticipated to be 4 – 8 annually). Relative to almost any other use, the proposed project will generate less odor, noise, light, and traffic ensuring the site remains quiet and compatible with the low-density nature of the surrounding community.

3. The use will be in accordance with the Comprehensive Plan;
Applicant Response: The Boulder County Comprehensive Plan provides wide-ranging guidance for development within unincorporated Boulder County. The proposed project is consistent with the Comprehensive Plan generally, and directly addresses several key components of the plan as well. The Plan's Guiding Principles provide a coherent overview of the Plan's intent. Additional responses are contained in Appendix B.

1. Consider and weigh the interconnections among social, environmental, and economic areas in all decisions.

Applicant Response: The proposed project utilizes an under-used property to advance environmental and social goals by generating and delivering clean energy locally.

2. Encourage and promote the respectful stewardship and preservation of our natural systems and environment by pursuing goals and policies that achieve significant reductions in our environmental footprint.

Applicant Response: The proposed project will generate enough clean energy to meet the annual needs of approximately 134 residences. The low impacts associated with the project mean the underlying land will be preserved for a time in the future when the project is complete and decommissioned. At that time, the land will become available for other suitable and appropriate development. Further, the proposed solar facility will preserve the natural environment more than any residential or commercial use would on this property.

3. Create policies and make decisions that are responsive to issues of social equity, fairness, and access to community resources for all county residents.
Applicant Response: The proposed project will generate tax revenue while not utilizing public resources, which would contribute to the accessibility of community

resources for Boulder County's residents. For all projects, Pivot also invests in community organizations in line with our community donation pillars.

4. Encourage and support a dynamic, stable, and flexible local economy that distinguishes between urban and rural economies and directs uses to appropriate locations. Applicant Response: Smaller solar arrays (such as this one) must be close to existing electrical infrastructure to "plug into" the electric grid. In many circumstances, open lands with enough space to support a project of this scope that are also close enough to acceptable infrastructure are simply too expensive to be used as a solar generation location. The subject property is a perfect location for a solar array, as it will have a minimal impact on neighboring parcels and the county at large while generating stable value for the local, rural economy on underutilized private land.

5. Maintain the rural character and function of the unincorporated area of Boulder County by protecting environmental resources, agricultural uses, open spaces, vistas, and the distinction between urban and rural areas of the county.

Applicant Response: The proposed project is passive in nature. There are no odors or emissions produced from the array. There are no external lights, and the project only operates during daylight hours. The noise associated with normal operations is negligible (and silent outside of daylight hours), and there will be negligible impacts to area roads and traffic. These factors make this project consistent with the existing rural character and function of the immediate area. Other possible uses of this property would result in further suburbanization of the surrounding area rather than preservation of rural character.

6. Encourage and promote regional cooperation and coordination in working with other entities and jurisdictions.

Applicant response: The proposed project will be developed in direct coordination with a local offtaker to provide clean energy that could not have otherwise been generated locally.

7. Actively engage the public in the planning process.

Applicant response: In preparation for this application's submission, Pivot Energy has gone above and beyond industry standard practices and Boulder County requirements to engage the neighboring public. On February 15 and March 14, 2024, Pivot Energy hosted community meetings to directly engage with abutters, the nearby HOA, and other neighbors to solicit input and feedback related to the project. A visit to an operating Pivot solar project is also planned for neighbors in mid-April so that nearby residents have an opportunity to see firsthand what the project may look like.

4. The use will not result in an over-intensive use of land or excessive depletion of natural resources. In evaluating the intensity of the use, the Board should consider the extent of the proposed development in relation to parcel size and the natural landscape/topography; the area of impermeable surface; the amount of blasting, grading, or other alteration of the natural topography; the elimination or disruption of agricultural lands; the effect on significant natural areas and environmental resources; the disturbance of plant and animal habitat, and wildlife migration corridors; the relationship of the proposed development to natural hazards; and available mitigation measures such as the preservation of open lands, the addition or restoration of natural features and screening, the reduction or rearrangement of structures and land disturbance, and the use of sustainable construction techniques, resource use, and transportation management;

   Applicant Response: The proposed project will have a minimally intensive impact on the land and will not deplete natural resources. We do not anticipate any grading will be required to complete the project. Overall site drainage patterns will remain the same. The amount of equipment in contact with the ground is very limited and will not impact the site's ability to infiltrate water. No blasting is necessary for the project. Please see the drainage letter for additional information. When the project is decommissioned at the end of its life, the land will again become available for consideration of appropriate development. Any temporary disturbance of plant or animal habitat related to the construction of the project will be mitigated during post-construction site stabilization, including reseeding with appropriate low-growth vegetation as selected or recommended by the County staff and civil consultants. There are no mapped wildlife migration corridors within the project site. There are no known natural hazards at this location. The nature of the project preserves open lands and protects them from more intensive development for decades to come.

5. The use will not have a material adverse effect on community capital improvement programs;

   Applicant Response: no impacts expected.

6. The use will not require a level of community facilities and services greater than that which is available;

   Applicant Response: Due to their largely passive nature, Solar projects require very little in terms of community facilities. No potable water or additional sewage is required, and there is a negligible impact to traffic once construction is complete (typically 1 pickup truck visit 4-8 times per year).

7. The use will support a multimodal transportation system and not result in significant negative impacts to the transportation system or traffic hazards;

   Applicant Response: Transportation impacts are negligible as noted above.

8. The use will not cause significant air, odor, water, or noise pollution;

   Applicant Response: Solar farms are not a source of air, odor, water, or noise pollution.

9. The use will be adequately buffered or screened to mitigate any undue visual impacts of the use;

   Applicant Response: The proposed project includes vegetative screening, as described further in the attached landscaping plan.

10. The use will not otherwise be detrimental to the health, safety, or welfare of the present or future inhabitants of Boulder County; and

    Applicant Response: The proposed project will enhance the health, safety, and welfare of the present and future inhabitants of Boulder County by creating clean, sustainable, and emission-free energy for decades to come.

11. The use will establish an appropriate balance between current and future economic, environmental, and societal needs by minimizing the consumption and inefficient use of energy, materials, minerals, water, land, and other finite resources.

    Applicant Response: The proposed use benefits both the current and future economic, environmental, and societal needs by creating clean, low-cost, renewable energy to be consumed in the immediate community without consuming local energy, materials, minerals, water, land, or other finite resources.

12. The use will not result in unreasonable risk of harm to people or property – both onsite and in the surrounding area – from natural hazards. Development or activity associated with the use must avoid natural hazards, including those on the subject property and those originating off-site with a reasonable likelihood of affecting the subject property. Natural hazards include, without limitation, expansive soils or claystone, subsiding soils, soil creep areas, or questionable soils where the safe-sustaining power of the soils is in doubt; landslides, mudslides, mudfalls, debris fans, unstable slopes, and rockfalls; flash flooding corridors, alluvial fans, floodways, floodplains, and flood-prone areas; and avalanche corridors; all as identified in the Comprehensive Plan Geologic Hazard and Constraint Areas Map or through the Special Review or Limited Impact Special Review process using the best available information. Best available information includes, without limitation, updated topographic or geologic data, Colorado Geologic Survey landslide or earth/debris flow data, interim floodplain mapping data, and creek planning studies.

Applicant Response: The proposed project site is not identified on the Comprehensive Plan and Geologic Hazard and Constraint Areas as a Geologic Constraint Area.

Based on the physical conditions of the site, it is not anticipated that landslides, mudslides, mud falls, or debris fans have the potential to impact the proposed project. We have completed on-site topographic mapping with a Colorado-licensed Professional Land Surveyor (PLS). Geotechnical studies are currently in process and will further inform Pivot's engineering.

13. The proposed use shall not alter historic drainage patterns and/or flow rates unless the associated development includes acceptable mitigation measures to compensate for anticipated drainage impacts. The best available information should be used to evaluate these impacts, including without limitation the Boulder County Storm Drainage Criteria Manual, hydrologic evaluations to determine peak flows, floodplain mapping studies, updated topographic data, Colorado Geologic Survey landslide, earth/debris flow data, and creek planning studies, all as applicable given the context of the subject property and the application.

Applicant Response: The proposed project's plan sets have been created using data collected by a Colorado-licensed Professional Land Surveyor who completed a topographic survey of the site. Historic drainage patterns will not be changed because of this project. Please see drainage letter for additional information.

B. If the proposed use is approved or conditionally approved, the Board may impose such conditions and safeguards to insure compliance with the requirements, standards, and conditions of this Section 4-600. Where development or activity associated with the proposed use cannot completely avoid one or more natural hazard, whether because no other site on the subject property can be reasonably designated or developed for the use or because the proposed site is the best location due to the need to avoid or minimize significant adverse impacts under other applicable review criteria, the use may be conditionally approved only if one or more measures will satisfactorily mitigate all significant natural hazard risk posed by the proposed use to the subject property and to the surrounding area. The violation of any condition, safeguard, or commitment of record shall be sufficient grounds for revocation of the Special Review approval by the Board, after a public hearing held in accordance with provisions of 3-205.C.

Applicant Response: Noted.

C. An application for a use by Special Review shall include a development agreement which must be submitted and approved by the Board.

Applicant Response: Noted.

D. Where appropriate, in order to enable the proposed use to meet the standards set forth in (A) above, the Board may require the dedication of a perpetual conservation easement upon so much of the site as may be determined necessary to mitigate impacts of special uses.

Applicant Response: Noted.

Response to Boulder County Land Use Code Article 3 • 3-203 Standards for Submittal Requirements (as determined by applicant to be applicable)

F. Development Report

1. A development report is required for subdivision requests to plat unsubdivided land, PUDs, special review approvals, rezonings, and exemptions. At a minimum the development report shall include the following information, unless specifically waived by the Director.
   a. An address list of all owners and their addresses of real property adjacent to the subject property.

      Applicant Response: This has been attached as Appendix C.

   b. A description of site features such as streams, areas subject to flooding, lakes, high ground water areas, topography, vegetative cover, climatology, and other features that may aid in the evaluation of the proposed development.

      Applicant Response: There are no streams, areas subject to flooding, lakes, or high-water areas on the site. Site vegetation is generally weeds and grasses which can be easily cut during site preparation. There is an irrigation ditch near the solar facility, but the facility conforms to the 50' setback requirement set forth in the code.

   c. A description of soil characteristics of the site which have a significant influence on the proposed use of the land.

      Applicant Response: The site is currently being evaluated by a geotechnical engineer, who is performing onsite sampling at several points throughout the site. Pivot does not expect existing geological conditions to pose an issue for construction of the project.

   d. The long- and short-term effect on Environmental Resources shall be determined through field surveys, and/or expert opinions or other competent information. The applicant shall address any material adverse impacts of the development on any identified Environmental Resources, including plans for the mitigation of these impacts. Wildlife impact reports shall be required in accordance with Article 7-1700.

      Applicant Response: A local environmental consultant completed a Phase 1 ESA. The assessment has revealed no evidence of recognized environmental conditions (REC) in connection with the subject property.

   e. The effect on significant cultural (archaeological and historic) resources shall be assessed and plans for protection of such resources included.

Applicant Response: A local environmental consultant completed a Phase 1 ESA, SHPO search, and T&E report. The assessment has revealed no evidence of recognized environmental conditions (REC) or cultural resources in connection with the subject property. Additionally, a referral to Boulder County Historic Preservation determined that the subject site "lacks significance."

f. An evaluation of any potential radiation hazard that may have been identified by the State or County Public Health Departments.

Applicant Response: N/A

g. An evaluation of the expected demands and effects of the development on the ability of local governments and quasi-governmental agencies to provide water, sanitation, natural gas, electricity, access, fire protection, schools, hospitals, police, flood protection, solid waste disposal, and other services to this development while maintaining adequate levels of service to other areas.

Applicant Response: proposed project does not expect any demands of the listed items.

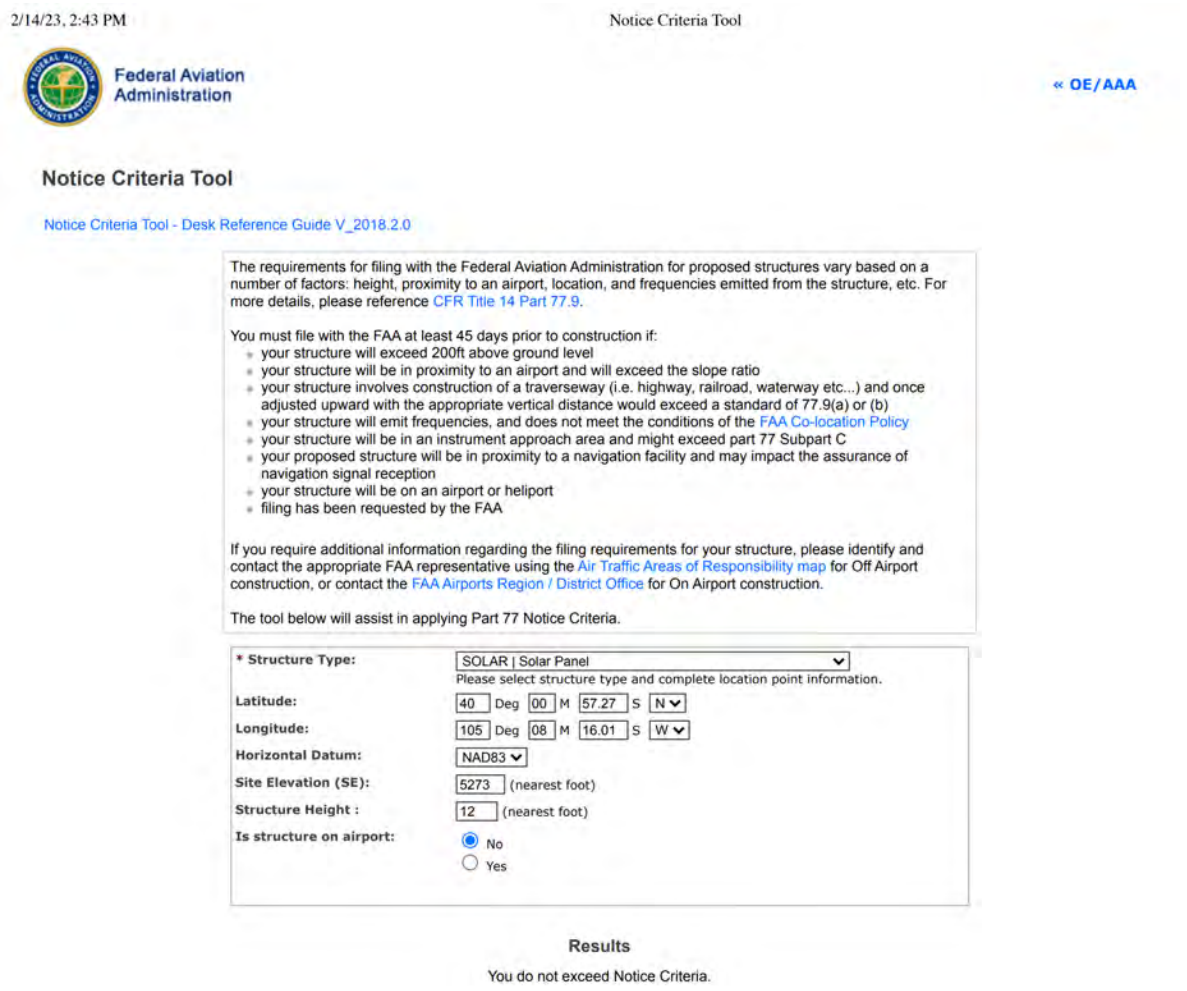
h. Provision of financial guarantees for public or communal improvements.

Applicant Response: N/A

I. Solar Energy System Development Report

Applicant Response: The Solar Energy System Development Report is included with the application as item #20.

Appendix A – Determination of No Hazard to Air Navigation



2/14/23, 2:43 PM Notice Criteria Tool

Federal Aviation Administration

« OE/AAA

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

* Structure Type:	SOLAR | Solar Panel Please select structure type and complete location point information.
Latitude:	40 Deg 00 M 57.27 S N
Longitude:	105 Deg 08 M 16.01 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	5273 (nearest foot)
Structure Height :	12 (nearest foot)
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.

Appendix B-1 – References from 2023 Boulder County Sustainability Plan

Mission Statement: "To advance policies and programs that conserve resources, protect the environment, and safeguard our climate in order to build a sustainable, just, and resilient community."

Applicant Response: The proposed project represents an opportunity to put into action the mission to safeguard our climate and build a sustainable community. All emission-free energy produced by this facility will be used locally and will offset energy generated by fossil fuel resources in the County.

Climate Goal: "Achieve rapid and deep emission reductions and increase resilience to the impacts of climate change."

"Boulder County is now committed to reducing countywide emissions 80% over 2021 levels by 2030 and achieving carbon neutrality by 2035. . . . Reaching this target will require an 'all hands on deck' approach, with every community member, business, and political leader contributing to this work."

Applicant Response: As noted in the climate section of the sustainability plan, reaching an ambitious target of 80% emissions in a 9-year period requires an all-hands on deck approach. The proposed project will serve as a local way of reducing the carbon intensity of electricity generation, which comprise the largest portion (37%) of Boulder County's total emissions.

Energy Goal: "Reduce energy consumption, promote energy efficiency, increase the use of clean energy, and transition away from fossil fuels."

"Meet all of Boulder County's electrical needs with 100% renewable energy by 2025."

"Support additional community solar garden capacity to increase the availability of renewable electricity to the residents and businesses of Boulder County"

Applicant Response: The proposed project lines up well with many of the strategies listed in the Energy section of the sustainability plan. It represents a further step toward the goal of powering Boulder County with 100% renewable energy and operates similarly to a community solar garden – just with one large energy user as opposed to many small users.

Appendix B-2 – References from Boulder County Comprehensive Plan

E.6 Adequate facilities and services to assure the health, safety and welfare of all citizens should be promoted. Applicant Response: Energy is an essential need for all people. Creating energy from clean, renewable resources reduces pollution and benefits all people by creating healthier living conditions. Healthier living conditions increase the welfare of all Boulder County citizens, as well as those across Colorado.

B.2 Air, water and noise pollution and overall environmental degradation should be reduced as much as possible or eliminated in order to prevent potential harm to life, health and property. Applicant Response: The proposed solar project reduces all the noted hazards by offsetting electricity generated from fossil fuel sources.

B.4 Boulder County recognizes that climate change is having significant impacts on our environmental resources. As the body of climate science knowledge grows and potential effects are better understood, Boulder County shall incorporate the best scientific information into planning and decision-making to adapt to and offset those impacts. Applicant Response: As noted above, access to energy is essential to all people. The proposed project creates clean energy locally and offsets fossil-fuel energy that would otherwise have to be imported to the area.

B.5 Boulder County shall continue to protect air, water and soil resources and quality, as well as restore resources in a degraded condition to enhance overall environmental health. Pollution of air, water, and soil, and pollution caused by noise or light, shall be eliminated, or minimized to the greatest extent possible in order to prevent potential harm to life, health and property, and to reduce incremental degradation of the environment. Applicant Response: The proposed project protects air, water, and soil resources by creating clean, renewable energy. Further, the project will improve the land's overall soil quality and agricultural integrity over time as discussed in the Solar Energy System Development Report. The equipment no audible noise outside of the fence line during daylight operations and has no external lighting.

ER 2.01 Boulder County shall seek to protect overall public and environmental health by enforcing regulations concerning air, soil, water, noise, and light pollution at the local level in accordance with applicable law. Applicant Response: See response to B.5 above.

