

Prairie Pass Energy Storage CUP Feedback Comment Response			
Comment ID	Source / Agency	Feedback / Comment	Feedback Response
PLN01	Planner Review / Greg Barnes	Please provide a comprehensive height exhibit identifying the maximum height of all proposed structures and equipment, including but not limited to battery enclosures, transformers, poles, transmission structures, lightning systems, communication equipment, and any utility infrastructure. This is needed to demonstrate compliance with the maximum height requirements of the A-3 zone district or identify any requested deviations. Any structures exceeding the maximum height of 35 feet will need a variance for each structure.	The requested height exhibit has been added to the CUP application resubmittal package. A variance request will be submitted for the project's lightning protection masts which are expected to exceed the 35 foot height limit. Please refer to the updated IFP Plan Set Sheet C-400 on page 34 of Prairie Pass CUP Update Final for the preliminary locations of the lightning protection masts. Please refer to the attached Height Exhibit on page 38 of the Prairie Pass CUP Update Final for heights of proposed structures and equipment. Additionally, Sections 3.2 and 3.4 of the attached updated Prairie Pass Project Description (pages 15-16 of the Prairie Pass CUP Update Final) have been updated to discuss the proposed structures exceeding 35 feet in height.
PLN02	Planner Review / Greg Barnes	Please provide detailed fencing plans, including fence height, materials, opacity, color, gate locations, and any proposed barbed wire or security features.	Fencing is assumed to be 7 ft of chain link with 1 ft of three strand barbed wire. Proposed fence heights meet both NFPA855 and Adams County standards. The site will have two large gated points of access off of Cavanaugh Rd, with multiple smaller man-gates around the fenceline. A Knox box for emergency access will be available at each gate. Please refer to the updated Prairie Pass IFP Plan Set Sheet C-401 on page 35 of Prairie Pass CUP Update Final for fence locations and plan details.
PLN03	Planner Review / Greg Barnes	Given the industrial appearance of the proposed use and the long-term reclamation obligations associated with battery energy storage infrastructure, staff recommends financial assurance acceptable to Adams County to guarantee decommissioning, removal, reclamation, and restoration of the site upon abandonment or cessation of operations. Please provide an estimate of these costs so that we can negotiate a bond amount.	Please see the attached 3rd party estimate on page 39 of Prairie Pass CUP Update Final for decommissioning, removal, reclamation, and restoration costs at project end of life. Note that this is an end of life estimate, so revisions are likely necessary depending on the timing of the financial assurance posting.
PLN04	Planner Review / Greg Barnes	Please identify lighting fixture types, mounting heights, shielding methods, lumen levels, and hours of operation. Lighting shall be designed to minimize off-site glare and preserve the rural nighttime character of the surrounding area.	Please refer to the updated Prairie Pass IFP Plan Set Sheet E-100 on page 37 of Prairie Pass CUP Update Final for a preliminary lighting plan addressing light details at the project site.
PLN05	Planner Review / Greg Barnes	Please provide parking and site circulation details demonstrating adequate accommodation for employees, maintenance personnel, emergency access, and operational vehicles. Please provide information regarding staffing levels, monitoring procedures, maintenance schedules, and inspection frequencies.	Staffing is expected to be approximately 6 full time technicians. Standard operating procedures will include a monthly maintenance and inspection visit by one or two light passenger vehicle trucks. Maintenance plans will be updated annually with tasks set for each operating milestone (monthly, quarterly, annually). Maintenance work most frequently consists of routine equipment condition inspections. Roads have been designed at 20 ft wide per fire department request. Jupiter Power has been working extensively with local fire departments and stakeholders to ensure the access points, road widths, and road locations are sufficient for fire department use. The system will be monitored 24/7 at the Jupiter Power Remote Operations Center (ROC). The plant will have redundant control systems that will automatically isolate containers if there is an abnormality detected (voltage, temperature, precense of gas).
PLN06	Planner Review / Greg Barnes	Please confirm that there will be no outdoor storage of equipment, materials, containers, replacement parts, or operational supplies. Any outdoor storage areas shall be clearly identified on the site plan and screened or otherwise mitigated as required by Adams County standards.	There will be no outdoor storage of equipment, materials, containers, replacement parts, or operational supplies during the operation of the project. Please refer to Attachment <i>15g. Hazardous Materials and Waste Mgmt Plan</i> that was submitted with the original package for more details about materials handling. Jupiter will compile a SPCC plan that it will provide closer to construction.