ER 2.02 Boulder County shall evaluate land use proposals and other planned activities considering their cumulative impacts on public and environmental health. Sufficient mitigation and minimization of any impacts shall be required for the proposal or activity to be approved. These proposals and activities shall at a minimum comply with air, soil, and water quality standards, as well as noise level and lighting standards, established by county and state agencies or the Boulder County Land Use Code. Applicant Response: See response to B.5 above.

NH 1.03.01 Development activities should be designed to minimize alteration of the natural landform to the greatest extent possible, thus reducing slope instability and drainage problems. Applicant Response: We do not anticipate any grading will be necessary during the construction phase of the project. Please see the drainage letter and Solar Energy System Development report for additional information.

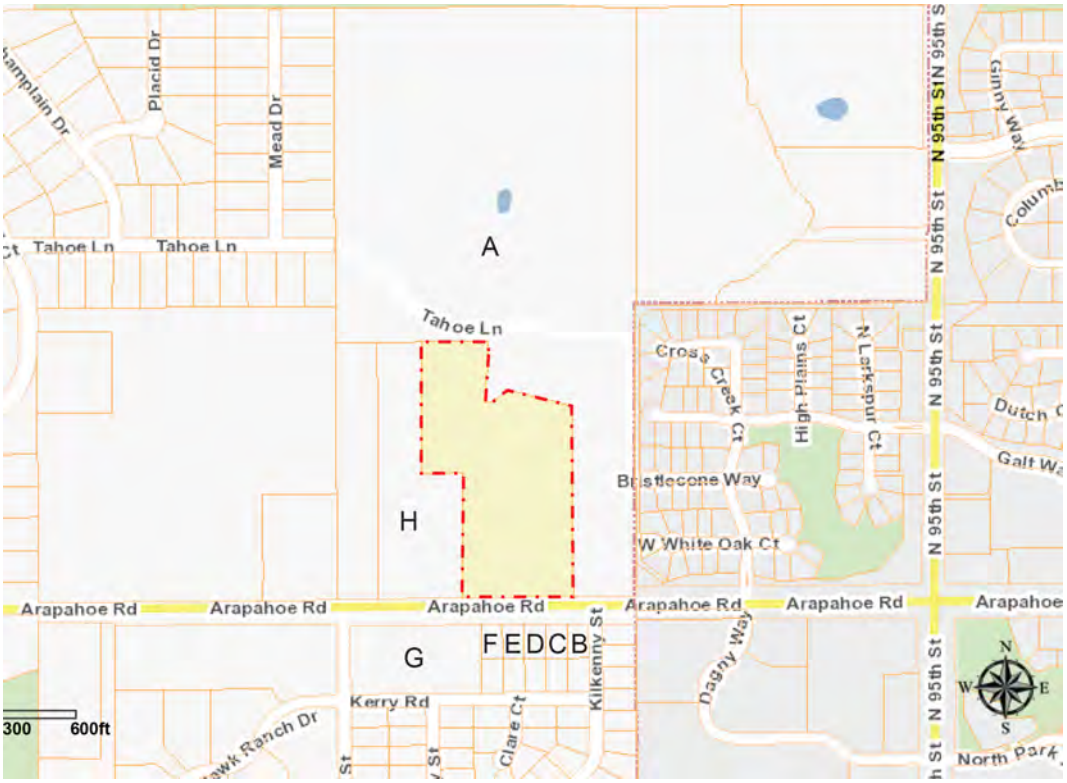
NH 1.05 Upon county review of a new development proposal, all impacts and concerns should be considered, but safety and environmental concerns should take precedence over aesthetic concerns. Applicant Response: The project will change the appearance of the site from adjacent property owners but will not impact the skyline, as it is lower to the ground than even a single-story building would be in the same place. Pivot Energy will ensure proper screening mitigation practices are taken so that the array will blend in as seamlessly as possible to the natural surroundings.

NH 3.01 Erosion from development and other land use activities should be minimized and disturbed or exposed areas should be promptly restored to a stable, natural, and/or vegetated condition using native plants and natural materials. Applicant Response: Construction of solar facilities is simple and low impact, requiring minimal disturbance of soils onsite. Additionally, grading is not expected to be necessary to construct the proposed project. Pivot Energy pre- and post- seeds all projects to maintain site stability during construction. Please see the Solar Energy System Development Report and Drainage Letter for more information.

NH 3.02 Drainage from development or any alterations to historic drainage patterns shall not increase erosion either on site or on adjacent properties. Applicant Response: The project will incorporate BMPs to ensure no erosion leaves the site. The site will retain its overall drainage patterns with no impacts to off site or adjacent properties. Please see Drainage Letter and Solar Energy System Development Report for more information.

Appendix C – Address list of all owners and their addresses of real property adjacent to the subject property

Property Owner	Map Reference	Mailing Address	City	State	Zip
SACKS JOSHUA & SUZANNE BRUCH	A	9191 TAHOE LN	Boulder	CO	80301
CORBADZIC MEHMED & FATIMA	B	9292 Arapahoe Rd	Boulder	CO	80303
IBARRA JOSE MANUEL & ANGEL	C	9278 Arapahoe Rd	Boulder	CO	80303
BECKWITH LEE M	D	9260 Arapahoe Rd	Boulder	CO	80303
TOBIN MERRILEE LAURA	E	9234 Arapahoe Rd	Boulder	CO	80303
DAVIDSON LINDA R	F	1999 Hardscrabble Pl	Boulder	CO	80305
TIN KAO CHIEN & SHAN SHAN CHU	G	361 Amethyst Way	Superior	CO	80027
KESSLER FRED & ISABELLE	H	11500 Otis St	Westminster	CO	80020



ENERTIA
CONSULTING GROUP LLC

1515 Market Street
Denver, CO 80202
(609) 234-5502
rick.hagmayer@enertiacg.com

March 28, 2024

Boulder County Planning and Permitting Department
2045 13th St
Boulder, CO 80302

RE: Traffic Impact Letter
Use by Special Review – Dewire Parcel
NW of Arapahoe Rd & N 95th St

To whom it may concern:

I. Introduction

In fulfillment of the Boulder County Use by Special Review (USR) permitting requirements, Enertia Consulting Group (Enertia) has completed this Traffic Impact Letter for the proposed Pivot Energy Solar Facility on the Dewire Parcel located on approximately:

4.148 acres north of Arapahoe Rd, between Wicklow St & Kilkenny St.

The intent of this Report is to provide traffic related information and identify potential project impacts to affected roadways within Boulder County.

The following information is included in this letter report:

- Project Location, Components and Construction Schedule
- Designated Travel Route
- Daily Vehicle Trip Generation
- Conclusions

II. Existing Conditions

Location
The project is located on an approximately 4.148 acre project site within a larger 13.08 acre parcel along the north side of Arapahoe Rd on Boulder County Parcel No. 146529000018 in S29, T1N, R66W of 6th P.M. .

III. Proposed Condition

Components
The Pivot Energy Solar Facility on the Dewire Parcel project shall generally include: up to a 1 MW solar facility with approximately 2,000 tracking solar panels mounted on steel I-beams; concrete pad mounted inverters and transformers; an access drive with emergency turn-around and perimeter fence with gate.

Construction Schedule
It's currently anticipated that the Use by Special Review Permit will be issued by Boulder County on or before April 01, 2025. Accordingly, a construction start/mobilization date of April 15, 2025 has been established. Based on this, the following preliminary schedule is currently considered:

- Driveway and material staging area prep — April 15, 2025 – May 05, 2025
- Solar Facility Component Delivery — May 06, 2025 – June 05, 2025
- Perimeter Fence Installation — May 06, 2025 – June 05, 2025
- Solar Panel Foundation Installation — June 05, 2025 – August 04, 2025
- Transformer and Inverter Installation — August 05, 2025 – August 19, 2025
- Solar Panel Installation — August 22, 2025 – October 06, 2025

Designated Travel Route

The designated access route is: I-36 north to 96th St via Northwest Pkwy. 96th St & 95th St north to Arapahoe Rd. Arapahoe Rd west to the site.Figure 1 illustrates the access route. The following is a

I-36 – I-36, in the vicinity of Northwest Pkwy, is a 6-lane concrete-paved road with left turn lanes and acceleration/deceleration lanes; and a posted speed limit of 65mph. It's anticipated that 100 percent of material deliveries will be from the south.

96th St – The +/- 4.7 mile segment of 96th St & 95th St included in the travel route is a 2-lane, asphalt-paved road with intermittent bar ditches. The road surface appears to be in good condition.

Arapahoe Rd – The +/- 0.3 mile segment of Arapahoe Rd included in the travel route is a 2-lane, asphalt-paved road with intermittent bar ditches. The road surface appears to be in good condition. It's anticipated that all material deliveries will travel along Arapahoe Rd from 95th St & 96th St via I-36.

Daily Vehicle Trip Generation and Distribution

Project development may be divided into the following 4 phases (site preparation, material and equipment delivery, solar facility construction and solar facility maintenance). The following Table 1 illustrates the estimated average daily trip generation by vehicle type for each Project phase.

Table 1 – Vehicle Trip Generation

Project Phase (Time Period)	Vehicle Type	Estimated Gross Vehicle Weight	Number of Vehicles Per Day	Maximum and Average Vehicle Trips Per Day
Site Preparation (approx. 1-3 weeks)	Equipment Hauling Trucks	30,000-65,000 lbs	0-2	4-0
	Passenger Vehicles	2,000-10,000 lbs	2-5	10-4
	Fuel Delivery	20,000-30,000 lbs	1	2
				Max – 16/Ave - 9
Material and Equipment Delivery (approx. 4-5 weeks)	Conex Container and Delivery Trucks	30,000-50,000 lbs	5-15	15-5
	Equipment Hauling Trucks	20,000-40,000 lbs	0-8	8-0
				Max – 23/Ave - 5
Solar facility Installation (6-7 months)	Passenger Vehicles	2,000 to 10,000 lbs	5-10	10-2
	Fuel Truck	20,000 to 30,000 lbs	1	2
	Material Delivery Truck	20,000 to 30,000 lbs	1	2
				Max – 12/Ave - 6
Operations (ongoing once operational)	Utility Vehicle	2,000 to 10,000 lbs	1 per month or less	
				Max - 2/Ave - 0

As illustrated in Table 1, the majority of traffic generated as a result of solar facility installation shall occur during the 9-month solar facility installation (max 23/ave 5vtpd). This traffic will generally be site worker passenger vehicles.

The majority of heavy truck traffic including conex container delivery (total of 40-80) conex containers/delivery trucks) and equipment (rubber tire loader, pile driver, forklift) delivery and pickup will travel to and from the Project between 9:30 AM and noon and 1:30PM and 4:00PM.

Project related traffic during all phases will not be significant during AM and PM peak periods (7:30 – 9:00 AM and 4:30 – 6:00 PM, respectively).

IV. Conclusions

1. The Project is expected to generate up to 23 vehicle trips per day during material and equipment delivery (anticipated to be up to one month at the beginning of the project and one month at the end of the project), up to 10 vehicle trips per day during solar facility installation (6-7 months) and up to 2 vehicle trips per month during solar facility operation.

2. Site preparation and solar facility installation anticipated to begin in April 2025 and be completed in October 2025.

3. The phase with the greatest amount of traffic (23vtpd material and equipment delivery) is expected to occur over a 4-5 week period (May 2025 – June 2025).

4. Daily Project related truck traffic is not expected to impact AM and PM peak traffic periods.

5. Sight distance at the Project entrance is well over 1,000 feet both east and west along Arapahoe Rd.

6. Access to the project site is through an existing driveway. Therefore, a Boulder County access permit will not be required.

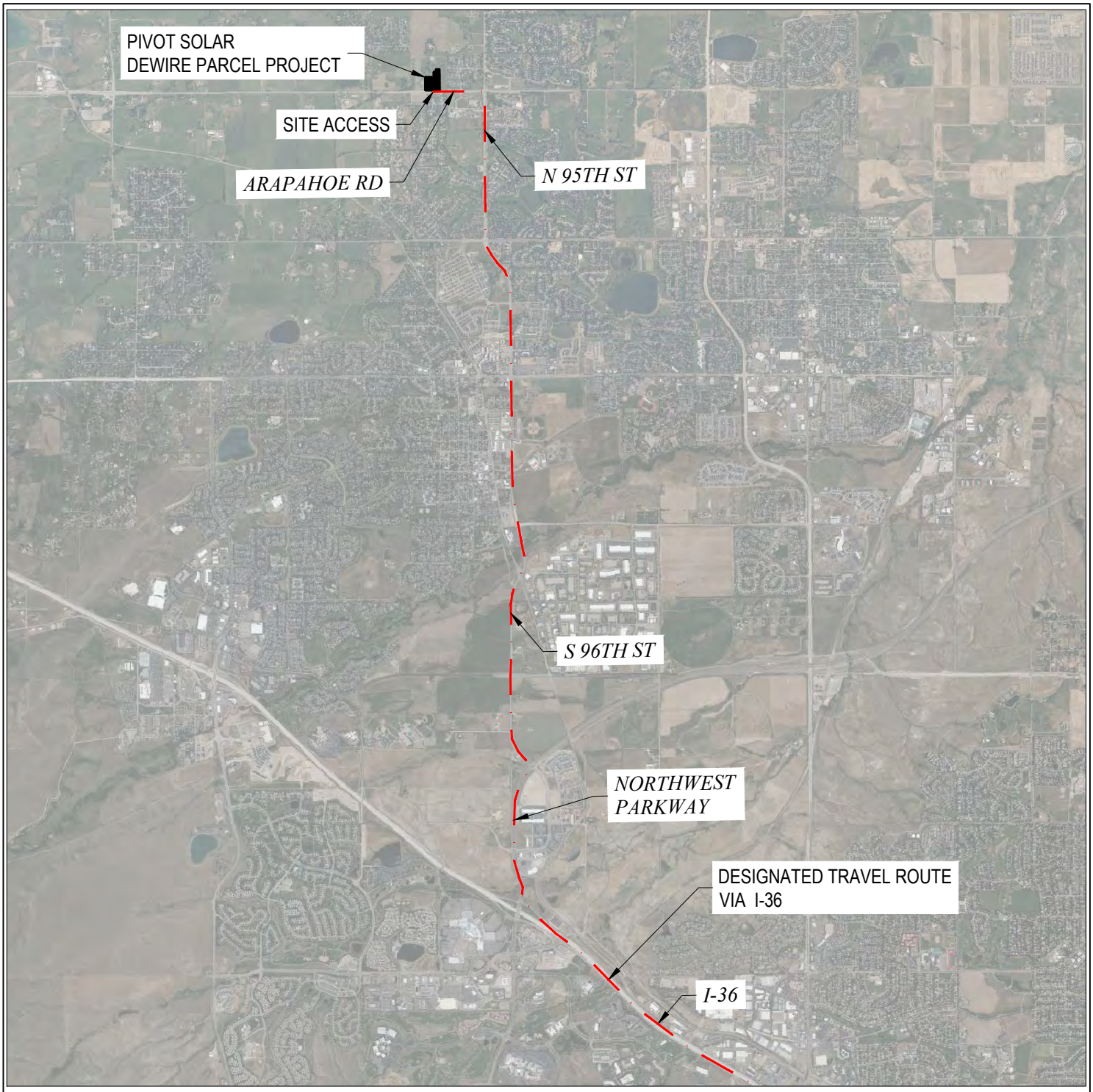
7. As proposed, the solar garden site preparation, installation and ongoing inspection/maintenance is not anticipated to create adverse traffic related impacts on Boulder County roads. Based on anticipated vehicle type and weight, the project is not anticipated to degrade/damage Boulder County roads and a Public Works Improvement Agreement is not likely warranted.

We trust that this Traffic Impact Letter for the Pivot Energy Solar Facility on the Dewire Parcel is acceptable and complete. Please contact me at rick.hagmayer@enertiacg.com or (609) 234-5502 should you require additional information.

Sincerely,
ENERTIA CONSULTING GROUP, LLC

Rick Hagmayer, PE
Senior Project Manager

attachment



ENERTIA
CONSULTING GROUP LLC
1515 MARKET STREET
SUITE 100
DENVER, CO 80202
(609) 234-5502

FIGURE 1 - PROXIMITY MAP & DESIGNATED TRAVEL ROUTE
PIVOT ENERGY SOLAR FARM ON DEWIRE PARCEL
BOULDER COUNTY, COLORADO

DATE:	10/25/2023
SCALE:	1" = 5,000'
BY:	TN

Grading Calculation

Cut and fill calculations are necessary to evaluate the disturbance of a project and to verify whether or not a Limited Impact Special Review is required. Limited Impact Special Review is required when grading for a project involves more than 500 cubic yards (minus normal cut/fill and backfill contained within the foundation footprint).

If grading totals are close to the 500 yard trigger, additional information may be required, such as a grading plan stamped by a Colorado Registered Professional Engineer.

Earth Work and Grading

This worksheet is to help you accurately determine the amount of grading for the property in accordance with the Boulder County Land Use Code. Please fill in all applicable boxes.

Note: Applicant(s) must fill in the shaded boxes even though foundation work does not contribute toward the 500 cubic yard trigger requiring Limited Impact Special Use Review. Also, all areas of earthwork must be represented on the site plan.

Note: Earthwork associated with installing the post/base and trenching for the solar panels will be considered foundational earthwork. Anything outside of that please put under non-foundational

Earth Work and Grading Worksheet: CUT + FILL = TOTAL

	Cut	Fill	Subtotal
Driveway and Parking Areas		224	224
Berm(s)			
Other Grading electrical pads	9		9
Subtotal			233 Box 1

* If the total in Box 1 is greater than 500 cubic yards, then a Limited Impact Special Review is required.

	Cut	Fill	Total
Foundation			
Material cut from foundation excavation to be removed from the property			

Excess Material will be Transported to the Following Location:

Excess Materials Transport Location:	n/a

Narrative

Use this space to describe any special circumstances that you feel the Land Use Office should be aware of when reviewing your application, including discussion regarding any factors (listed in Article 4-806.2.b.i) used to demonstrate that the presumptive size limitation does not adequately address the size compatibility of the proposed development with the defined neighborhood. If more room is needed, feel free to attach a separate sheet.

The solar panels will be supported with H-Piles. A pile is essentially a nail that is hammered into the ground. Unlike other foundations, piles do not create excess soil. They utilize the outward compaction of the soil to increase friction in the soil. There will be drive aisles, concrete pads, landscaping, and a several hundred feet of medium voltage conduit on site. The site will general 9 yards of cut at the concrete pad locations. The drive aisles will be installed on top of existing ground, and therefore does not require excavation.

Is Your Property Gated and Locked?

Note: If county personnel cannot access the property, then it could cause delays in reviewing your application.

Certification

I certify that the information submitted is complete and correct. I agree to clearly identify the property (if not already addressed) and stake the location of the improvements on the site within four days of submitting this application. I understand that the intent of the Site Plan Review process is to address the impacts of location and type of structures, and that modifications may be required. Site work will not be done prior to issuance of a Grading or Building Permit.