PLN07	Planner Review / Greg Barnes	Please provide details regarding all proposed on-site signage, including operational, safety, and identification signage.	IFC and NFPA 855 require signage at the entry points to all ESS areas and on the exterior of ESS cabinets. The signage needs to comply with ANSI Z535 and include the following information as shown in the snip below: - "Energy Storage Systems" with symbol of lightning bolt in a triangle - Type of technology associated with the ESS - Special hazards associated as identified in Chapters 9 through 15 - Type of suppression system installed in the area of the ESS - Emergency contact information Please see ESS Signage Example on page 44 of Prairie Pass CUP Update Final for visual aid. Signage will also be required to identify disconnecting means. NFPA 855 requires a permanent plaque or directory denoting the location of the disconnecting means for all ESS on or in the premises to be installed at each service equipment location and at the location(s) of the system disconnect(s) for all ESS capable of being interconnected. The IFC requires placards or directories to be installed at the location of the main electrical service disconnecting means indicating the location of the ESS disconnecting means where the ESS disconnecting means is not within sight of the main electrical service disconnecting means. The SBB 2.0 will come with exterior signage. Please see Samsung Signage attachments on pages 40-43 of Prairie Pass CUP Update Final for equipment-specific signage details.
ENV1	Environmental Analyst / Megan Grant	Adams County has requirements for residential construction currently, and this may expand to all construction in the future. The applicant should be aware of the standards and regulations, and adherence is recommended for safety and environmental health. Please refer to Adams County Development Standards and Regulations (ACDSR) Section 4-11-02-03-03-05 Residential Construction Standards. For plugged and abandoned wells, there shall be dedicated a well maintenance and workover setback depicted on the plat, the dimensions of which shall be not less than fifty feet in width and 100 feet in length. No permanent structures shall be located within this setback. The plugged and abandoned well shall be located in the center of the setback. There shall be public access for ingress and egress to the setback of a width of not less than twenty feet.	Acknowledged
ENV2	Environmental Analyst / Megan Grant	There is one (1) plugged and abandoned oil and gas well, operated by North American Resources Company, on the subject parcel. Prior to submittal of a site-specific development plan, all well(s) on the subject parcel shall be located and surveyed. The well(s) are shown on the site plan.	Acknowledged
ENV3	Environmental Analyst / Megan Grant	All known oil and gas well flow lines and/or easements shall be graphically depicted on the final plat or site-specific development plan. Though the well may not be active, that does not mean that the flowlines were removed. In the interest of public health and safety, Adams County recommends that the applicant verify the status and location of the flowlines.	Acknowledged
ENV4	Environmental Analyst / Megan Grant	Natural drainage areas are visible across the subject parcels. These drainage areas and wildlife habitat should be addressed in an environmentally sensitive manner in order to protect natural features and processes, protect and enhance important wildlife corridors, and generally sustain a high-quality natural environment.	Section 2.2 of the attached updated Prairie Pass Project Description on page 10 of Prairie Pass CUP Update Final has been updated to include the details of the Colorado Parks and Wildlife (CPW) feedback.
ENV5	Environmental Analyst / Megan Grant	The applicant provided review documentation from USACE for wetlands. The applicant has agreed to meet requirements and recommendations as outlined by USACE. "The freshwater emergent wetland mapped by NWI was also field-verified during the delineation. This feature occurs in an upland area and is completely dominated by cheatgrass (UPL) and cereal rye (UPL) with no hydrological indicators present. Therefore, both NWI and NHD features were determined to not be present due to a lack of wetland indicators and an absence of an OHWM."	Acknowledged
ENV6	Environmental Analyst / Megan Grant	The applicant provided the aquatic resources review documentation (Aquatic Resources Delineation Report for the Prairie Pass Energy Storage System Project prepared by Dudek, July 2024). All recommendations and requirements indicated in the documentation for natural and cultural resources will be followed by the applicant/operator.	Acknowledged
ENV7	Environmental Analyst / Megan Grant	The applicant provided review documentation from Colorado Parks and Wildlife (CPW) regarding special-status species potential to occur within the project site. The applicant has agreed to meet requirements as outlined by CPW, and will mitigate any impacts, if applicable, according to CPW recommendation.	Acknowledged
ENV8	Environmental Analyst / Megan Grant	The applicant provided the biological resources review documentation (Biological Assessment Report for the Prairie Pass Energy Storage System Project prepared by Dudek, June 2024). All recommendations and requirements indicated in the documentation for natural and cultural resources will be followed by the applicant/operator.	Acknowledged
ENV9	Environmental Analyst / Megan Grant	The applicant/operator shall follow all applicable hazardous materials and waste management regulations to ensure proper management of hazardous materials and waste such that they do not present a significant actual or potential hazard to public health, safety, or the environment.	Acknowledged

ENV10	Environmental Analyst / Megan Grant	All potential pollutant sources shall be stored within a covered area and in secondary containment.	Acknowledged
ENV12	Environmental Analyst / Megan Grant	The applicant provided an operations plan or similar document that includes a closure plan and disposition of materials on-site at the time of repair/replacement (e.g., end of battery life) and facility closure.	Acknowledged
ENV13	Environmental Analyst / Megan Grant	All plans shall be reviewed and approved by the applicable fire district and this documentation provided for Adams County review.	Acknowledged
ENV14	Environmental Analyst / Megan Grant	The applicant provided the Fire Master Plan, Hazard Mitigation Analysis, and Emergency Response Plan for Adams County review.	Acknowledged
ENV15	Environmental Analyst / Megan Grant	A Nuisance Control Plan that addresses how nuisance hazard impacts, including vehicle tracking, fugitive dust, noise, and lighting will be controlled was provided by the applicant. Controls detailed in this plan and the application documents may become conditions of the permit.	Acknowledged - Please refer to <i>Attachment 15h. Nuisance Plan</i> from the original submission for preliminary details on nuisance controls at the Project site.
ENV16	Environmental Analyst / Megan Grant	Exposure to air pollution is associated with numerous health problems including asthma, lung cancer, and heart disease. Construction and traffic in unpaved areas may contribute to increased fugitive dust emissions and offsite vehicle tracking. Adams County recommends the applicant utilize all available methods to minimize fugitive dust during all phases of construction and operation.	Acknowledged
ENV17	Environmental Analyst / Megan Grant	Lighting facilities shall be arranged and positioned so no direct light or reflection creates a nuisance or hazard on any adjacent property or right-of-way.	Preliminary lighting engineering was designed to avoid nuisance or hazards on adjacent properties and right-of-ways.
ENV18	Environmental Analyst / Megan Grant	Regular exposure to elevated sound levels can have a negative impact on both physical and mental health by increasing the risk of stress, hearing impairment, hypertension, ischemic heart disease, and sleep disturbance. Noise attenuation shall comply with the Colorado Noise Statute (CRS 25-12-103) and applicable, local noise regulations. All necessary steps should be taken to mitigate off-site noise.	The Prairie Pass project will comply with the Colorado Noise Statute (CRS25-12-103) and applicable noise regulations. Please refer to <i>Attachment 15f. Sound Study</i> of the original submission for more information.
ENV19	Environmental Analyst / Megan Grant	At time of building permit, please provide proof of portable restrooms and water truck delivery for your proposed use. This can be shown via service contracts with the providers that show the service provided, service location (address) and dates of service.	Acknowledged
ENV20	Environmental Analyst / Megan Grant	The Colorado Division of Water Resources (DWR) is the agency that regulates well permitting. Any water well on the subject parcel that is no longer being used must be properly plugged and a Well Abandonment Report (GWS-09) must be filed with the Colorado Division of Water Resources. Please visit the DWR website at http://water.state.co.us/groundwater/wellpermit/Pages/WellAbandonment.aspx for more information.	Acknowledged
ENV21	Environmental Analyst / Megan Grant	An inert fill permit must be obtained prior to importing any volume of fill material onto the parcel as part of site development. The permit type will depend on the duration and total volume of fill imported to the site. The fill must meet the definition of clean, inert material.	Acknowledged
ENV22	Environmental Analyst / Megan Grant	A demolition permit is required to ensure proper removal of debris, utility disconnection, and compliance with safety regulations. Additionally, an inspection by a licensed engineer may be necessary to assess the structural integrity of the remaining foundation if rebuilding is planned. Proper debris removal and disposal plans must be outlined as part of the demolition permit application. Additional information is available at https://adcogov.org/building-permit-and-contractor-registration .	Acknowledged
ENV23	Environmental Analyst / Megan Grant	State air quality regulations require that precautions be taken prior to demolition of buildings to evaluate the presence of asbestos fibers that may present a health risk. If asbestos is present, actions must be taken to prevent their release into the environment. State regulations also address control of ozone depleting compounds (chlorofluorocarbons) that may be contained in air conditioning or refrigerating equipment. The applicant shall contact the Colorado Department of Public Health and Environment Air Pollution Control Division (APCD) at (303) 692-3100 for more information. Additional information is available at http://www.cdphe.state.co.us/ap/asbestos .	Acknowledged