Signature	Print Name	Date
R. Hagmayer	Rick Hagmayer, PE	4/1/24

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL
SPECIAL USE PERMIT PLAN

CASE NUMBER: _____

LOCATED IN SECTION 29, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO

LEGAL DESCRIPTION:

"PARCEL 1"

A PART OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
BEGINNING AT THE SOUTHEAST CORNER OF THAT PARCEL DESCRIBED IN DEED RECORDED NOVEMBER 26, 1971 ON FILM 753, UNDER RECEPTION NO. 998535, BOULDER COUNTY RECORDS, A POINT ON THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE SOUTH 1/4 CORNER OF SAID SECTION 29 BEARS SOUTH 89°47'40" WEST 824.38 FEET; THENCE ALONG THE EXTERIOR BOUNDARY OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535 AS FOLLOWS:
NORTH 00°02'32" EAST, 819.00 FEET PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, SOUTH 89°47'40" WEST 265.93 FEET, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 AND NORTH 00°02'52" EAST, 351.00 FEET, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29 TO THE NORTHEAST CORNER ON THE NORTH LINE OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535;
THENCE NORTH 89°47'40" EAST, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 112.63 FEET; THENCE SOUTH 01°05'07" EAST 62.24 FEET; THENCE SOUTH 04°22'33" EAST, 33.07 FEET; THENCE NORTH 52°25'07" EAST, 90.47 FEET; THENCE SOUTH 75°59'10" EAST, 293.55 FEET; THENCE SOUTH 00°02'52" WEST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 879.45 FEET TO A POINT ON THE SOUTH LINE OF THE SAID SOUTWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE POINT OF BEGINNING BEARS SOUTH 89°47'40" WEST, 223.52 FEET;
THENCE SOUTH 89°47'40" WEST ALONG THE SOUTH LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 223.52 FEET TO THE OF BEGINNING.

AND

"PARCEL 2"

A PART OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
BEGINNING AT THE SOUTHWEST CORNER OF THAT PARCEL DESCRIBED IN DEED RECORDED ON NOVEMBER 26, 1971 ON FILM 753, UNDER RECEPTION NO. 998535, BOULDER COUNTY RECORDS, A POINT ON THE SOUTH LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE SOUTH 1/4 CORNER OF SAID SECTION 29 BEARS SOUTH 89°47'40"W, 558.45 FEET; THENCE ALONG THE EXTERIOR BOUNDARY OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535 AS FOLLOWS:
NORTH 00°02'52" EAST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 585.00 FEET;
SOUTH 89°47'40" WEST, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 186.15 FEET; NORTH 00°02'52" EAST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 585.00 FEET TO THE NORTHWEST CORNER OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535; AND NORTH 89°47'40" EAST, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 186.15 FEET TO THE NORTHEAST CORNER ON THE NORTH LINE OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535;
THENCE CONTINUING NORTH 89°47'40" EAST, 112.63 FEET;
THENCE SOUTH 01°05'07" EAST, 62.24 FEET;
THENCE SOUTH 04°22'33" WEST , 211.37 FEET;
THENCE NORTH 89°41'37" EAST, 33.07 FEET;
THENCE NORTH 52°25'07" EAST, 90.47 FEET;
THENCE SOUTH 75°59'10" EAST, 295.55 FEET;
THENCE SOUTH 00°02'52" WEST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 879.45 FEET TO A POINT ON THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE THE POINT OF BEGINNING BEARS SOUTH 89°47'40" WEST, 489.45 FEET; THENCE SOUTH 89°47'40" WEST, ALONG THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 489.45 FEET TO THE POINT OF BEGINNING.

SITE DATA

PARCEL AREA: ±13.08 ACRES

PROJECT AREA: ± 4.148 ACRES

INDUSTRY STANDARD PV MODULES

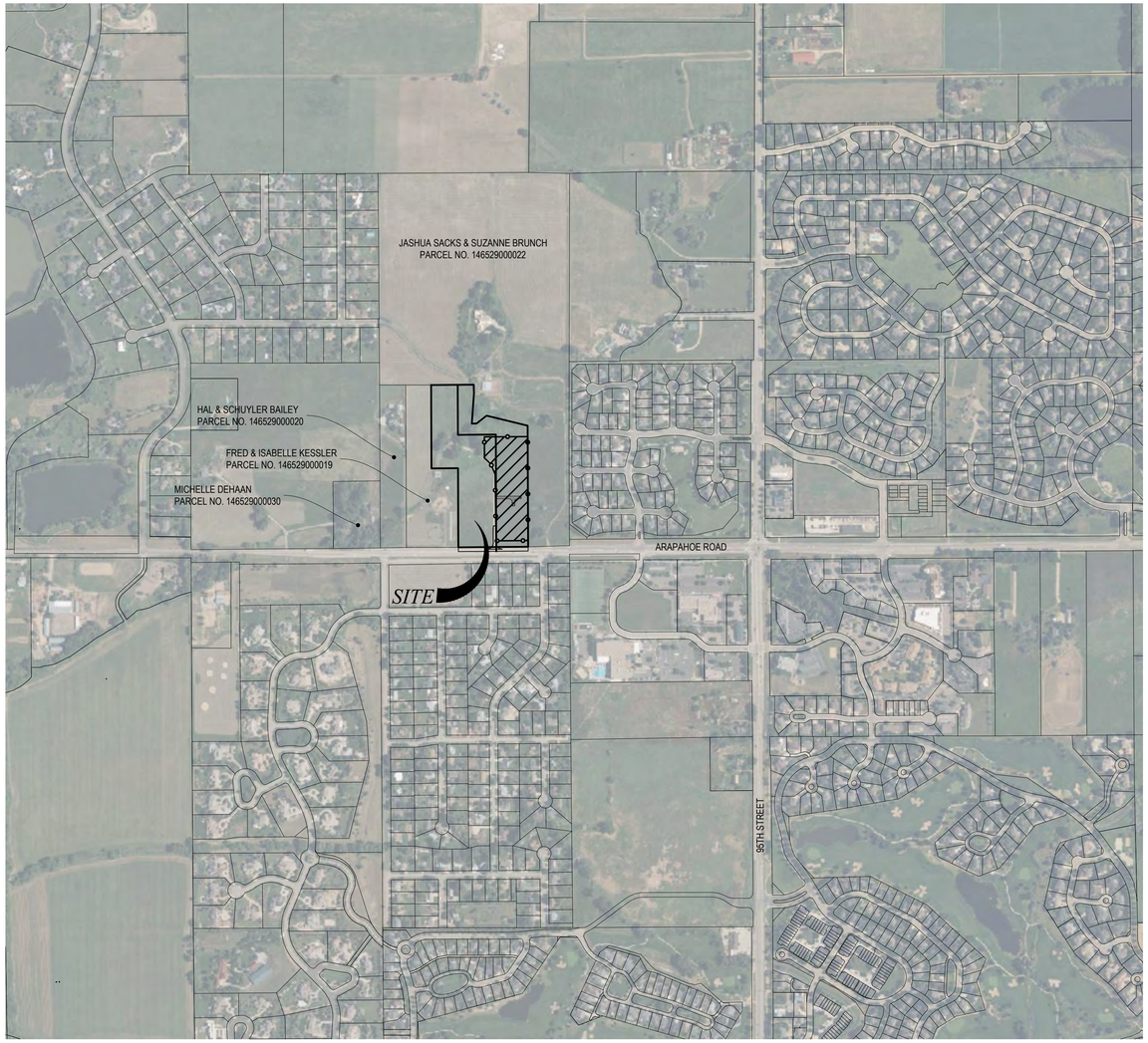
INDUSTRY STANDARD CENTRAL INVERTERS

INDUSTRY STANDARD SINGLE-AXIS TRACKING SYSTEM

SOIL TYPES:

- ASCALON SANDY LOAM, 0 TO 3% SLOPES (79.7%)
- NUNN SANDY CLAY LOAM, 0 TO 3% SLOPES (20.3%)

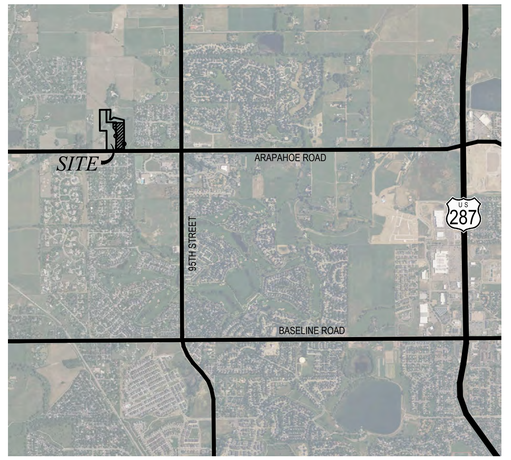
(FROM USDA NATURAL RESOURCES CONSERVATION SERVICE)



VICINITY MAP

0' 250 500 1000

SCALE: 1"=500'



REGIONAL AREA MAP

SCALE: 1" = 2000'

SHEET INDEX	
SHEET #	DESCRIPTION
1	COVER SHEET
2	EXISTING CONDITIONS
3	SITE PLAN
4	GRADING AND EROSION CONTROL PLAN
5	DETAILS (1 OF 3)
6	DETAILS (2 OF 3)
7	DETAILS (3 OF 3)

APPLICANT
PIVOT SOLAR 48 LLC
PIVOT ENERGY INC
1601 WEWATTA ST, SUITE 700
DENVER, CO 80202
CONTACT: KYLE SUNDMAN
(888) 734-3033

ENGINEER
ENERTIA CONSULTING GROUP, LLC
1515 MARKET STREET
DENVER, COLORADO 80202
CONTACT: RICK HAGMAYER, PE
(609) 234-5502

LAND OWNER
DEWIRE FAMILY TRUST
9215 ARAPAHOE RD
BOULDER, COLORADO 80303

CASE NUMBER: _____

FOR BURIED UTILITY INFORMATION
THREE (3) BUSINESS DAYS BEFORE YOU DIG
CALL 811
(OR 1-800-922-1987)
UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)
WWW.UNCC.ORG

NO.	DATE	REVISION			
DSGN	PIVOT	DR	TN	CHK	RH	APVD	RH

ENERTIA CONSULTING GROUP LLC
1515 MARKET STREET, SUITE 100
DENVER, COLORADO 80202

Pivot Energy
1601 WEWATTA ST, #700
DENVER, CO 80202

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL PS48
SPECIAL USE PERMIT PLAN
BOULDER COUNTY, COLORADO

COVER SHEET

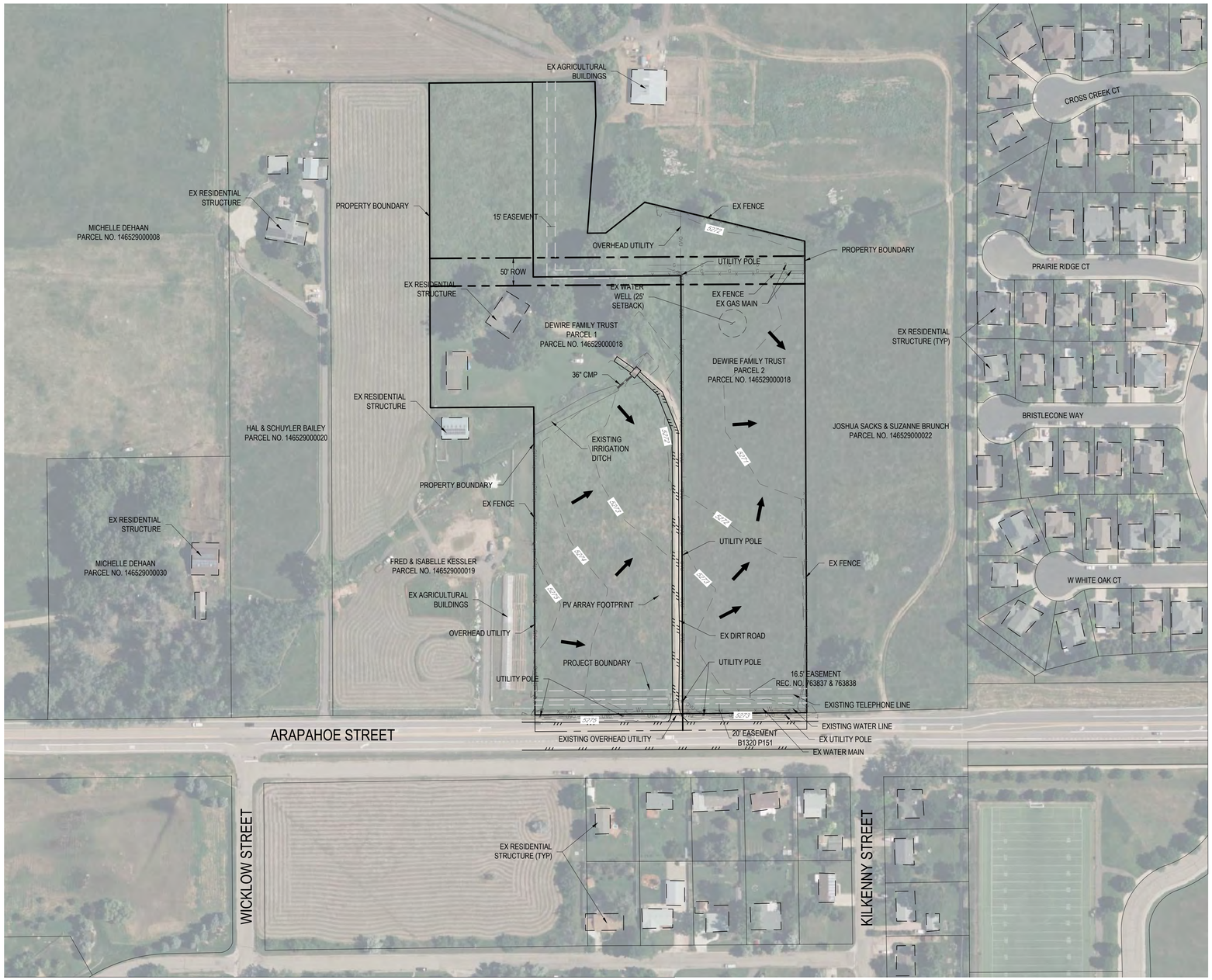
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 SCALE

DATE	MAR 28, 2024
FILE	
DWG	
SHEET	1 OF 7

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL
SPECIAL USE PERMIT PLAN

CASE NUMBER: _____

LOCATED IN SECTION 29, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO



LEGEND

- PROPERTY BOUNDARY (±13.08 ACRES)
- PARCEL BOUNDARIES
- RIGHT-OF-WAY
- SECTION LINE
- EASEMENT
- EXISTING FENCE
- EXISTING TELEPHONE
- EXISTING WATER LINE
- EXISTING OVERHEAD UTILITY W/ POLES
- EXISTING GAS LINE
- EXISTING 36" CMP
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EDGE OF ASPHALT/ROAD
- PROJECT AREA (±6.73 ACRES)
- PV ARRAY FOOTPRINT
- EXISTING WATER WELL (25' SETBACK)
- FLOW ARROW

NOTES

1. A LAYOUT OF THE SOLAR FACILITY IS NOT YET CONCEPTUALIZED. FINAL LOCATIONS FOR EQUIPMENT AND ALL OTHER FACILITY COMPONENTS MAY BE ANYWHERE WITHIN THE SOLAR SITING ENVELOPE SHOWN ON THESE PLANS.
2. TREES WERE NOT OBSERVED WITHIN THE MAJORITY OF PROPOSED SOLAR ARRAY AREAS. IF NECESSARY, TREES AND SHRUBS ARE TO BE REMOVED TO ALLOW FOR THE INSTALLATION OF THE ARRAYS AND TO ELIMINATE SHADING.
3. ENERTIA CONSULTING GROUP, LLC ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UTILITIES SHOWN ON THIS DRAWING HAVE BEEN LOCATED VIA FIELD SURVEY. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO MOBILIZATION.
4. AN 8 FT. GAME FENCE WILL BE INSTALLED TO SURROUND THE SOLAR ARRAYS. GATES WILL BE PROVIDED FOR ACCESS.
5. THE PROPERTY OWNER OR OPERATOR SHALL BE RESPONSIBLE FOR CONTROLLING NOXIOUS WEEDS ON THE SITE
6. THE ACCESS TO THE SITE SHALL BE MAINTAINED TO MITIGATE ANY IMPACTS TO THE PUBLIC ROAD, INCLUDING DAMAGES AND/OR OFF-SITE TRACKING.
7. THE HISTORICAL FLOW PATTERS AND RUNOFF AMOUNTS ON THE SITE WILL BE MAINTAINED.
8. ACCESS TO THE SITE IS PROVIDED FROM ARAPAHOE ROAD RIGHT-OF-WAY.

N

0' 50' 100' 200'
SCALE: 1"=100'

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Pivot Energy
1601 WEWATTA ST. #700
DENVER, CO 80202

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL PS48
SPECIAL USE PERMIT PLAN
BOULDER COUNTY, COLORADO

EXISTING CONDITIONS

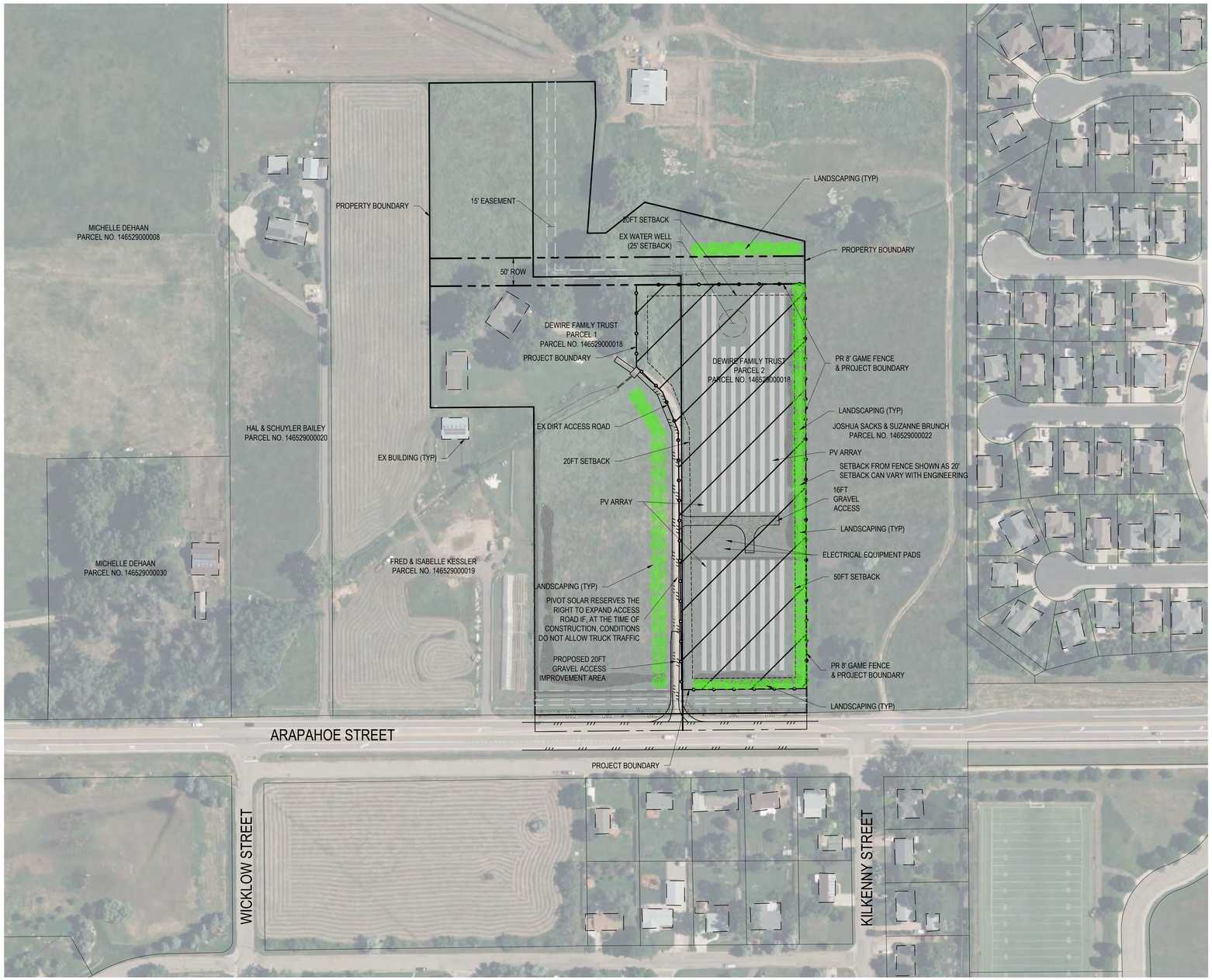
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 SCALE

DATE	MAR 28, 2024
FILE	
DWG	
SHEET	2 OF 7

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL
SPECIAL USE PERMIT PLAN

CASE NUMBER: _____

LOCATED IN SECTION 29, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO



LEGEND

- PROPERTY BOUNDARY (±13.08 ACRES)
- PARCEL BOUNDARIES
- RIGHT-OF-WAY
- SECTION LINE
- EASEMENT
- EXISTING FENCE
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- EXISTING WATER LINE
- EXISTING OVERHEAD UTILITY W/ POLES
- EXISTING GAS LINE
- EXISTING 36" CMP
- PV ARRAY
- EDGE OF ASPHALT/ROAD
- GRAVEL FIRE LANE & ACCESS ROAD
- 8' GAME FENCE (±4.15 ACRES)
- PV ARRAY OFFSET
- ELECTRICAL EQUIPMENT PADS
- EXISTING WATER WELL (25' SETBACK)

NOTES

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		PIVOT			REVISION			

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DENVER, COLORADO 80202

Pivot Energy
1601 WEWATTA ST, #700
DENVER, CO 80202

PIVOT ENERGY SOLAR FACILITY ON
DEWIRE PARCEL PS48
SPECIAL USE PERMIT PLAN
BOULDER COUNTY, COLORADO

SITE PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 SCALE

DATE	MAR 28, 2024
FILE	
DWG	
SHEET	3 OF 7

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL
SPECIAL USE PERMIT PLAN

CASE NUMBER: _____

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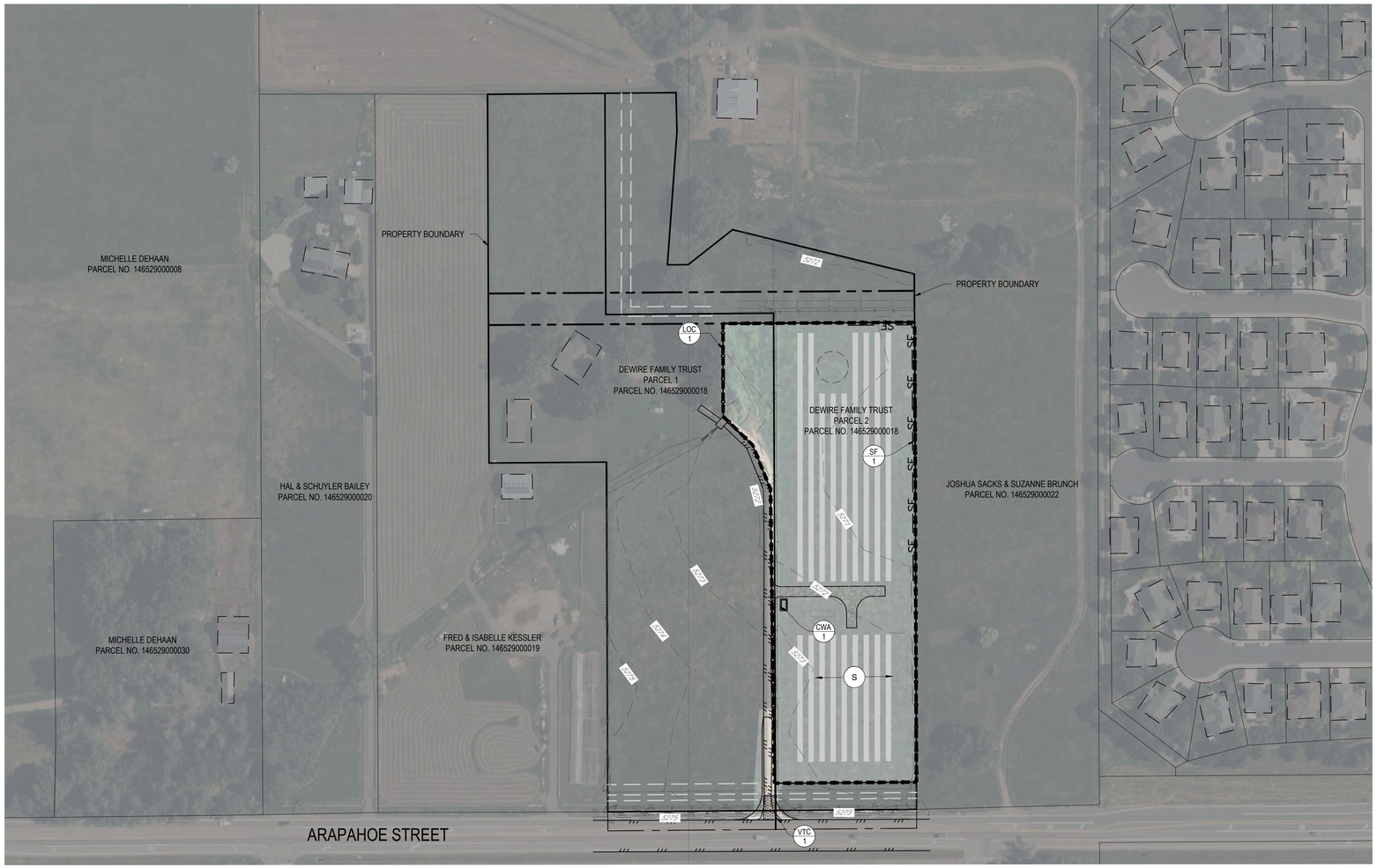

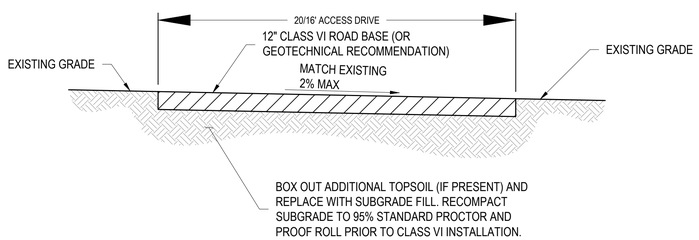

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- EXISTING MAJOR CONTOUR
- PV ARRAY
- EDGE OF ASPHALT/ROAD
- GRAVEL FIRE LANE & ACCESS ROAD
- 8' GAME FENCE (±4.15 ACRES)
- ELECTRICAL EQUIPMENT PADS
- EXISTING WATER WELL (25' SETBACK)
- LOC 1 — LIMITS OF CONSTRUCTION
- SF 1 — SILT FENCE
- VTC 1 — VEHICLE TRACKING CONTROL
- CWA 1 — CONCRETE WASHOUT
- S — SEEDING

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LIMITS OF CONSTRUCTION: ± 4.148-ACRES
TOTAL DISTURBANCE: 0.18-ACRES

SEED MIX (BELOW ELEVATION 5,500FT)

Common Name	Species Name	Variety	% of Mix	#PLS/ Acre
Side Oats Grama	*Bouteloua curtipendula*	Vaughn	15%	2.74
Blue Grama	*Bouteloua gracilis*	Native, Alma, or Hachita	20%	0.84
Buffalograss	*Buchloe dactyloides*	Native	15%	9.33
Western Wheatgrass	*Pascopyrum smithii*	Arriba	12.5%	3.96
Western Wheatgrass	*Pascopyrum smithii*	Native	12.5%	3.96
Little Bluestem	*Schizachyrium scoparium*	Cimarron or Pastura	13%	1.74
Green Needlegrass	*Stipa viridula*	Lodorm or Native	12%	2.31
		Totals:	100%	24.88

N

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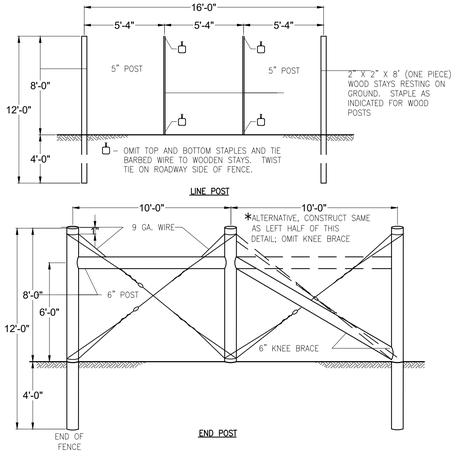
Pivot Energy
1601 WEWATTA ST. #700
DENVER, CO 80202

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL PS48
SPECIAL USE PERMIT PLAN
BOULDER COUNTY, COLORADO

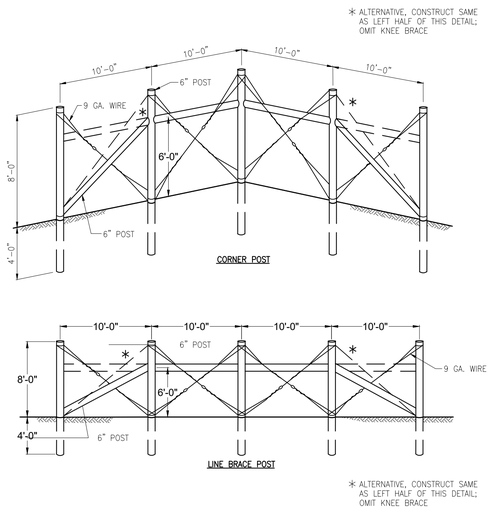
GRADING AND EROSION CONTROL (GEC) PLAN AND INSTALLATION PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 SCALE

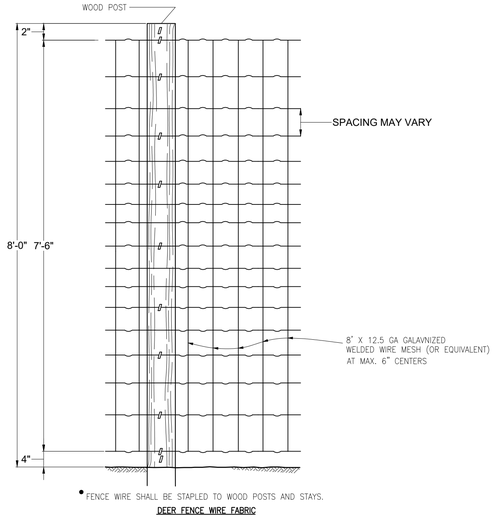
DATE	MAR 28, 2024
FILE	
DWG	
SHEET	4 OF 7



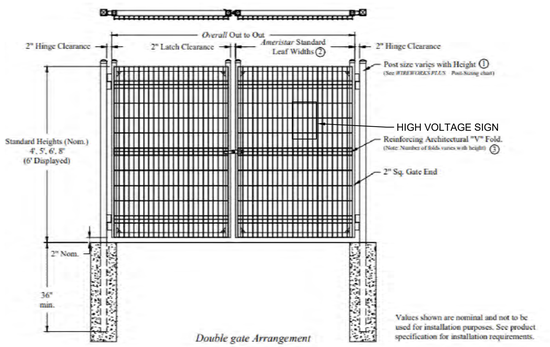
DEER FENCE
LINE & END POST DETAILS



DEER FENCE
CORNER & LINE BRACE POST DETAILS



DEER FENCE
WIRE FABRIC FENCE DETAIL



DEER FENCE
FENCING GATE DETAIL

NOTES:
1. THE CONTRACTOR IS TO INSTALL "HIGH VOLTAGE SIGNS" EVERY 50FT ON THE PERIMETER OF THE SITE.
2. DO NOT SCALE DRAWINGS.
3. AT EACH LOCATION WHERE AN ELECTRIC TRANSMISSION, DISTRIBUTION OR SECONDARY LINE CROSSES FENCE, THE CONTRACTOR SHALL FURNISH AND INSTALL A GROUND CONFORMING TO SECTION 9 OF THE NATIONAL ELECTRIC SAFETY CODE (NBS HANDBOOK 81).
4. END POST, CORNER POST, AND LINE BRACE POST SHALL BE ASSEMBLED BY THE UNIT AND PAID FOR AS SUCH. ALL WORK AND MATERIAL ASSOCIATED WITH EACH ASSEMBLY, SHALL BE INCLUDED IN THE UNIT PRICE FOR THAT ASSEMBLY.
5. LINE BRACE POSTS SHALL BE SPACED AT 400 FT INTERCALS, WHERE FENCING IS CONTINUOUS AND WHERE END, CORNER & LINE BRACE POSTS ARE NOT SPECIFIED.
6. ALL LINE POSTS SHALL BE 5"ø MIN. AND 12' LONG. ALL END, CORNER, AND LINE BRACE POSTS SHALL BE 6"ø MIN. AND 12' LONG. ALL POSTS AND BRACES SHALL BE TREATED PER 710.07.
7. WOODEN STAYS SHALL BE UNTREATED NATIVE TIMBER. BOTTOM ENDS OF STAYS SHALL REST ON THE NATURAL GROUND AND SHALL BE WIRED AND STAPLED AS INDICATED.
8. WOVEN WIRE SHALL BE SINGLE WRAPPED AND TIED OFF. FENCE TO BE CONTINUED, SHALL BE RESTARTED IN LIKE MANNER.
9. FENCE MAY BE PLACED ON EITHER THE ROAD SIDE OR FIELD SIDE OF POSTS, DEPENDING ON LOCAL CONDITIONS; I.E., ON CURVES, THE WIRE SHOULD BE PLACED ON THE SIDE WHICH WOULD RESULT IN THE LEAST AMOUNT OF TENSION ON THE STAPLES. THIS WILL ALSO APPLY WHERE WIND DRIFT OR OTHER CONDITIONS WOULD EXERT UNUSUAL PRESSURE AGAINST THE WIRE.
10. WHERE CONCRETE STRUCTURES ARE USED AS A DEER PASS, THE FENCE SHALL END AT EYEBOLTS IN WINGS OF THE STRUCTURE. EYEBOLTS IN FRESH CONCRETE SHALL BE MADE OF 1/2" ROUND BARS AND EMBEDDED A MIN OF 6" WITH A HOOKED OR BENT END. IN EXISTING CONCRETE, THE 1/2" ROUND BARS SHALL BE DEFORMED AND GROUTED INTO DRILLED HOLES. EYEBOLTS SHALL HAVE A MINIMUM OF 1" INSIDE EYE DIA AND SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. COST OF EYEBOLTS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR FENCING.
11. WOVEN WIRE FENCE FABRIC SHALL CONFORM TO AASHTO M 279 (ASTM A 116) DESIGN NO. 1047-6-11 WITH CLASS 1 COATING.
12. STEEL BARBED WIRE SHALL CONFORM TO AASHTO M 280 (ASTM A 121) 12 1/2 GA. WITH CLASS 1 COATING.
13. ALL FENCE WIRE TIES, BRACE WIRES, STAPLES AND OTHER WIRE APPURTENANCES SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232.
14. 6" DOUBLE ACTING SPRING DOOR HINGE WITH FLAT BUTTON TIPS CUT IN TWO SHALL BE USED AS A SINGLE SWING HINGE AND BE PROVIDED WITH A GREASING NIPPLE AND WELDED TO SUPPORT PLATE.
15. TINES SHALL BE MOLDED IN ONE PIECE OF STEEL (AASHTO M 169, GRADE 1050), WITH NO WELDS ALLOWED.
16. DEER GATE AND TOP BRACES SHALL BE PAINTED WITH GREEN PAINT CONFORMING TO 708.03 AND COLOR NO. 14109 OF FEDERAL STANDARD 595B.
17. GAP CLOSURE: EXCEPT FOR DEER GATES, CONSTRUCT FENCE WITHOUT OPENINGS OR GAPS, ESPECIALLY AT STRUCTURES, CLIFFS, AND IRREGULAR GROUND. WHEN A 6" OR LARGER GAP EXISTS BELOW THE NORMAL BOTTOM FENCE WIRE, THE GAP SHALL BE CLOSED ACCORDING TO THE CLOSURE DETAIL. ALL EXTRA MATERIAL USED FOR GAP CLOSURES OR ANY TYPE OR LOCATION SHALL BE INCLUDED IN THE WORK.

DEER FENCE
NOTES

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	PIVOT	TN		REVISION RH	RH

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PIVOT ENERGY SOLAR FACILITY ON
DEWIRE PARCEL PS48
SPECIAL USE PERMIT PLAN
BOULDER COUNTY, COLORADO

SITE DETAILS (1 OF 3)

VERIFY SCALE
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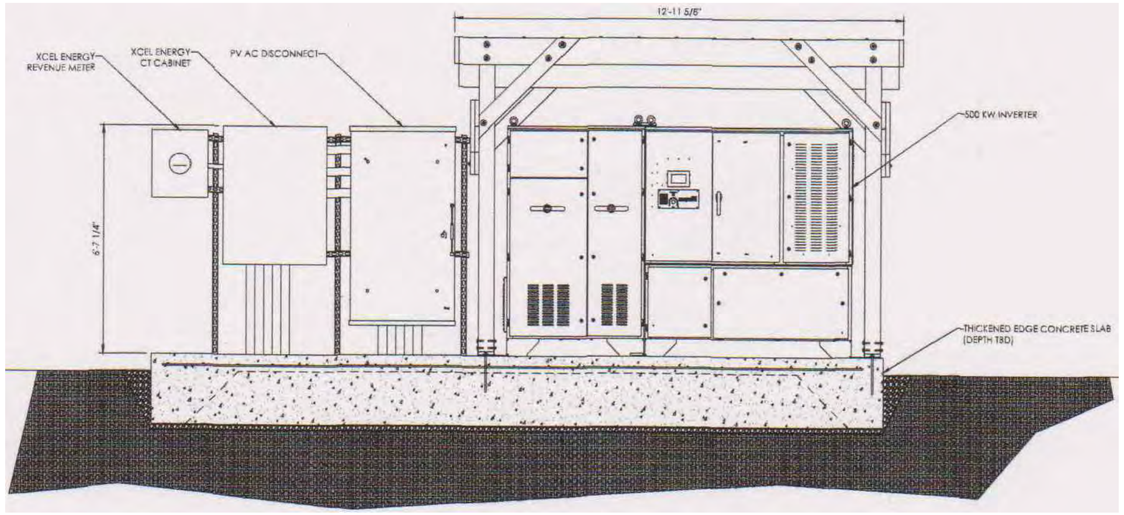
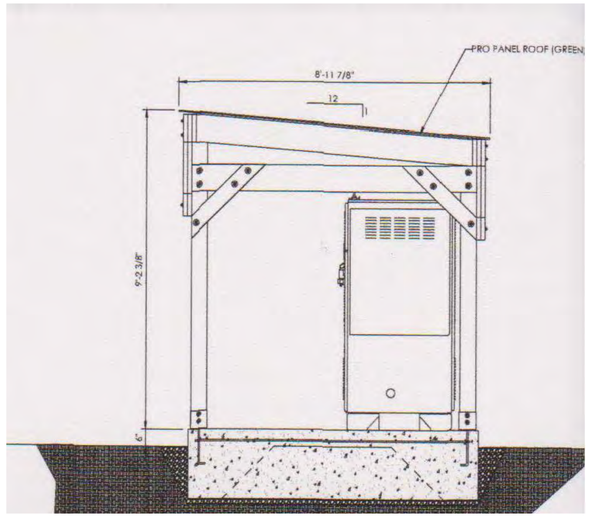
0 SCALE

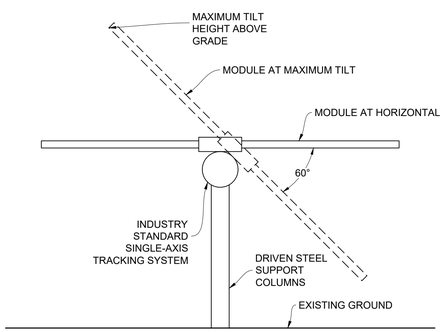
DATE MAR 28, 2024
FILE
DWG
SHEET 5 OF 7



INVERTER MOUNTED ON CONCRETE PAD (TYP)

NOT TO SCALE





PV ARRAY RACKING SYSTEM

NOT TO SCALE

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SITE DETAILS (2 OF 3)

VERIFY SCALE
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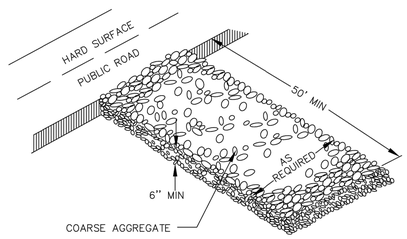
DATE	MAR 28, 2024
FILE	
DWG	
SHEET	6 OF 7

DEFINITION

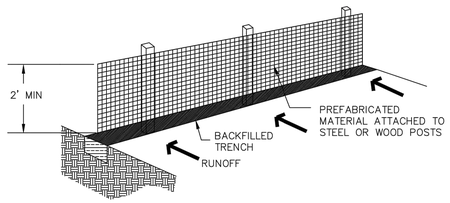
A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE

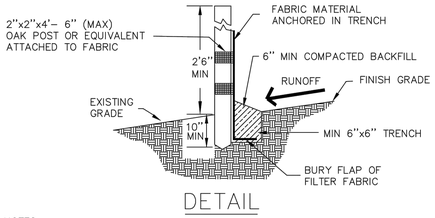
PURPOSE

TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF



DRAWN BY: JSH CHECKED BY: RJH APPROVED BY: DIRECTOR OF PUBLIC WORKS	CITY OF BOULDER, COLORADO TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	ISSUED: JULY 2, 1998 REVISED: OCT. 17, 2000 DRAWING NO. 7.30	



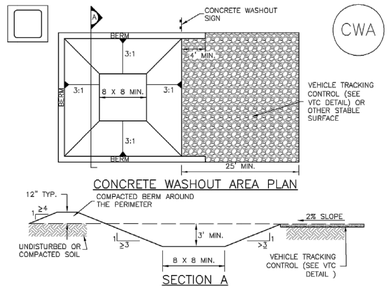


DETAIL

NOTES:

1. SILT FENCE SHALL BE INSTALLED BEFORE ANY EARTH REMOVAL OR EXCAVATION TAKES PLACE.
2. SET POSTS MAXIMUM 8 FEET ON CENTER AND EXCAVATE 6"x6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
3. ATTACH FILTER FABRIC TO POSTS AND EXTEND IT INTO TRENCH.
4. BACKFILL AND COMPACT EXCAVATED SOIL.