ENV24	Environmental Analyst / Megan Grant	Buildings constructed prior to 1978 may contain lead paint. The Environmental Protection Agency's (EPA) 2008 Lead-Based Paint Renovation, Repair, and Painting (RRP) Rule (as amended in 2010 and 2011), aims to protect the public from lead-based paint hazards associated with renovation, repair, and painting activities. These activities can create hazardous lead dust when surfaces with lead paint, even from many decades ago, are disturbed, such as during demolition activities. More information can be found at https://www.epa.gov/lead/leadrenovation-repair-and-painting-program-rules and https://www.epa.gov/lead .	Acknowledged
ROW1	ROW Review / Thayeng Chang	Revise the site plan to show: (1) the record boundary with dimensions, (2) location of existing public roads and the ROW depicted, and (3) existing structures with the dimensions and ties to the record boundary, existing structures.	Please refer to the updated Prairie Pass IFP Plan Set Sheet C-400 on page 34 of Prairie Pass CUP Update Final for an updated site plan with the comments incorporated.
ROW2	ROW Review / Thayeng Chang	On the site plan, show the recorded information of the document providing right-of-way access to the site. Additionally, show all survey section corner information to help determine the location of the site boundary	Please refer to the updated Prairie Pass IFP Plan Set Sheet C-400 on page 34 of Prairie Pass CUP Update Final for an updated site plan with the comments incorporated.
ROW3	ROW Review / Thayeng Chang	Pending engineering review, any storm water quality facilities will require a permanent drainage easement conveyed to the county by separate instrument. The easement agreement shall include a legal description and illustration depicting the legal description prepared by a licensed professional land surveyor. If the detention location does not abut a dedicated ROW, an access easement will be required with the same requirements outlined above.	Acknowledged - further coordination with Adams County may be required to understand this requirement.
ROWa	ROW Review / Thayeng Chang	According to Transportation Master Plan, Cavanaugh Road is classified as a Section Line Arterial. The right-of-way width for this classification is 60' half width.	Acknowledged
ENG1	Development Engineering / Laurie Clark	The proposed improvements to the property will require a Development Engineering Review. Developer is required to submit for review and receive approval of all Construction Documents (CDs), Drainage Report and Drainage Plan, and Traffic Impact Study (TIS). All CDs must meet the requirements of the Adams County Development Standards and Regulations (ADCO DSR). CDs shall include, at a minimum, onsite and public improvements construction plans. The Drainage Report and Drainage Plan must be in accordance with and meet the requirements of Chapter 9 of the ADCO DSR. The TIS must be in accordance with and meet the requirements of Chapter 8 of the ADCO DSR. The CD's, Drainage Report and Drainage Plan, and TIS must all be signed and stamped by a Professional Engineer licensed in the State of Colorado. The Complete Development Engineering Review (EGR) Application can be found at the following URL: https://adcogov.org/sites/default/files/Development-Engineering-Review.pdf	Acknowledged - a Development Engineering Review Package has been submitted to the County.
ENG2	Development Engineering / Laurie Clark	According to the Federal Emergency Management Agency's January 20, 2016 Flood Insurance Rate Map (FIRM Panel #08001C0395H), the project site is NOT located within a regulated 100-yr floodplain. A Floodplain Use Permit is NOT required.	Acknowledged
ENG3	Development Engineering / Laurie Clark	Property is not in Adams County MS4 Stormwater Permit area. Proposed improvements appear to disturb more than one (1) acre of ground. A Stormwater Quality (SWQ) Permit will not be required, but, a State Permit COR4000000 WILL be required as long as one (1) acre or more of ground is disturbed. Applicant is responsible for installation and maintenance of Erosion and Sediment Control BMPs. Builder/developer is responsible for adhering to all the regulations of Adams County Ordinance 11 regarding illicit discharge.	Acknowledged
ENG4	Development Engineering / Laurie Clark	The applicant will be required to construct roadway improvements to Cavanaugh Rd. AS this road is already constructed and a rural/gravel road, the roadway improvements will consist of restoration of the County's standard roadway cross section for a rural/gravel road, including shoulders and roadside drainage swale. These improvements are required for the half road section, adjacent to the site.	Acknowledged
ENG5	Development Engineering / Laurie Clark	If the applicant proposes to import greater than 10 CY of soil to this site, additional permitting is required. Per Section 4-04-02-02, of the Adams County Development Standards and Regulations, a Temporary or Special Use Permit is required to ensure that only clean, inert soil is imported into any site within un-incorporated Adams County. A Conditional Use Permit will be required if the importation exceeds 500,000 CY.	Acknowledged