DRAWN BY: JSH CHECKED BY: RJH APPROVED BY: DIRECTOR OF PUBLIC WORKS	CITY OF BOULDER, COLORADO PREFABRICATED SILT FENCE INSTALLATION	ISSUED: JULY 2, 1998 REVISED: OCT. 17, 2000 DRAWING NO. 7.26	



CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.
6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Boulder County

Boulder County Land Use Department Publications

Revegetation

Land Use Department
Courthouse Annex Building
3045 13th Street
PO Box 471
Boulder, CO 80302

Planning Division:
Phone: 303-441-3930
Fax: 303-441-4856
Email: planner@bouldercounty.org
Website: www.bouldercounty.org/lu/

Office Hours:
Monday — Friday 8:00 a.m. to 4:30 p.m.

Revegetation

Assuring the proper revegetation of disturbed areas is an integral part of many Boulder County reviews. Successful revegetation is essential to slow soil erosion, repair scarring from cut and fill slopes, and to help deter noxious weeds. This handout is meant to guide you through some common requirements placed on projects in the county.

The Revegetation Plan

Use a copy of your site plan to delineate the areas you expect to be disturbed by construction (see example). Common disturbances include areas around the house, along the driveway, utility corridors, septic system, and staging/construction parking areas. The locations of silt fences and straw-bale barriers, if necessary, must also be shown. Each of the disturbed areas must show the method of revegetation including:

Seed List

In the Revegetation Plan, attach a list containing each type of seed and where it is to be used.

- Boulder County always encourages the use of native vegetation, and mountain projects above 5500 feet are required to use native grasses. Depending on location, some plains projects will also be required to use native grasses. This list must include seed application rates.
- Please refer to the attached recommended seed mixes and the document, "*Suggested Native Plants for Horticultural Use on the Front Range of Colorado*" as a guide. Some sources for plant material are included. Boulder County will not accept any seeds from the section titled, "*Plant Species Not to Use…*"

Slope and Revegetation

The degree of attention needed to successfully revegetate the site depends greatly on the steepness of slopes. This table shows which measures, in addition to seeding, should be included in the Revegetation Plan. Tractors, drill seeders, and mowers can operate on slopes of 3:1 or flatter, which makes such grades optimal for seedbed preparation, planting and maintenance.

Degree of Slope*	Soil Prep	Topsoil/ Stockpile	Mulch	Matting/ Hydromulch
Level to 3:1	✔	✔		
3:1 to 2:1	✔	✔	✔	
2:1 to 1.5:1	✔	✔	✔	✔

* See Determining Steepness of Grade section on page 3 for degree of slope.

Topsoil/Stockpile

Stockpiling entails scraping off the topsoil — or the uppermost, fertile layer of the soil — and setting it aside until needed. After construction, this topsoil should be spread out to a depth of 3" or more on all surfaces that are to be seeded. The addition of fertilizer is usually unnecessary for native grasses, and it can promote the growth of annual weeds.

Soil Preparation

A good seedbed is crucial to successful revegetation. Slopes should be graded to avoid concentrated water flow and subsequent erosion. If possible, any areas severely compacted by machinery and equipment during construction should be ripped by tractor or backhoe to loosen soils and allow for water infiltration and root growth. Clods larger than 3" should be broken, and any weeds controlled by tilling the soil.

Seeding

Seeding can take place from the fall until spring, including the winter months as long as the soil is workable. Many native seeds require a period of cold to germinate and are not harmed by being in the soil over winter. The best time window for seeding on the plains is November 1 to March 31. At higher elevations, seeding can be done later into the spring and early summer.

If possible, drill seeding will be the best seeding method. If the area is too small or steep for a tractor to operate, broadcasting the seed by hand or with a mechanical spreader is acceptable. Boulder County does not recommend hydroseeding; it does not work in our arid climate. In contrast, hydromulching after seeding is fine. Pay close attention to the recommended rates of seed application. Broadcast seed needs to be applied at double the rate of drilled seed. After broadcasting, seed needs to be raked in lightly by hand to provide better soil contact. Not all the seed needs to be buried; it is fine if some is still visible.

Mulch

For steeper slopes, a mulch is necessary to keep the seed and topsoil in place. Mulch also provides shade to the seedlings and helps to retain soil moisture. On slopes of 3:1 or less, the mulch can be weed-free straw. The straw should be applied at 1.5 to 2 tons per acre. This is roughly one standard straw bale per 650 square feet. Do not mulch too thickly; some of the soil should still be visible to allow solar warming. If a tractor is available the straw can be "crimped" into the soil with a crimping tool. Crimping orients some of the straw vertically and keeps it in place, minimizing wind erosion. This can be simulated by hand using a shovel and jabbing the straw into the ground. Hydromulching is another option for larger areas. For small areas in the mountains, spreading pine needles over raked-in seed is acceptable.

Erosion Matting

Slopes steeper than 2:1 require erosion matting. Common types of matting include coir (coconut or jute fiber), straw, aspen fibers, or a blend of these. Steeper slopes will require more durable blankets. Talk to a vender about which product will work for your situation. When possible, specify biodegradable netting since this breaks down more quickly and is less of a hazard to wildlife.

Installation of Matting

Installation procedure:

1. Remove any material larger than 3" in diameter.
2. At the top of the slope, dig a trench the width of the blanket, about 6" deep. Fold over the edge of the blanket and secure in the trench with landscape staples. Place soil back into trench and compact.
3. Roll out matting downhill, keeping it straight and fairly tight but not so tight that it is lifted over any low spots. Fasten with landscape staples every 3' on the edges and across the middle. Follow manufacturer's directions if provided.
4. At the end of a roll of matting, dig another trench and fasten the end of the blanket as you did the top edge, including staples.
5. Overlap side-by-side blankets by 12" minimum, and staple.

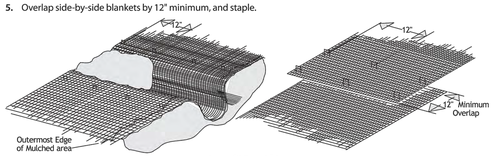


Diagram of Matting Installation.

- **Irrigation** – If you have seeded at the correct time of the year, and there is normal precipitation, then supplemental irrigation is not necessary. However, if it is a dry spring, irrigating seeds the first year will improve success.
- **Weeds** – Weeds will likely appear along with, or before, grass seedlings. There are weed seeds in the soil waiting for a disturbance that allows them to grow. If weeds are so thick that they are out-competing grasses, they can be mowed to a height of 8". Do not mow them close to the ground since this can harm the new grasses.
- **Time** – Be patient. Native grasses expend a lot of energy the first year in putting down roots. Because of this, the plants may look small after one year of growth. This is normal. It may take two growing seasons and good moisture before adequate results are seen.

Site Disturbance

The best Revegetation Plan is thoughtful about altering as little of the site as possible. Fewer disturbances translate into less time and money for revegetation. The foremost consideration in this regard is the selected project location on the site. Level building sites require less alteration to the topography. Also, it is helpful to show on the Revegetation Plan which areas are targeted for specific preservation (such as clarifying which trees will not be cut), and what measures will be taken to limit disturbances from construction (such as erecting construction fences to keep machinery away from sensitive areas).

Boulder County

Boulder County Land Use Department Publications

Native Seed Mixes

Land Use Department
Courthouse Annex Building
3045 13th Street
PO Box 471
Boulder, CO 80302

Planning Division:
Phone: 303-441-3930
Fax: 303-441-4856
Email: planner@bouldercounty.org
http://www.bouldercounty.org/lu/

Office Hours:
Monday — Friday 8:00 AM to 4:30 PM

Native Seed Mixes

Samples for Boulder County.

Plains Seed Mix

Below 5,500 Feet Elevation

Common Name	Species Name	Variety	% of Mix	#PLS/ Acre
Side Oats Grama	*Bouteloua curtipendula*	Vaughn	15%	2.74
Blue Grama	*Bouteloua gracilis*	Native, Alma, or Hachita	20%	0.84
Buffalograss	*Buchloe dactyloides*	Native	15%	9.33
Western Wheatgrass	*Pascopyrum smithii*	Arriba	12.5%	3.96
Western Wheatgrass	*Pascopyrum smithii*	Native	12.5%	3.96
Little Bluestem	*Schizachyrium scoparium*	Cimarron or Pastura	13%	1.74
Green Needlegrass	*Stipa viridula*	Lodorm or Native	12%	2.31
		Totals:	100%	24.88

Foothills Seed Mix

5,500 Feet to 7,000 Feet Elevation

Common Name	Species Name	Variety	% of Mix	#PLS/ Acre
Side Oats Grama	*Bouteloua curtipendula*	Vaughn	10%	1.82
Blue Grama	*Bouteloua gracilis*	Native, Alma, or Hachita	15%	0.63
Slender Wheatgrass	*Elymus trachycaulus*	San Luis	20%	4.38
Junegrass	*Koeleria macrantha*	Native	10%	0.15
Western Wheatgrass	*Pascopyrum smithii*	Arriba	10%	3.17
Western Wheatgrass	*Pascopyrum smithii*	Native	10%	3.17
Switchgrass	*Panicum virgatum*	Blackwell or Nebraska 28	7%	0.63
Little Bluestem	*Schizachyrium scoparium*	Cimarron or Pastura	8%	1.07
Green Needlegrass	*Stipa viridula*	Lodorm or Native	10%	1.93
		Totals:	100%	16.95

Mountain Seed Mix

7,000 Feet and Above Elevation

Common Name	Species Name	Variety	% of Mix	#PLS/ Acre
Blue Grama	*Bouteloua gracilis*	Native, Alma, or Hachita	20%	0.84
Canada Wildrye	*Elymus canadensis*	Native	10%	3.03
Thickspike Wheatgrass	*Elymus lanceolatus*	Critana	25%	5.58
Slender Wheatgrass	*Elymus trachycaulus*	San Luis	25%	5.48
Junegrass	*Koeleria macrantha*	Native	10%	0.15
Sandberg's Bluegrass	*Poa secunda*	Native	10%	0.38
		Totals:	100%	15.46

Rates are for broadcast seeding. If using a seed drill, reduce rates by half. PLS = Pure Live Seed.

CASE NUMBER: _____

NO.	DATE	REVISION	DR	CHK	APVD
DSGN	PIVOT		TN	RH	RH

ENERTIA CONSULTING GROUP LLC
1515 MARKET STREET, SUITE 100
DENVER, COLORADO 80202

Pivot Energy
1601 WEWATTA ST. #700
DENVER, CO 80202

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL PS48
SPECIAL USE PERMIT PLAN
BOULDER COUNTY, COLORADO

SITE DETAILS (3 OF 3)

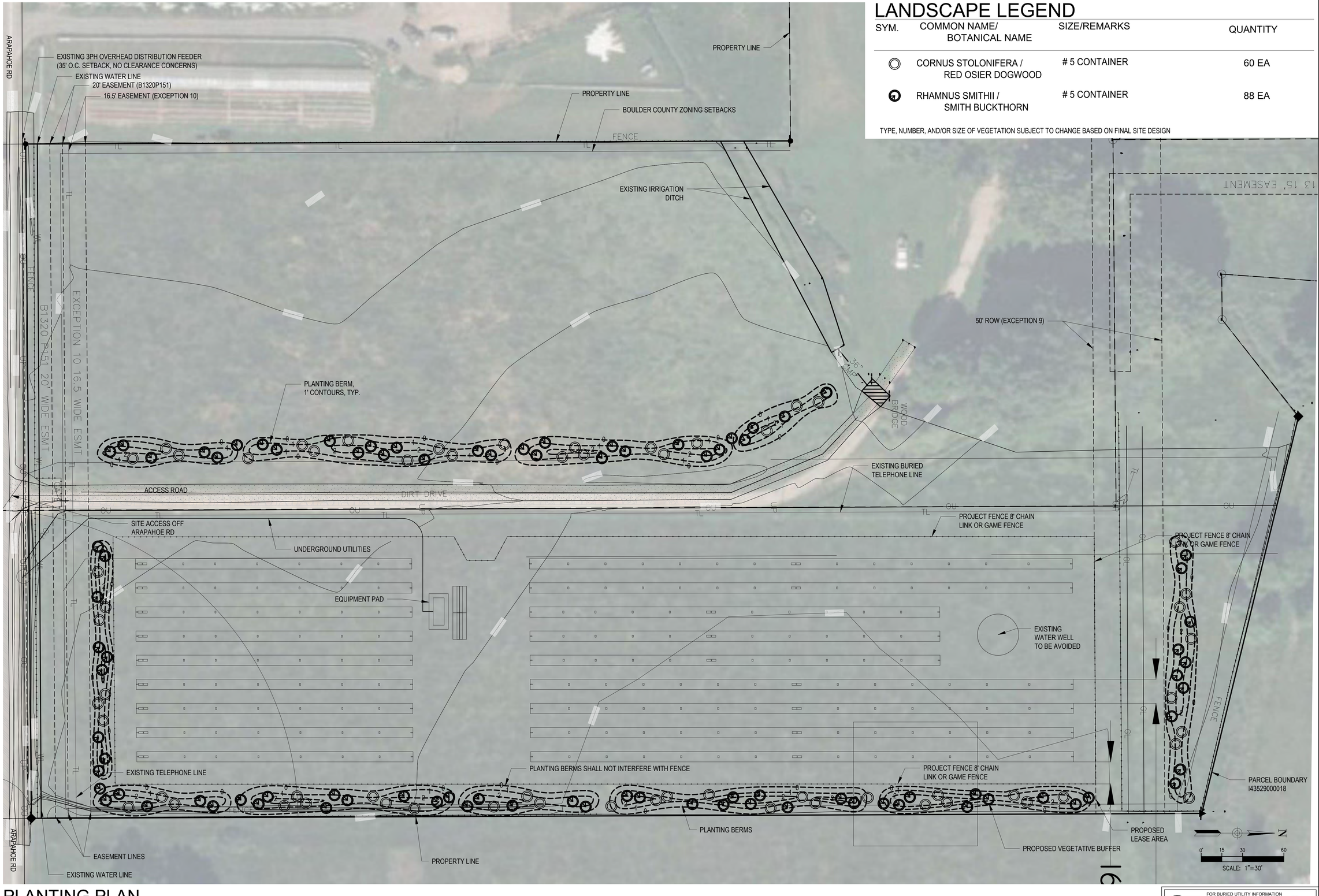
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 SCALE

DATE	MAR 28, 2024
FILE	
DWG	
SHEET	7 OF 7

LANDSCAPE LEGEND

SYM.	COMMON NAME/ BOTANICAL NAME	SIZE/REMARKS	QUANTITY
◎	CORNUS STOLONIFERA / RED OSIER DOGWOOD	# 5 CONTAINER	60 EA
◎	RHAMNUS SMITHII / SMITH BUCKTHORN	# 5 CONTAINER	88 EA

TYPE, NUMBER, AND/OR SIZE OF VEGETATION SUBJECT TO CHANGE BASED ON FINAL SITE DESIGN



PLANTING PLAN

1" = 30'

CASE NUMBER: _____

FOR BURIED UTILITY INFORMATION
THREE (3) BUSINESS DAYS BEFORE YOU DIG
CALL 811
(OR 1-800-922-1987)
UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)
WWW.UNCC.ORG

STEVEN E. LOHIDE
LA1082
08/19/2014
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

NO.	DATE	DSGN	DR	CHK	APVD
REVISION		JP/SL	JP	SL	SL

AZTEC TYPSA
501 N 44TH STREET, SUITE 300
PHOENIX, AZ 85008

PIVOT ENERGY
1750 15TH ST, SUITE 400
DENVER, CO 80202

PIVOT ENERGY SOLAR FARM ON
N 97TH ST
SPECIAL USE REVIEW
BOULDER COUNTY, COLORADO

LANDSCAPE PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
30 SCALE

DATE	MARCH 29, 2024
FILE	
DWG	
SHEET	1 OF 2

PLANTING NOTES

Section 1: General Guidelines

A. Submittals

1. Product Data: Submit manufacturer product data and literature describing all products required by this section to the Owner for approval.
2. Plant Growers Certificates: Submit Plant Growers certificates for all plants indicating that each plant meets the requirements, including the requirements for root system quality, to the Owner for approval.

B. Quality Assurance

1. Plant Acceptance
   a. The Owner will inspect all work for Plant Acceptance upon written request of the Contractor.
   b. Plant Acceptance by the Owner shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.
   c. Any plant that is deemed defective as defined under the warranty provisions below shall not be accepted.
   d. The Contractor is responsible for the condition and quality of work and materials during construction, and until Plant Acceptance. Contractor shall bear the total cost of replacing any and all plants until this time.