ENG6	Development Engineering / Laurie Clark	All improvements to the property must be done outside of Adams County Right-of-Way. Applicant appears to be proposing to install over three thousand square feet (3,000-sf) of impervious area on the project site, which exceeds the Storm Drainage Study (DS) thresholds cited in Table 9.1 of Adams County Development Standards and Regulations (ACDSR). The applicant must submit a drainage report per Chapter 9 of the ACDSR.	Please see the attached Prairie Pass Preliminary Drainage Plan on pages 45-96 of Prairie Pass CUP Update Final . The drainage plan is a preliminary study meant to show overall compliance with the county regulations. Additional drainage studies will be performed when engineering design is further advanced.
ENG7	Development Engineering / Laurie Clark	The applicant is required to complete a Trip Generation Analysis (TGA), signed and stamped by a Professional Engineer (P.E.) licensed in the State of Colorado. If the vehicle trips per day exceed twenty (20), the applicant will be required to submit a Traffic Impact Study (TIS) and may be responsible for roadway improvements (i.e. roadside ditches).	An Operational Trip Generation Analysis (TGA), dated April 16, 2026, was included in the CUP submittal package (12. Operational TGA). As discussed with Laurie Clark via email on May 3, 2026, the Operational TGA will also be included in the Development Engineering Review package and the need for a Traffic Impact Study (TIS) will be determined through the Development Engineering Review process.
ENG8	Development Engineering / Laurie Clark	The Mile High Flood District has proposed a channel improvement on the Southwest corner of the site. The channel is included in the study titled "Horse Creek Watershed OSP, dated February 2003. Development of this site will need to avoid the area of the planned Channel. In Addition, the applicant will be required to dedicate an easement for this channel to the County.	The applicant acknowledges Adams County's comment regarding the Mile High Flood District channel identified in the Horse Creek Watershed OSP (February 2003) and will continue to coordinate with MHFD as site design progresses. Per the project Site Plan, infrastructure is being sited to avoid the drainage feature in question. It is important to note that the referenced Mile High Flood District (MHFD) study was completed in 2003. Recent coordination on 6/10/2026 with Andy Stewart of the Mile High Flood District confirmed that the District does not have a current project, funding, or near-term schedule to advance stream improvements in this area. It is also worth noting that the nearby Green Valley Substation was previously graded and constructed in close proximity to the same MHFD channel alignment. Applicant's design and construction processes will be similar to those utilized for the Green Valley Substation. It is also likely that site conditions have changed since the MHFD study was published in 2003. Applicant completed a wetland delineation as a part of site diligence efforts in 2024 with a sampling pit dug in the area corresponding to the MHFD alignment and determined that no wetland indicators or ordinary high-water indicators were present. This finding was confirmed by USACE as part of the approved jurisdictional determination that was completed for the project which determined the entire site to be classified as "upland". Applicant will continue to coordinate with Adams County and MHFD as needed.
N/A	Colorado Department of Public Health and Environment	Thank you for contacting the Colorado Department of Public Health and Environment (CDPHE). Please note that the following requirements and recommendations apply to many but not all projects referred by local governments. Also, they are not intended to be an exhaustive list and it is ultimately the responsibility of the applicant to comply with all applicable rules and regulations. CDPHE's failure to respond to a referral should not be construed as a favorable response.	Acknowledged
N/A	Colorado Department of Public Health and Environment's Air Pollution Control Division	The Colorado Department of Public Health and Environment's Air Pollution Control Division (APCD or Division) received a request for an air quality administrative review concerning the proposed Prairie Pass Energy Storage & Substation project as described in your correspondence dated May 5, 2026. The Division has reviewed the project letter and respectfully offers the following comments. Please note that the following Air Quality Control Commission (AQCC) regulations may not be inclusive of the regulations the proposed project will be subject to. It is the responsibility of the involved parties to determine what regulations they are subject to and follow them accordingly. Land Development We also note that projects similar to this proposal often involve land development. Under Colorado air quality regulations, land development refers to all land clearing activities, including but not limited to land preparation such as excavating or grading, for residential, commercial or industrial development. Land development activities release fugitive dust, a pollutant regulated by the Division. Small land development activities are not subject to the same reporting and permitting requirements as large land activities. Specifically, land development activities that are less than 25 contiguous acres and less than 6 months in duration do not need to report air emissions to the Division. It is important to note that even if a permit is not required, fugitive dust control measures including the Land Development APEN Form APCD-223 must be followed at the site. Fugitive dust control techniques commonly included in the plan are included in the table below.	Acknowledged
N/A	Colorado Geological Survey	The Colorado Geological Survey has no objection to approval of PRC2026-00010, for a BESS and utility substation at 12500 Cavanaugh Road. The characterization of subsurface conditions and recommendations in Ninyo & Moore's Geotechnical Evaluation, Prairie Pass BESS, Adams County, Colorado (Ninyo & Moore Project No. 503390001, February 16, 2026) are valid.	Acknowledged
N/A	CORE Electric Cooperative	We have received the above-referenced referral request. After reviewing our records, we have determined that this property is not within CORE Electric Cooperative's service territory. No further comments or conditions apply from CORE for this referral. If you have any questions or need additional clarification, please feel free to contact us.	Acknowledged
N/A	Lumen	No reservation, please see the attached picture as the location of Lumen facilities. Lumen also recommends that locates are done for all facilities for your project to ensure safety and protection of all facilities.	Acknowledged - Applicant's project facilities do not impact Lumen or other existing facilities. Please see attached ALTA survey on pages 97-101 of Prairie Pass CUP Update Final for reference.
N/A	Public Service Company of Colorado dba Xcel Energy	Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the above captioned project. Public Service Company has existing electric transmission lines and associated land rights as shown within this property. Any activity including grading, proposed landscaping, erosion control or similar activities involving our existing right-of-way will require Public Service Company approval. Encroachments across Public Service Company's easements must be reviewed for safety standards, operational and maintenance clearances, liability issues, and acknowledged with a Public Service Company License Agreement to be executed with the property owner. PSCo is requesting that, prior to any final approval of the development plan, it is the responsibility of the property owner/developer/contractor to have this project assigned to a Land Rights Agent for development plan review and execution of a License Agreement (via either website www.xcelenergy.com/rightofway or email coloradorightofway@xcelenergy.com). The property owner/developer/contractor must complete the application process for any new electric service via Building and Remodeling Partner Resources Xcel Energy. It is then the responsibility of the developer to contact the Xcel Designer assigned to the project for approval of design details. Additional easements may need to be acquired by separate document for new facilities – be sure to contact the Designer and request that they connect with a Right-of-Way and Permits Agent in this event. As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.	Acknowledged - Prairie Pass LLC has applied for an Xcel Right-of-Way Encroachment application for encroachments on Public Service Company of Colorado utility easements and other real property. Xcel Energy received the request for encroachment review and assigned the case as Investigation No. 2026-087.
N/A	United Power, Inc.	On behalf of United Power, Inc., thank you for inviting us to review and comment on the Conditional Use Permits for Prairie Pass Energy Storage Facility and Substation. The following comments are subject to change as information is received or if there are changes to the plans during additional reviews. • United Power has existing overhead electrical distribution to the west of Cavanaugh Rd and existing underground distribution along the northern lot line. You will need to work with United Power to have the service upgraded, relocated, removed, and/or abandoned. Please know this will be at the expense of the applicant. • United Power would like to work closely with Xcel Energy during the project and if needed, have a meeting to identify the areas of concern and establish next steps. If any modification to existing facilities, including upgrades, relocation, or removal, is needed, an application can be submitted at https://www.unitedpower.com/construction.	Acknowledged - Applicant will work with United Power to upgrade, relocate, remove, and/or abandon existing facilities, as needed.
N/A	Chad and Angela Hubbart	Hello I received a letter asking for comments in respect to project # PRC2026-00010. We think it's a wonderful idea We think it would stabilize our electric supply, and possibly make our energy cheaper during peak usage in the future. We approve of the project!	Acknowledged