C. Selection and inspection of plants

1. Purchasing shrubs from the growing nursery is preferred over re-wholesale suppliers. When re-wholesale suppliers are utilized, the contractor shall submit the name and location of the growing nursery from where the trees were obtained by the re-wholesale seller. The re-wholesale nursery shall be responsible for any required plant quality certifications.
2. The contractor shall require the grower or re-wholesale supplier to permit the Owner to inspect the root system of all plants including random removal of soil around the base of the plant. Inspections may be as frequent and as extensive as needed to verify that plants conform to the grower's root quality certifications. For field grown plants, viewing of plants by the Owner may be at the growing nursery prior to the harvesting of the plant.
3. The Owner may choose to attach their seal to each plant, or a representative sample. Viewing and/or sealing of plants by the Owner at the nursery does not preclude the Owner's right to reject material while on site.
4. Unless approved by the landscape architect, plants shall have been grown at a latitude not more than 200 miles north or south of the latitude of the project unless the provenance of the plant can be documented to be compatible with the latitude and cold hardiness zone of the planting location. Many tree species are sensitive to the photoperiod of their native provenance. For example, red maple stock from native southern stock will not harden off in time for northern winters.

D. Substitutions for plants not available

1. Submit all requests for substitutions of plant species, or size to the Owner, for approval, prior to purchasing the proposed substitution.

E. Site conditions

1. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.
2. Do not install plants into saturated or frozen soils. Do not install plants during inclement weather, such as heavy rain or snow or during extremely hot, cold or windy conditions.

F. Planting around utilities

1. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.
2. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.
3. Notification of Local Utility Locator Service, is required 72 hours prior to digging. The Contractor is responsible for knowing the location of and avoiding utilities that are not covered by the Local Utility Locator Service.

Section 2: Product Guidelines

A. Standards and measurement

1. Provide plants of quantity, size, genus, species, and variety or Cultivars as shown and scheduled in contract documents.
2. Shrub stock shall conform to ANSI Z60.1, American Standard for Nursery Stock, and all state requirements for nursery stock except where they are modified by this specification. Where there is a conflict between this specification and the above specifications, this specification will apply.
3. Plants larger than specified may be used if acceptable to the Owner. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be increased in proportion to the size of the plant. Larger plants may not be acceptable if the resulting root ball cannot be fit into the required planting space.

B. Plant Quality

1. General
   a. Provide healthy, vigorous stock, grown in a recognized nursery and reasonably free of disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have root system, stem, and branch form that will not restrict normal growth, stability and vigor for the expected life of the plant.
2. Plant quality above the soil line
   a. Plants shall be of exceptional quality with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified.
   b. There should be one dominant leader to the top of the tree with the largest branches spaced at least 6 inches apart. All trees are assumed to be single leader plants unless a different form is specified in the plant list or drawings.
   c. Tree shall have no significant branch unions with included bark between stems.
   d. Tree trunks shall be reasonably straight with lateral limbs reasonably symmetrical, free of large voids, and evenly distributed along the trunk. Clear trunk should be no more than 40 percent of tree height unless otherwise specified in the planting specifications.
   e. Branches should be less than ½ the trunk diameter at the attachment point unless otherwise approved by Project Landscape Architect or Arborist.
   f. Trees greater than 1.5 inches caliper should be able to stand erect without a supporting stake.
   g. The trunk and branches shall be reasonably free of knots, scrapes, broken or split wood, fresh limb cuts, sunscald, injuries, and abrasions. All graft unions, where applicable, shall be completely healed without visible sign of graft rejection. All grafts shall be visible above the soil line.
   h. Open trunk and branch wounds shall be less than 10 percent of the circumference at the wound and no more than 2 inches tall. Pruning shall not encroach on the branch collar. Properly made pruning cuts are not considered open trunk wounds. Pruning cuts in accordance with ANSI standards are considered properly made pruning cuts.
3. Plant quality at or below the soil line
   a. The roots shall be reasonably free of scrapes, broken or split wood.
   b. A minimum of three structural roots reasonably distributed around the trunk shall be found in each plant.
   c. Plants with structural roots on only one side of the trunk (J roots) shall be rejected.
   d. The root crown must not be more than 2 inches below the soil line.
   e. The root system shall be reasonably free of stem girdling roots above the root collar, vertical roots and or kinked roots from nursery production practices. Stem girdling roots, vertical and kinked roots include roots on the interior of the root ball. There shall be no roots greater than 1/10 the diameter of the trunk circling more than one-third the way around in the top half of the root ball. Roots larger than this may be cut provided they are smaller than one-third the trunk diameter. There shall be no kinked roots greater than 1/5 the trunk diameter. Roots larger than this can be cut provided they are less than one-third the trunk diameter.
   f. Shrubs may be rejected if the extent of root cutting required to remedy girdling, kinked, and vertical roots renders the tree unlikely to thrive by the end of the warranty period.
   g. The final plant grower shall be responsible for determining that the plants have been root pruned at each step in the plant production process to remove stem girdling roots and kinked roots, or practices that produce a root system throughout the root ball that meets these requirements. Regardless of the work of previous growers, the plant's root system shall be modified at the final production stage to produce the required plant root quality. The final grower shall certify in writing that all plants are reasonably free of stem girdling and kinked roots.
   h. All shrubs should be rooted into the root ball so that soil or media remains intact and trunk and root ball move as one when lifted, but not root bound. The trunk should bend when gently pushed and should not be loose so it pivots at or below the soil line.
5. Submittals
   i. Submit for approval the required seed and plant quality certifications from the grower where plants are to be purchased, for each plant type. The grower's certification of plant quality does not prohibit the Owner from inspecting any plant or rejecting the plant if it is found to not meet the requirements.

C. Anti-desicant

1. Anti-Desiccant shall be emulsion type, film-forming agent similar to Dowax by Dow Chemical Company, or Wilt-Pruf by Nursery Specialty Products, Inc., Croton Falls, New York, designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and use in accordance with manufacturer's instructions.
2. Submit manufacturer's product data for approval.

Section 3: Execution Guidelines

A. Site examination

1. Examine the surface grades and soil conditions to confirm that the soil and drainage modifications indicated on the Plans and Details have been completed. Notify the Owner in writing of any unsatisfactory conditions.

B. Delivery, storage and handling

1. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind, and extremes of heat and cold temperatures.
2. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind.
3. Provide adequate water to the root ball during the shipping and storage period. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered.
4. Do not deliver more plants to the site than can be adequately stored. Provide a suitable remote staging area for plants and other supplies.
5. The Owner shall approve the duration, method and location of storage of plants.
6. Protective covering is required over all plants during delivery.

C. Planting season

1. Planting shall only be performed when weather and soil conditions are suitable for planting the specified materials in accordance with locally accepted practices. Install plants during the planting time as described below unless otherwise approved in writing by the Owner. In the event that the Contractor requests planting outside the dates of the planting season, approval of the request does not change the requirements of the warranty.
   c. Planting shall be completed within the following dates:
      1) Between April 15 and July 15, or between September 1 and November 14

D. Coordination with project work

1. Coordinate the relocation of any underground obstructions, utility lines, etc. that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner of any conflicts encountered.

E. Soil protection during plant delivery and installation

1. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.
   a. Where possible deliver and plant trees requiring the use of heavy mechanized equipment prior to final soil preparation and tilling.
   b. Till and restore grades to all soil that has been driven over or compacted during the installation of plants.

F. General installation of plants

1. Inspect each plant after delivery and prior to installation for damage or other characteristics that may cause rejection of the plant. Notify the Owner of any such conditions.
2. The root system of each plant, regardless of root ball package type, shall be inspected by the Contractor at the time of planting to confirm that the roots meet the requirements for tree quality. The Contractor shall undertake, at the time of planting, all modifications to the root system required by the Owner to meet these quality standards.
3. Exposed Stem Tissue after Modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping such as Dewitt Tree Wrap fabric. Secure the fabric with biodegradable tape such as 3M Scotch 234 or 232 masking tape or approved equal. DO NOT USE string, twine or any other material that may girdle the trunk if not removed.
4. Using hand tools, back hoe or mini-excavator, excavate the planting hole into the planting soil to the depth of the root ball, as measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing.
   a. The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.
   b. Scarify sides and bottom of planting hole.
5. Set top outer edge of the root ball 1 to 3 inches above the average elevation of the proposed finish. Set the plant plumb. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.
6. Brace root ball by tamping planting soil around the lower portion of the root ball. Place additional planting soil around base and sides of ball in six-inch (6 inch) lifts. Lightly tamp each lift using hand tools to settle backfill and eliminate voids.
7. Where indicated on the drawings, build a 3 inch high, level saucer of planting soil around the outside of the root ball to retain water. Tamp the saucer to reduce erosion of the saucer.
8. Thoroughly water the planting soil and root ball immediately after planting.

G. Installation of fertilizer and other chemical additives

1. Do not apply any fertilizer to plantings during the first year after transplanting unless soil testing demonstrates that fertilizer or other chemical additives is required. Apply chemical additives only upon the approval of the Owner.
2. Fertilizers shall be applied according to the manufacturer's instructions and standard horticultural practices.

H. Pruning of trees and shrubs

1. Shrubs need as many leaves as possible to recover from transplant shock, so prune as little as possible at the time of planting. Prune only broken or dead branches.
2. In general, preserve the natural character of the plant and follow recommendations in An Illustrated Guide to Pruning, Third Edition (Gilman 2011).
3. All pruning shall be performed by a person experienced in landscape pruning.
4. Wherever possible and appropriate to the species, preserve or create a central leader.
5. Remove and replace excessively pruned or malformed stock resulting from improper pruning.
6. Pruning shall be done with clean, sharp tools.

I. Watering

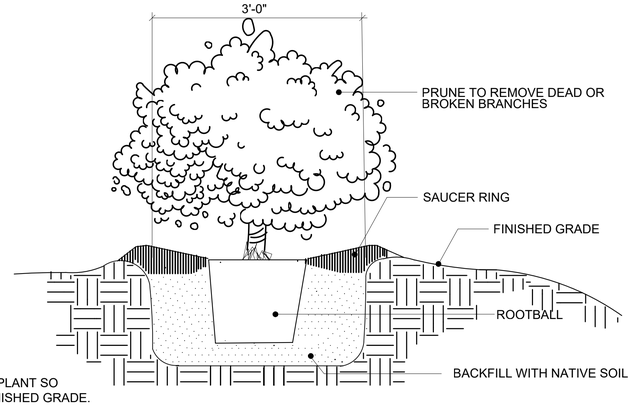
9. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of Plant Acceptance.
10. Hand water root balls of all plants to assure that the root balls have adequate moisture. Test the moisture content in each root ball and the soil outside the root ball to determine the water content.

K. Cleanup

1. During installation, keep the site free of trash and the work area in an orderly condition at the end of each day.
2. Once installation is complete, wash all soil from pavements and other structures. Ensure that all tags and flagging tape are removed from the site. The Owner seals are to remain on the trees and removed at the end of the warranty period.

L. Protection during construction

1. The Contractor shall protect landscape work and materials from damage due to planting operations or operations by other Contractors or trespassers. Maintain protection during installation until Plant Acceptance. Treat, repair or replace damaged planting work immediately.
2. Damage done by the Contractor, or any of their sub-contractors, to plants or any other parts of the work shall be replaced by the Contractor at no expense to the Owner.



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING.
3. SET PLANT ON UNEXCAVATED SUBGRADE. PLACE PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
4. BACKFILL TO WITHIN APPROXIMATELY 12" OF THE TOP OF THE ROOTBALL, THEN WATER PLANT.
5. PLUMB AND BACKFILL WITH NATIVE SOIL.
6. PROVIDE 3" DEPTH LEVEL SAUCER AROUND OUTSIDE OF PLANTING PIT TO RETAIN WATER.
7. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
8. BACK FILL VOIDS AND WATER A SECOND TIME.

1 CONTAINER PLANTING

CASE NUMBER: _____

STEVEN E. LOHIDE
LA1082
08/19/2014
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

NO.	DATE	REVISION	DR	JP	CHK	SL	APVD	SL
DSGN	JP/SL							

AZTEC TYPSA
501 N 44TH STREET, SUITE 300
PHOENIX, AZ 85008

PIVOT ENERGY
1750 15TH ST, SUITE 400
DENVER, CO 80202

PIVOT ENERGY SOLAR FARM
PS48
SPECIAL USE REVIEW
BOULDER COUNTY, COLORADO

LANDSCAPE NOTES / DETAIL

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	MARCH 28, 2024
FILE	
DWG	
SHEET	2 OF 2

Pivot Solar 48: Solar Energy Development Report

Section A: Installation Plan – BMPs for Reducing Site Disturbance

This section of the development report outlines Pivot Energy's Best Management Practices (BMPs) for minimizing impact to existing site conditions including soil and native vegetation, and how Pivot minimizes ground disturbance during construction.

Please see Appendix A, attached to this development report, for a detailed installation schedule showing the various stages and durations of construction. Appendix B, also attached, contains a site plan showing the proposed disturbed area.

1. Solar Site Due Diligence through Engineering

   At the beginning of a project's design phase, Pivot Energy retains a Civil Engineer of Record to perform tasks associated with the civil activities of the project. This includes analysis of the existing site conditions, implementation of necessary erosion control measures, grading (if any), and development of best practices to maintain the existing stormwater management and retention of a site. Though company practices may vary in the solar industry, Pivot Energy very rarely performs grading on its sites (5% or fewer of our projects).

   Pivot has partnered with numerous racking companies to determine solutions that allow minimal grading (if any at all), even for sites with more challenging topography. Based on the proposed site's flat topography, it is not expected that grading will need to take place at Pivot Solar 48. Further, the simple and low-impact nature of solar construction relative to other uses results in minimal ground disturbance and added imperviousness. The only portions of the solar facility that touch the ground are the racking posts, fenceposts, and a small equipment pad.

2. Post-Engineering and Early Construction Activities

   The Civil Engineer of Record for the proposed project will also be the entity responsible for specifying site-specific material and construction activities that adhere to the requirements set forth by Boulder County, such as seeding, fencing, road placement, and access.

   A. Seeding

      Before construction begins, Pivot pre-seeds a locally appropriate, soil-stabilizing mixture which prepares the site to minimize disturbance during construction and prevents the emergence of weeds. When construction nears completion, a permanent seed mixture will be planted and will serve as the vegetation of choice for the long term. Pivot's seeding practice utilizes equipment designed to not disturb soils by specifically placing seeds at the required depth (as seen in figure 1 below).

      Through our construction partners and maintenance team, a seed mixture is specified to ensure not only that appropriate plants are used, but also that the ground's previous use is improved upon with incorporation of native wildflowers and other species where possible. This further beautifies the area and provides variety to our trustworthy vegetation management workers (grazing sheep).

Figure 1: Seeding between rows of a solar farm.

Figure 2: Established vegetation at a site

888.734.3033 | info@pivotenergy.net | pivotenergy.net

B. Fencing

Fencing is installed according to minimum required height and screening requirements where applicable. For the proposed project, Pivot plans to use 8-foot game fencing. Fence installation involves temporarily moving small quantities of topsoil out of the way and replacing it once fencing is complete (roughly 1-2 weeks). The quantity of soil disturbance is limited to a narrow area around the fence posts and is kept to a minimum.

C. Trenching and Electrical Equipment Pad

Pivot Solar 48 has been designed to have limited underground wire runs to return the electricity produced by the solar panels to the utility grid. Installation of electrical wiring and the equipment pad (which contains the inverters and transformer), requires temporarily moving dirt out of the way so that conduit can be placed underground. After trenching is complete (roughly 2 weeks), soil is returned and re-stabilized.

D. Access Road

The proposed project has a pre-existing access road, which will also be utilized for access to the proposed solar facility. The civil engineer has specified minor improvements to this existing access road in order for it to be able to withstand the loads necessary for construction and material delivery. The majority of the overall site disturbance occurs as a result of road placement and improvement, though since access at the proposed site is pre-existing, disturbance beyond the existing road's footprint will be minimal. Equipment will be used to scrape the existing road surface to ensure it is flat and uniform for a new specification of road base to be placed. The final road specification will vary based on final engineered designs but is typically made up of 4-8 inches of Class VI base gravel. The improved road will minimize opportunity for erosion at the site for the system's lifespan.

Section B: Management Plan

As the long-term owner and operator of its projects, Pivot Energy manages all operation and maintenance teams in-house. The ongoing management of the proposed site will depend upon whether it is determined that crop production operations will be feasible onsite. In either case, all Pivot Energy projects utilize holistic land management practices, as described below.

1. Seeding:

   In areas not being actively farmed, Pivot Energy will plant a low-growth, locally appropriate seed mix with deep-rooted varietals that help to improve soil moisture content and improve soil quality over time. This seed mixture is discussed in more detail in #2 below.

2. Sheep Grazing

   In areas not being actively farmed, Pivot plans to utilize sheep grazing as a means of vegetation management. A mix of forbs, fescues, and clovers will be planted on site. Pivot works with professional ecologists and civil firms to specify the seed mixes in order to ensure that the chosen plants will provide the right balance of biodiversity and high forage content to support the herd and improve soil quality over time. Pivot also aims to include a mixture of some nitrogen fixing and some nitrogen feeding varietals, which eliminates the need for using chemical fertilizers onsite. Sheep grazing helps to further establish plants via animal hooves integrating seeds into the soil, and their waste acts as a natural and low-odor fertilizer to enrich the soil, improving the land's agricultural integrity.

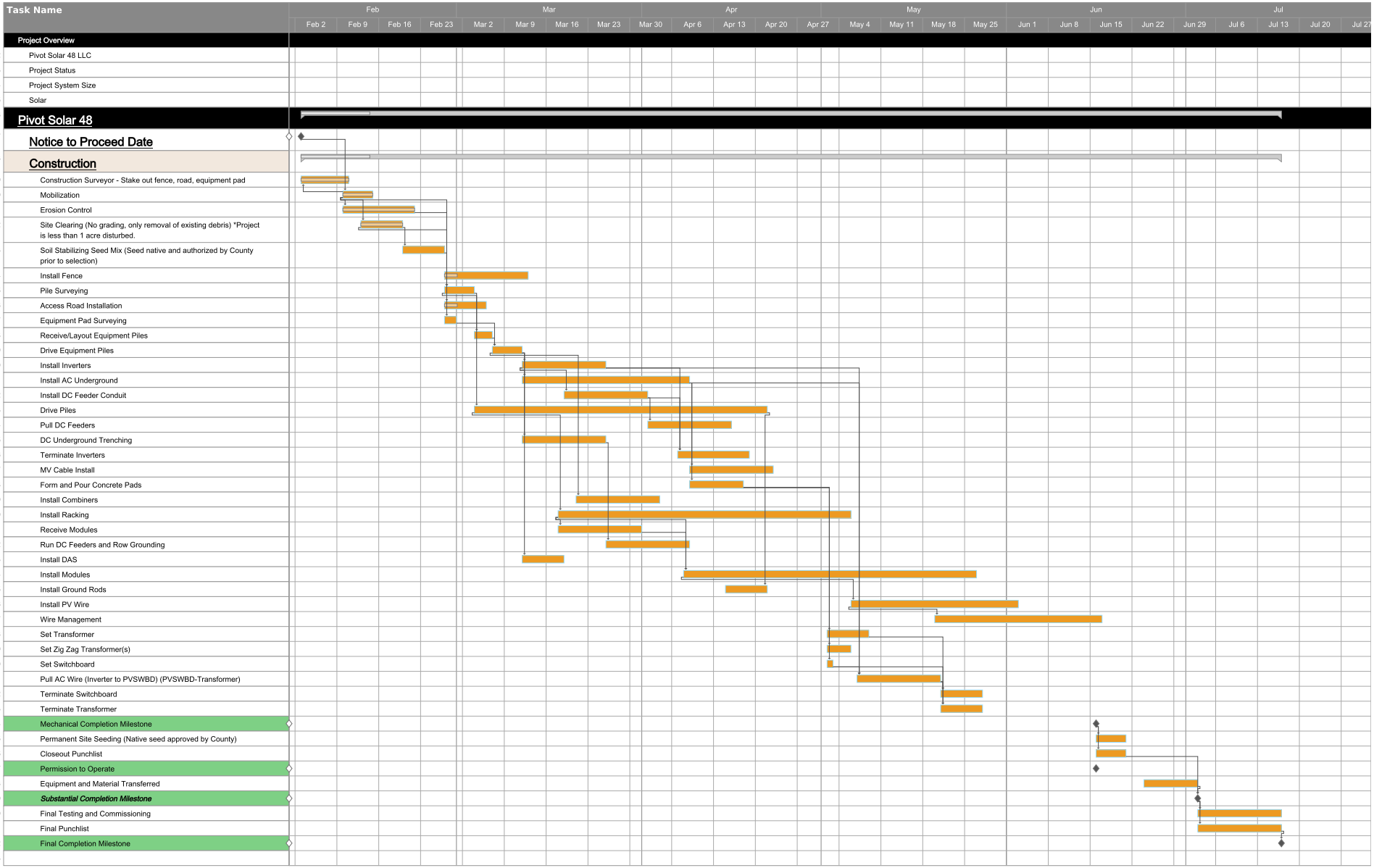
3. Crop Production

   Pivot Solar 48 is being evaluated as a part of a new and innovative "agrivoltaics" (agriculture + photovoltaics) initiative at Pivot Energy, going above and beyond both industry standard practices and the requirements of Boulder County to improve the agricultural integrity of the land. If it is determined to be feasible, low-growth vegetables and herbs will be selected to be planted in the areas between and underneath the rows of solar panels. Pivot will work with a local farming partner to identify the best crops to be planted on the parcel and to ensure low- or no-till farming and natural fertilizer use. The site will also be registered on DriftWatch.org to ensure aerial pesticides used anywhere nearby will not have any drift potential to affect the parcel.