Re-submittal Form

Case Name/ Number: Prairie Pass BESS / PRC2026-00010

Case Manager: Greg Barnes

Re-submitted Items:

- ☒ Development Plan/ Site Plan
- ☐ Plat
- ☒ Parking/ Landscape Plan
- ☒ Engineering Documents
- ☐ Subdivision Improvements Agreement (Microsoft Word version)
- ☒ Other: Response to Comments

*** All re-submittals must have this cover sheet and a cover letter addressing review comments.**

Please note the re-submittal review period is 21 days.

The cover letter must include the following information:

- Restate each comment that requires a response
- Provide a response below the comment with a description of the revisions
- Identify any additional changes made to the original document

For County Use Only:

Date Accepted:

Staff (accepting intake):

Resubmittal Active: Engineering; Planner; Right-of-Way; Plan Coordination

Project Description

Prairie Pass Energy Storage Project

JUNE 2026

For submittal to:

ADAMS COUNTY

4430 S Adams County Pkwy
Brighton, Colorado 80601

Prepared and submitted by:

DUDEK

1001 Bannock St #231
Denver, Colorado 80204

On behalf of:

PRAIRIE PASS LLC

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Summary

Prairie Pass LLC (Prairie Pass) is proposing to construct and operate the Prairie Pass Energy Storage Project (Project), a utility scale battery energy storage system (BESS) within Adams County, Colorado (County). The Project would connect to the existing 230-kilovolt (kV) Xcel Energy (Xcel) Green Valley substation located directly adjacent to the Project site to the south via a generation transmission line (gen-tie line). The Project would provide additional capacity to the electrical grid to assist with serving load during periods of peak demand by charging when demand is low and discharging when demand is high. Batteries are extremely fast acting capable of responding within fractions of a second to stabilize voltages and support a very high-quality and reliable electric grid. In addition to supporting reliability, these batteries also accommodate the future integration of intermittent renewable energy sources, such as wind and solar, and reduces the need to operate natural gas power plants to meet peak demand. This will assist the State of Colorado in meeting its greenhouse gas emissions reduction goals of 50% by 2030, and 100% by 2050, as required by Colorado's Greenhouse Gas Emission Reduction Measures bill (Senate Bill 23-016), signed into law on May 11, 2023.

This Project Description has been prepared to provide an overview of the facilities that are proposed to be constructed and operated as part of the Project. The Project site plan has been provided under separate cover.

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1 Introduction

1.1 Project Location

The Project site consists of an approximately 40-acre property (Assessor's Parcel Number C) located roughly half a mile north of the intersection of E 120th Ave and Cavanaugh Rd within unincorporated Adams County (see Figure 1, Project Site). The Project borders the Xcel Green Valley substation to the south, rural agricultural property to the east and north, and Cavanaugh Rd to the west.