4. Topsoil Conservation

   Based on the site's flat topography, it is not anticipated that significant grading or topsoil movement will be required to construct the project (see Earthwork and Grading worksheet for more details). Any topsoil moved during the construction period will be stockpiled and put back into place when construction is complete. Keeping the topsoil onsite creates a strong baseline of soil health. Over the lifetime of the project, topsoil conservation, along with our seeding practices and use of sheep grazing, will improve overall soil health and mitigate erosion.

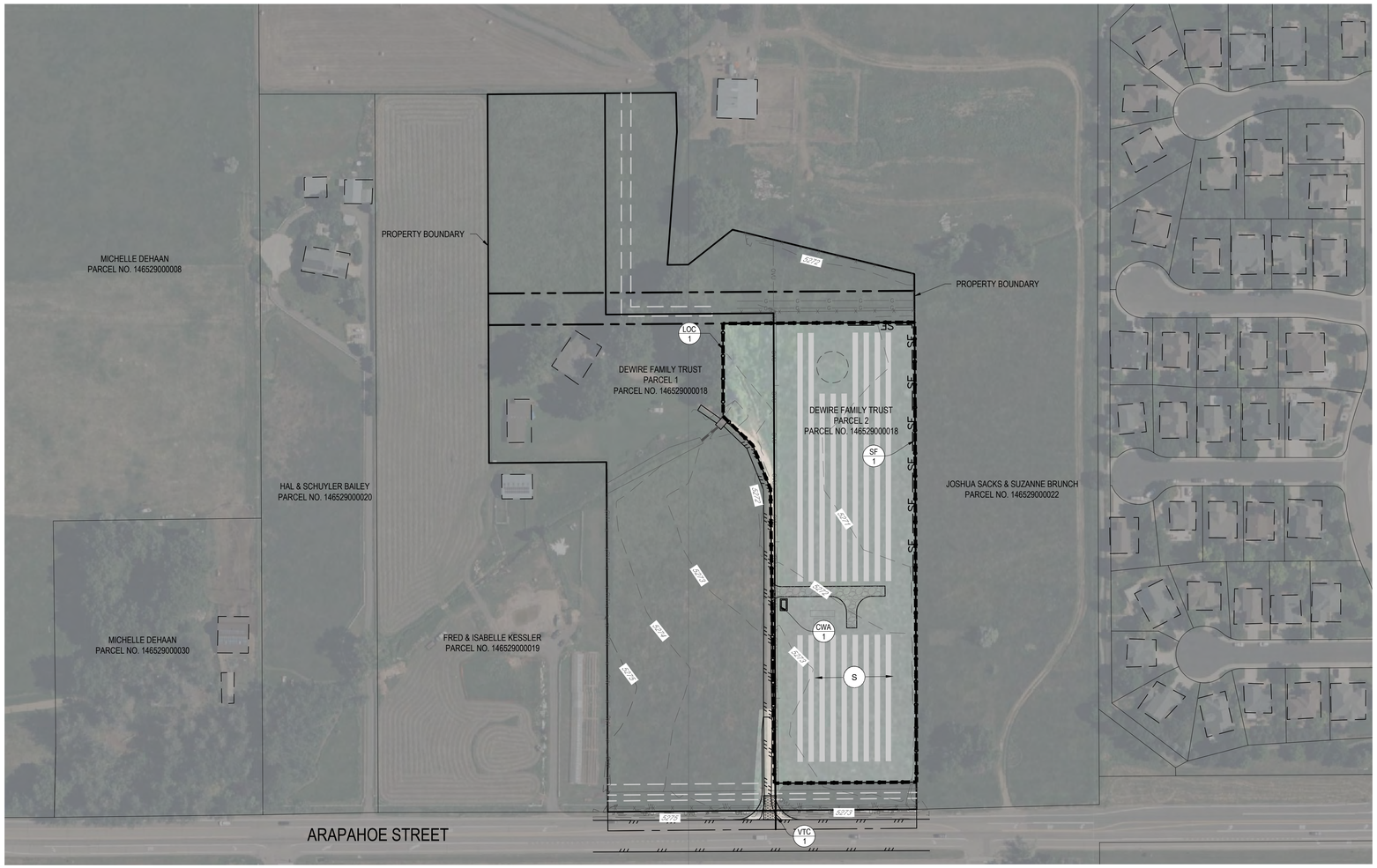
Appendix A: Pivot Solar 48 Installation Schedule

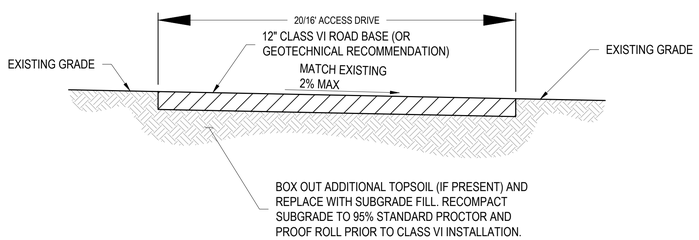


APPENDIX B: PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL
SPECIAL USE PERMIT PLAN

CASE NUMBER: _____

LOCATED IN SECTION 29, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO





CASE NUMBER: _____

LEGEND

- PROPERTY BOUNDARY (±13.08 ACRES)
- PARCEL BOUNDARIES
- RIGHT-OF-WAY
- SECTION LINE
- EASEMENT
- EXISTING FENCE
- EXISTING TELEPHONE
- EXISTING WATER LINE
- EXISTING OVERHEAD UTILITY W/ POLES
- EXISTING GAS LINE
- EXISTING 36" CMP
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PV ARRAY
- EDGE OF ASPHALT/ROAD
- GRAVEL FIRE LANE & ACCESS ROAD
- 8' GAME FENCE (±4.15 ACRES)
- ELECTRICAL EQUIPMENT PADS
- EXISTING WATER WELL (25' SETBACK)
- LOC 1 — LIMITS OF CONSTRUCTION
- SF 1 — SILT FENCE
- VTC 1 — VEHICLE TRACKING CONTROL
- CWA 1 — CONCRETE WASHOUT
- S — SEEDING

NOTES

1. A LAYOUT OF THE SOLAR FACILITY IS NOT YET CONCEPTUALIZED. FINAL LOCATIONS FOR EQUIPMENT AND ALL OTHER FACILITY COMPONENTS MAY BE ANYWHERE WITHIN THE SOLAR SITING ENVELOPE SHOWN ON THESE PLANS.
2. TREES WERE NOT OBSERVED WITHIN THE MAJORITY OF PROPOSED SOLAR ARRAY AREAS. IF NECESSARY, TREES AND SHRUBS ARE TO BE REMOVED TO ALLOW FOR THE INSTALLATION OF THE ARRAYS AND TO ELIMINATE SHADING.
3. ENERTIA CONSULTING GROUP, LLC ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UTILITIES SHOWN ON THIS DRAWING HAVE BEEN LOCATED VIA FIELD SURVEY. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO MOBILIZATION.
4. AN 8 FT. GAME FENCE WILL BE INSTALLED TO SURROUND THE SOLAR ARRAYS. GATES WILL BE PROVIDED FOR ACCESS.
5. THE PROPERTY OWNER OR OPERATOR SHALL BE RESPONSIBLE FOR CONTROLLING NOXIOUS WEEDS ON THE SITE
6. THE ACCESS TO THE SITE SHALL BE MAINTAINED TO MITIGATE ANY IMPACTS TO THE PUBLIC ROAD, INCLUDING DAMAGES AND/OR OFF-SITE TRACKING.
7. THE HISTORICAL FLOW PATTERS AND RUNOFF AMOUNTS ON THE SITE WILL BE MAINTAINED.
8. ACCESS TO THE SITE IS PROVIDED FROM ARAPAHOE ROAD RIGHT-OF-WAY.

LIMITS OF CONSTRUCTION: ± 4.148-ACRES
TOTAL DISTURBANCE: 0.18-ACRES

SEED MIX (BELOW ELEVATION 5,500FT)

Common Name	Species Name	Variety	% of Mix	#PLS/ Acre
Side Oats Grama	*Bouteloua curtipendula*	Vaughn	15%	2.74
Blue Grama	*Bouteloua gracilis*	Native, Alma, or Hachita	20%	0.84
Buffalograss	*Buchloe dactyloides*	Native	15%	9.33
Western Wheatgrass	*Pascopyrum smithii*	Arriba	12.5%	3.96
Western Wheatgrass	*Pascopyrum smithii*	Native	12.5%	3.96
Little Bluestem	*Schizachyrium scoparium*	Cimarron or Pastura	13%	1.74
Green Needlegrass	*Stipa viridula*	Lodorm or Native	12%	2.31
		Totals:	100%	24.88

N

0' 50' 100' 200'
SCALE: 1"=100'

FOR BURIED UTILITY INFORMATION
THREE (3) BUSINESS DAYS BEFORE YOU DIG
CALL 811
(OR 1-800-922-1987)
UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)
WWW.UNCC.ORG

NO.	DATE	REVISION	CHK	APVD
DSGN	PIVOT	DR TN	RH	RH

ENERTIA CONSULTING GROUP LLC
1515 MARKET STREET, SUITE 100
DENVER, COLORADO 80202

Pivot Energy
1601 WEWATTA ST, #700
DENVER, CO 80202

PIVOT ENERGY SOLAR FACILITY ON DEWIRE PARCEL PS48
SPECIAL USE PERMIT PLAN
BOULDER COUNTY, COLORADO

GRADING AND EROSION CONTROL (GEC) PLAN AND INSTALLATION PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 SCALE

DATE	MAR 28, 2024
FILE	
DWG	
SHEET	4 OF 7

1515 Market Street
Denver, CO 80202
(609) 234-5502
rick.hagmayer@enertiacg.com

March 28, 2024

Boulder County Planning and Permitting Department
2045 13th St
Boulder, CO 80302

RE: Drainage Narrative
Pivot Solar Energy Solar Facility on the Dewire Parcel
9215 Arapahoe Rd, Boulder County

To whom it may concern:

This drainage narrative is intended to provide Boulder County with drainage and land disturbance information related to a proposed 4.148 acre solar facility identified as Pivot Energy Solar Facility on the Dewire Parcel (Project). The Project will be designed and will be constructed and maintained in a manner that minimizes storm water related impacts, in accordance with 2016 Boulder County Storm Drainage Criteria Manual criteria.

Project Specific Information

Project Name, Property Address and Boulder County Parcel No.
Pivot Energy Solar Facility on the Dewire Parcel,
Parcel No. 146529000018

Developer/Owner
Pivot Energy, 1601 Wewatta St, #700, Denver, CO 80202

Site/Civil Engineer
Enertia Consulting Group, LLC, 1515 Market Street, Denver, CO 80202

Project Location and Description

The Project will consist of up to an approximately 1 MW solar facility located on approximately 4.148 acres of undeveloped land within an approximately 13.08 acre parcel; and within Section 29, Township 1 North, Range 66 West of the 6th P.M., Boulder County, Colorado. The Project site is bounded by Arapahoe Rd to the south, and Rural Residential to the west, north, and east.

Project components include: up to a 1 MW solar facility with approximately 2000 solar panels mounted on steel H-piles; concrete equipment pads; 20’ gravel access driveway with emergency turn-around; and perimeter fence with access gate. With the exception of a gravel driveway and concrete pads for transformers and inverters, the remainder of the solar facility will not require clearing/grubbing of existing vegetation and grading unless required to prevent shading of the solar array.

Land Disturbance and Drainage Information

Existing Ground Surface Conditions, Drainage Patterns and Imperviousness

The 4.148 acre solar facility project area may be characterized as residential and undeveloped agricultural land. The applicable FIRM Map (No. 0813C0419J), included in Appendix A, indicates that the Project site is located in a Zone X floodplain which is an area of minimal flood hazard. Based on NRCS soils data (also included in Appendix A), the site soils are identified as Clay Loam classified as Hydrologic Soil Group C. As shown on Figure 1 in Appendix A, the site ground surface generally slopes at an average of ~1 percent from west to east of the Project site. In general, storm water is conveyed across the Project area toward the eastern property boundary.

Land Disturbance Activities

The site improvements considered as land disturbance activities include installation of: (i) all-weather gravel surface driveway, (ii) concrete equipment pads, and (iii) Class VI equipment pads:

(i) Gravel Access Drive – One all-weather gravel surface access drives will extend from existing Arapahoe Rd. Given the site soils, a 12-inch-thick gravel Class VI base surface (consistent with similar solar facility access drives within Weld County) is proposed. This depth of gravel over compacted subgrade is sufficient to provide routine and emergency access to the

(ii) Concrete Equipment Pads – Concrete equipment pads will be installed beneath inverters and transformers and other electrical equipment as required with the development. The pads will be at least 8-inches thick with reinforcing steel.

(iii) Class VI Equipment Pads – Class VI road base equipment pads will be installed beneath other electrical equipment as required with the development. The pads will be at least 12-inches thick over compacted subgrade.

Lastly, components of the 4.148 acre solar facility will include up to 2000 solar panels placed on steel H-piles driven into the ground. Since the solar panels will be tracking panels (rotate through the day to track the path of the sun), the ground surface vegetation beneath the panels will continue to grow. Some minimal grubbing may be necessary to prepare the site with planned native seed mixes. Onsite conditions at the time of seeding will dictate necessity of such methods. The purpose of the seeding is to increase the density of native vegetation; therefore, the grubbing is not considered land disturbance (if it is necessary).

The imperviousness values included herein are based on the current layout at the time of this report. These values are subject to change as design progresses through the natural engineering process.

Land Disturbance Area

A total of approximately 4798 sf or 0.11 acres of the Project area is anticipated to be disturbed. The total disturbance numbers are summed in the following table.

Disturbance Surface Type	Disturbance Area (sf)	Disturbance Area (ac)
Gravel Access Drive	4,053	0.093
Concrete Equipment Pads	365	0.008
Class VI Equipment Pads	380	0.009
Total	**4,798**	**0.110**

Hydrologic Design Criteria

The following table includes hydrologic design criteria used in this analysis.

Parameter	Value	Unit	Reference
Time of Concentration, Tc	-	min.	MHFD Peak Runoff Prediction by the Rational Method (Appendix A)
Runoff Coefficient, C	-	-	MHFD Criteria Manual, Chapter 6, Table 6-4
1-hr Point Rainfall, P1 (100-Year)	2.74	inches	NOAA Rainfall Data (Appendix A)
Storm Runoff, Q (100-YR)	-	cfs	Q = CIA

Basin Conditions

The footprint of the solar facility and access drive along with the areas delineated by oil setbacks is considered to be the subject drainage area under both existing and proposed conditions.

The existing condition basin (identified as basin X1 on Figure 1) was analyzed to calculate the peak runoff for the design storm using an imperviousness percentage of 2%. This percentage is based on the soil type and existing conditions of the site.

The proposed condition basin (identified as basin A1 on Figure 1) was analyzed to calculate the peak runoff for the design storm using an impervious percentage of 3.13%. This percentage is based on the majority of the site remaining as 2% impervious, 0.09 acres changing to 40% impervious (access drive area), 0.01 acres changing to 100% impervious (concrete pad area), and 0.01 acres changing to 40% impervious (Class VI pad area). It should be noted that the tracking solar panels are not classified as ground surface because precipitation falling on the solar panels will shed onto the undisturbed vegetated surface below.

Stormwater Runoff

The stormwater runoff for existing and proposed conditions is calculated based on the Rational Method. The 100-year, 1-hour storm event was analyzed for basins A1 and X1. The flow path for the basins is generally from west to east on the Project site. The average ground surface slope along the flow path is 1%. The time of concentration to this point was calculated using MHFD equations are summarized below and can be found on the MHFD Peak Runoff Prediction by the Rational Method form in Appendix A. The Runoff Coefficients are also included in the MHFD Peak Runoff Prediction by the Rational Method and are summarized below.

Basin	Time of Concentration (min)	Runoff Coefficients (C_{100})
X1	27.10	0.49
A1	26.88	0.50

The precipitation data used for the 100-year, 1-hour storm event is based on NOAA rainfall data from the Project site and is included in Appendix A. Per the Basin Runoff Calculation (MHFD Peak Runoff Prediction by the Rational Method) included in Appendix A the 100-year runoff flows are as follows:

Basin	Q100 (cfs)
X1	8.26
A1	8.38
Net	**0.12**

Under developed conditions, runoff will follow existing drainage patterns and will not significantly increase peak flows (increase from 8.26 cfs to 8.38 cfs).

Detention Exemption

It is understood that facilities are exempt from detention requirements if it can be demonstrated that the peak flows from the development will not increase the peak flows from the watershed for storm events up to the 100-year flood. This solar project proposes a net increase of 0.12 cfs of peak flow in the 100-year event, which is not considered to be a significant enough increase in the peak flow of the watershed to warrant detention. Therefore the Site is exempt from the detention requirements. Additionally, the site proposed disturbances of less than 1-acre, so water quality is not required.

Summary

The following list summarizes key components of the Project and findings related to land disturbance and storm water impacts.

1. Installation of the solar facility will temporarily disturb the ground surface within the 4.148 acre project area but won't require clearing and grubbing of vegetation or grading, except for concrete equipment pad and gravel access drive installation.

2. Grubbing may be required to provide appropriate conditions for seeding. It is intended for the vegetation throughout the site to be improved as a result, therefore is not considered land disturbance.

3. The areas considered impervious (365 SF of 100% impervious concrete pads) or semi-impervious (4053 SF of 40% impervious gravel access drive and 380 sf of 40 sf Class VI pads) total 0.11 acres, or 2.65% of the 4.148 acre solar facility area.

4. Under existing conditions, the peak flow originating from the solar facility area for the 100 yr – 1hr storm event is 8.26 cfs.

5. Under developed conditions, the peak flow originating from the solar facility area for the 100 yr - 1 hr storm event is 8.38 cfs.

6. The solar facility does not significatly increase the peak flow of the watershed, and is therefore exempt from the detention requirements.

7. Since the land disturbance is less than 1 acre, a CDPS storm water certificate issued by CDPHE is not required for this Project.

8. Installation and operation of the solar facility is not expected to impact existing drainage patterns or flow rates on or around the Project site. Runoff water quality will not be impacted by the solar facility components.

9. The Project design will adequately protect public health, safety and general welfare and have no adverse effects on offsite properties.

We trust that the information provided is acceptable and complete. Please let me know if you have any questions or require additional information. Please contact me at rick.hagmayer@enertiacg.com or (609) 234-5502 should you require additional information.

Sincerely,
ENERTIA CONSULTING GROUP, LLC

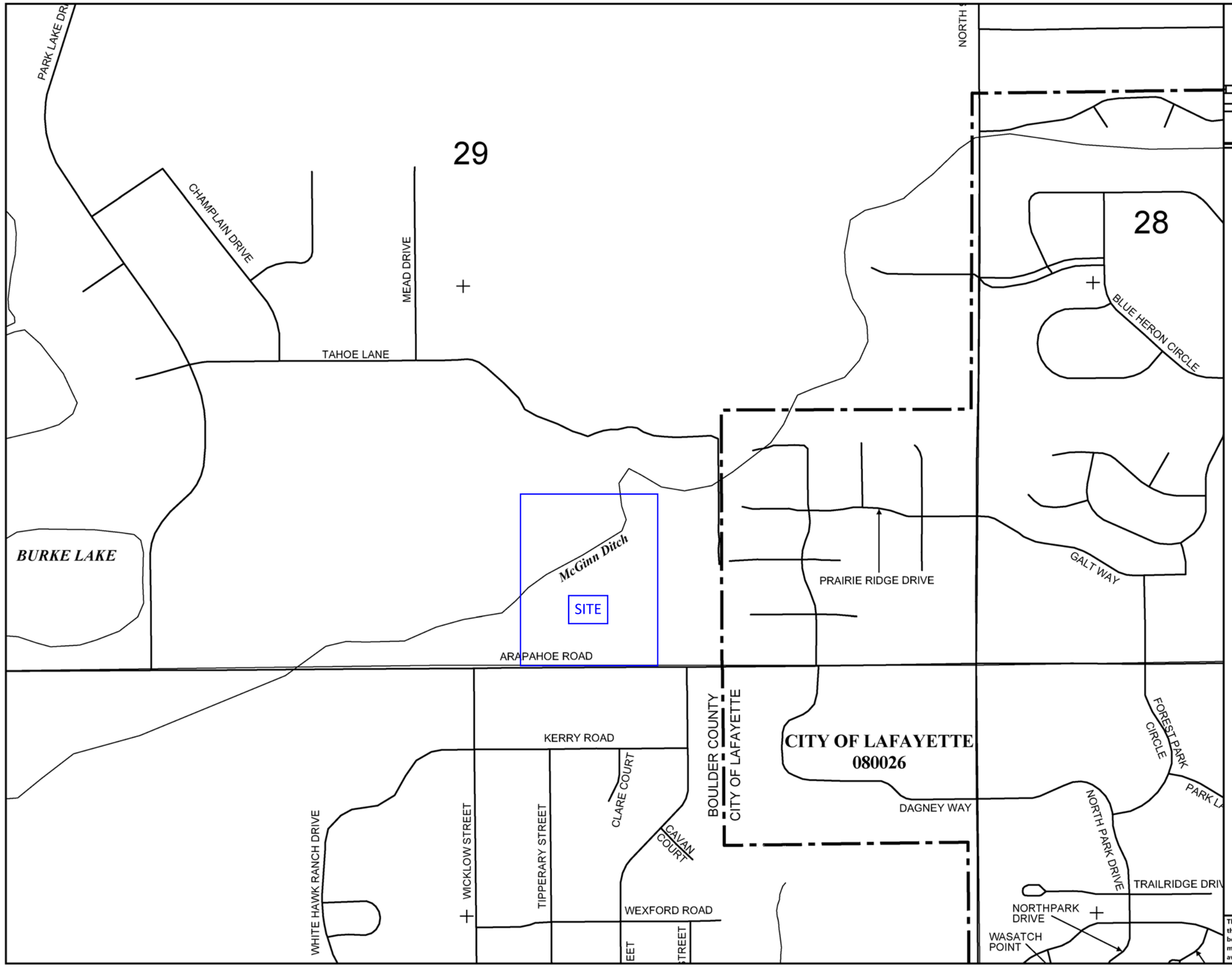
Rick Hagmayer, PE
Senior Project Manager

attachment

Appendix A

Reference Documents

- FIRM Map
- USDA Soils Report
- Project Drainage Map
- Basin Runoff Calculations
- Project Vicinity Map



MAP SCALE 1" = 500'

0 500 1000 FEET

0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0419J

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 419 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER COUNTY	080023	0419	J
LAFAYETTE, CITY OF	080026	0419	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08013C0419J

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

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 Boulder County Area, Colorado

October 24, 2023

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.

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alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

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: 1:1,430 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

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 1:20,000.

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: Boulder County Area, Colorado
Survey Area Data: Version 20, Aug 24, 2023

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

Date(s) aerial images were photographed: Jul 1, 2020—Aug 25, 2021

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
AcA	Ascalon sandy loam, 0 to 3 percent slopes	5.6	79.7%
NnA	Nunn sandy clay loam, 0 to 1 percent slopes	1.4	20.3%
Totals for Area of Interest		**7.0**	**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.

Boulder County Area, Colorado

AcA—Ascalon sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2swl3
Elevation: 3,870 to 5,960 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ascalon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam
Bk - 19 to 35 inches: sandy clay loam
C - 35 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Olnest

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Vona

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

NnA—Nunn sandy clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: jps9
Elevation: 4,900 to 5,500 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Valley sides, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 10 inches: sandy clay loam
H2 - 10 to 16 inches: clay
H3 - 16 to 60 inches: clay loam

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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 5 percent
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Kim

Percent of map unit: 5 percent
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

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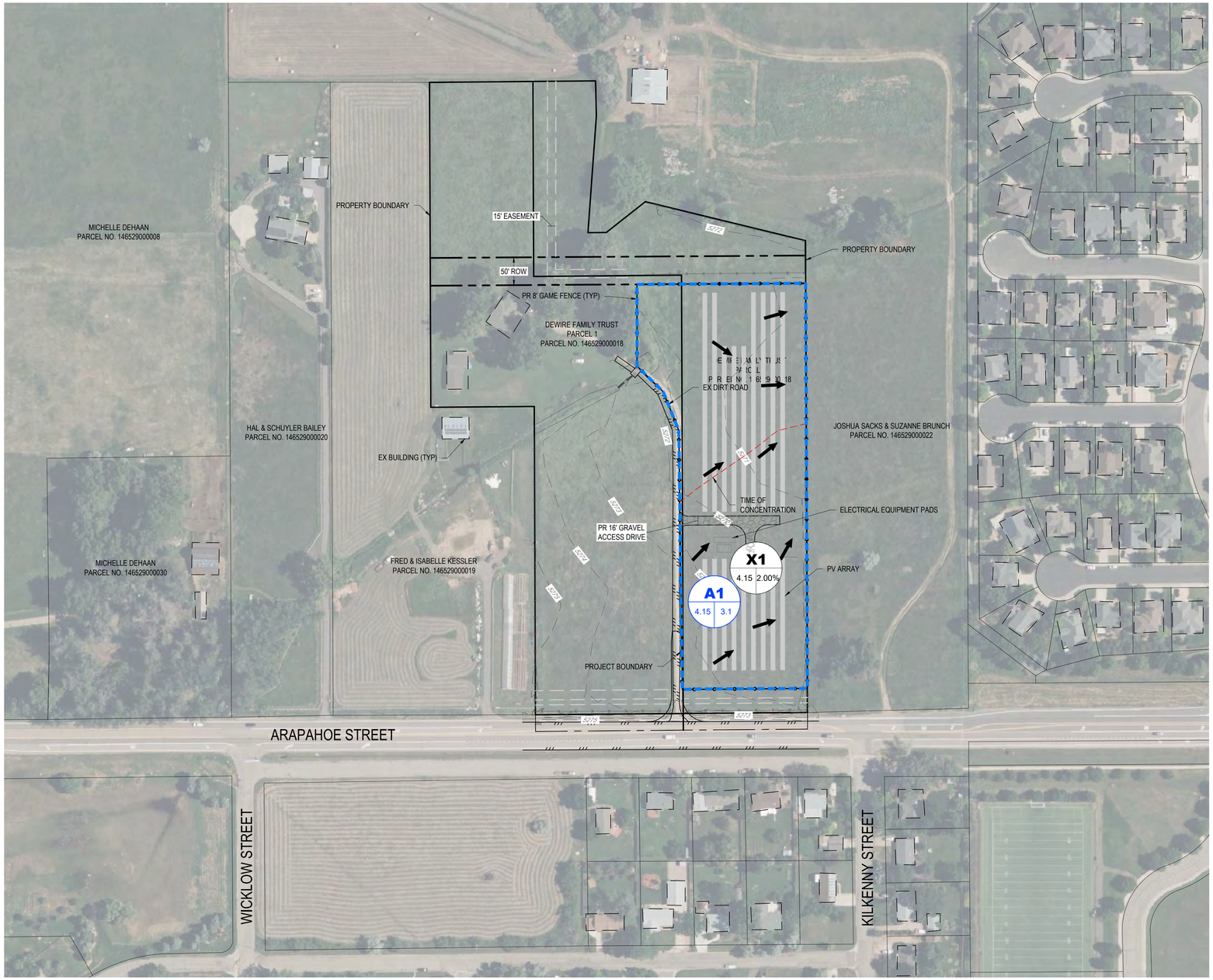


LEGAL DESCRIPTION:

"PARCEL 1"

A PART OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
BEGINNING AT THE SOUTHEAST CORNER OF THAT PARCEL DESCRIBED IN DEED RECORDED NOVEMBER 26, 1971 ON FILM 753, UNDER RECEPTION NO. 998535, BOULDER COUNTY RECORDS, A POINT ON THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE SOUTH 1/4 CORNER OF SAID SECTION 29 BEARS SOUTH 89°47'40" WEST 824.38 FEET; THENCE ALONG THE EXTERIOR BOUNDARY OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535 AS FOLLOWS:
NORTH 00°02'32" EAST, 819.00 FEET PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, SOUTH 89°47'40" WEST 265.93 FEET, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 AND NORTH 00°02'52" EAST, 351.00 FEET, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29 TO THE NORTHEAST CORNER ON THE NORTH LINE OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535;
THENCE NORTH 89°47'40" EAST, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 112.63 FEET; THENCE SOUTH 01°05'07" EAST 62.24 FEET; THENCE SOUTH 04°22'33" EAST, 33.07 FEET; THENCE NORTH 52°25'07" EAST, 90.47 FEET; THENCE SOUTH 75°59'10" EAST, 293.55 FEET; THENCE SOUTH 00°02'52" WEST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 879.45 FEET TO A POINT ON THE SOUTH LINE OF THE SAID SOUTWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE POINT OF BEGINNING BEARS SOUTH 89°47'40" WEST, 223.52 FEET;
THENCE SOUTH 89°47'40" WEST ALONG THE SOUTH LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 223.52 FEET TO THE OF BEGINNING.

AND

"PARCEL 2"

A PART OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF BOULDER, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
BEGINNING AT THE SOUTHWEST CORNER OF THAT PARCEL DESCRIBED IN DEED RECORDED ON NOVEMBER 26, 1971 ON FILM 753, UNDER RECEPTION NO. 998535, BOULDER COUNTY RECORDS, A POINT ON THE SOUTH LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE SOUTH 1/4 CORNER OF SAID SECTION 29 BEARS SOUTH 89°47'40"W, 558.45 FEET; THENCE ALONG THE EXTERIOR BOUNDARY OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535 AS FOLLOWS:
NORTH 00°02'52" EAST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 585.00 FEET; SOUTH 89°47'40" WEST, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 186.15 FEET; NORTH 00°02'52" EAST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 585.00 FEET TO THE NORTHWEST CORNER OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535; AND NORTH 89°47'40" EAST, PARALLEL WITH THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 186.15 FEET TO THE NORTHEAST CORNER ON THE NORTH LINE OF SAID PARCEL RECORDED UNDER RECEPTION NO. 998535;
THENCE CONTINUING NORTH 89°47'40" EAST, 112.63 FEET;
THENCE SOUTH 01°05'07" EAST, 62.24 FEET;
THENCE SOUTH 04°22'33" WEST , 211.37 FEET;
THENCE NORTH 89°41'37" EAST, 33.07 FEET;
THENCE NORTH 52°25'07" EAST, 90.47 FEET;
THENCE SOUTH 75°59'10" EAST, 295.55 FEET;
THENCE SOUTH 00°02'52" WEST, PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 29, 879.45 FEET TO A POINT ON THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, FROM WHENCE THE THE POINT OF BEGINNING BEARS SOUTH 89°47'40" WEST, 489.45 FEET; THENCE SOUTH 89°47'40" WEST, ALONG THE SOUTH LINE OF THE SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4, 489.45 FEET TO THE POINT OF BEGINNING.

LEGEND

- PROPOSED CONDITION DRAINAGE BASIN BOUNDARY
- PROPOSED CONDITION DP BASIN BOUNDARY
- 5525 EXISTING CONTOUR
- PROPOSED FENCE
- XX / XX.X / XX% — PROPOSED BASIN IDENTIFICATION, IMPERVIOUSNESS, AREA (ACRES)
- PROPOSED SLOPE ARROW
- XX / XX.X / XX% — EXISTING BASIN IDENTIFICATION, IMPERVIOUSNESS, AREA (ACRES)

N

0' 50' 100' 200'

SCALE: 1" = 100'

CASE NUMBER: _____

NO.	DATE	REVISION	DR	CHK	APVD
DSGN	PIVOT		TN	RH	RH

ENERTIA CONSULTING GROUP LLC
1515 MARKET STREET
DENVER, COLORADO 80202

Pivot Energy
1601 WEWATTA ST. #700
DENVER, CO 80202

PIVOT ENERGY SOLAR FACILITY 48
ON DEWIRE PARCEL
BOULDER COUNTY, COLORADO

OVERALL
DRAINAGE AREA MAP

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 SCALE

DATE	MARCH 28, 2024
FILE	
DWG	
SHEET	1 OF 1

Calculation of Peak Runoff using Rational Method

Designer: Tom Nichols
Company: Enertia Consulting Group
Date: 3/28/2024
Project: Pivot Solar 48
Location: Dewire Parcel

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

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

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 $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

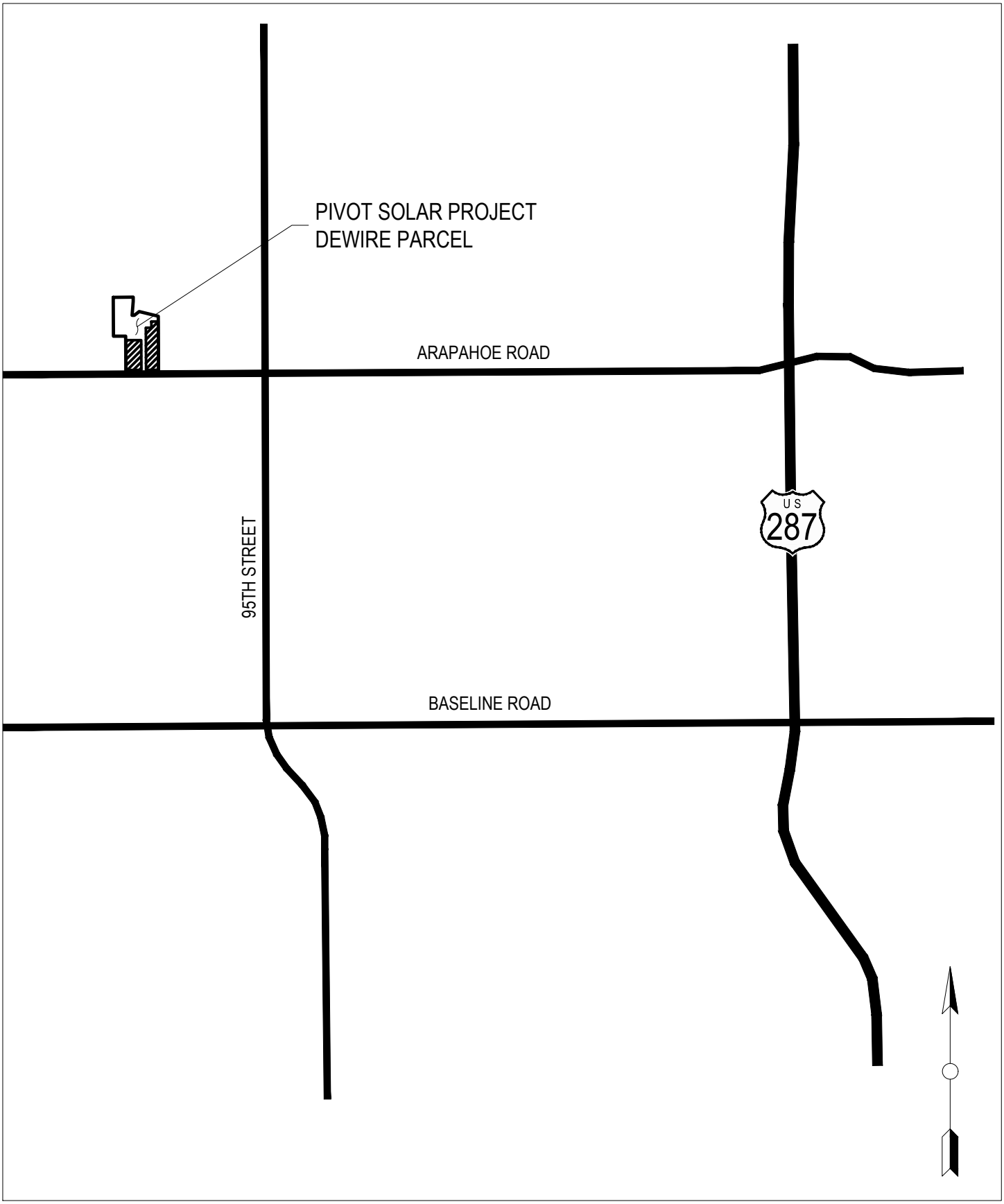
Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.77	1.04	1.29	1.69	2.04	2.43	3.48
	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							Overland (Initial) Flow Time					Channelized (Travel) Flow Time							Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	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)	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)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
X1	4.15	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59	300.00			0.010	32.80	80.00			0.010	5	0.50	2.67	35.46	27.10	27.10	1.29	1.73	2.15	2.81	3.40	4.05	5.79	0.06	0.37	1.31	3.86	5.68	8.26	14.29
A1	4.15	C	3.1	0.02	0.06	0.16	0.34	0.41	0.50	0.60	300.00			0.010	32.51	80.00			0.010	5	0.50	2.67	35.17	26.88	26.88	1.29	1.74	2.16	2.83	3.41	4.06	5.82	0.09	0.44	1.39	3.95	5.78	8.38	14.44



ENERTIA CONSULTING GROUP LLC
1515 MARKET STREET
DENVER, CO 80202
(720) 250-8305

FIGURE 1 - VICINITY MAP
PIVOT ENERGY SOLAR FARM ON DEWIRE PARCEL
BOULDER COUNTY, COLORADO

DATE:	10/26/2023
SCALE:	1" = 5,000'
BY:	TN