1.2 Project Objectives

Colorado's electric grid is a complex system providing reliable power to Colorado residents. Per the goals established in Colorado's Greenhouse Gas Emission Reduction Measures Act, the state relies increasingly on renewable sources of energy, such as solar, wind, geothermal, hydroelectricity, and biomass. Grid energy storage technologies provide multiple services, such as energy management, backup power, load leveling, frequency regulation, voltage support, and grid stabilization. A host of energy storage facilities is necessary to provide all these different services to the grid effectively. As noted by the U.S. Department of Energy, "energy storage can reduce the need for major new transmission grid construction upgrades as well as augment the performance of existing transmission and distribution assets." Furthermore, "energy storage will also play a significant role in emergency preparedness and increasing overall grid resilience" (USDOE 2013).

Battery energy storage systems charge when there is an abundance of power available, and discharge back to the grid when demand for power becomes high. The technology is advancing rapidly as a grid resource and will support system load balancing by Xcel when solar and wind resources are intermittently available. Power from solar and wind are often produced at different times of the day, which may not align with peak demand. Energy storage can be used to fill in the gaps when those resources may not be generating as much power.

Due to Colorado's clean energy goals and increasing energy demands in the region, Xcel is actively soliciting battery energy storage systems like Prairie Pass to serve as load balancing systems on their electric grid. The Green Valley substation, where Prairie Pass is proposed, is a critical location on Xcel's grid due to its proximity to intermittent renewables to the east and urban load in metro Denver to the west. A battery energy storage system at Green Valley would help to improve the overall reliability and resiliency of the Denver metro and regional power grid.

Construction of the Project would accomplish the following:

- Assist Colorado in meeting its greenhouse gas emissions reduction goals of 50% by 2030, 65% by 2035, 75% by 2040, and 100% by 2050.
- Enhance grid reliability in the region by providing a new and incremental capacity resource that can be utilized by Xcel to minimize reliance on the transmission system during periods of peak demand or transmission contingencies
- Accommodate increasing amounts of intermittent renewable energy generation that often is not available during the early evening when energy demand is often highest

- Provide economic benefit to the County, the region, and the state, through construction jobs, property and sales taxes, construction and maintenance services, and improved energy efficiency and reliability
- Use commercially proven and established energy storage technology that is efficient, has low maintenance requirements, and is recyclable

In addition to these benefits to the region and Colorado, specific benefits to the County are below:

- Annual property tax revenues would be payable to the County from the Project.
- Local benefits would accrue to the County from having the storage facility located within the County. While this helps the entire region, it would also benefit the County by maintaining the reliability and resiliency of the grid locally.
- The Project would provide significant economic benefits without burdening local transportation infrastructure, sewage infrastructure, or the local public services.

2 Project Setting

2.1 Land Use and Zoning

The Project site was selected because it is directly adjacent to the Xcel Green Valley substation and associated transmission infrastructure, which will allow the project to interconnect into Xcel's transmission and distribution system without creating lengthy connections that would be created if the site were farther from the substation. This proximity to the substation minimizes the land use impacts that the project might otherwise create.

The Project site is located in the Agricultural 3 (A-3) (see Figure 2, Zoning). The parcels surrounding the Project site are also zoned A-3. The Xcel Green Valley substation is located just south of the parcel.

The northern portion of the Project site, parcel 0156534200004 is a vacant residential property. The southern portion of the Project site is also vacant but was used recently for grazing. The property contains two capped oil wells, one in the middle of the parcel and one in the northwestern quarter. Surrounding land uses are rural residential and agricultural.

2.2 Biological Resources

Dudek performed a desktop review of the Project site to assess the potential for biological and aquatic resources. Dudek reviewed several data sets including the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) database (USFWS 2024a), Colorado Natural Heritage Program Tracking List for Adams County (CNHP 2024a), and Colorado Conservation Data Explorer (CNHP 2024b) to determine the potential for special-status wildlife and plant species to occur in the vicinity of the Project site.

After the desktop review, Dudek biologists conducted a general biological reconnaissance field survey (reconnaissance survey) of the Project site on June 13, 2024. The purpose of the reconnaissance survey was to verify previously mapped existing vegetation communities and land covers, identify commonly occurring plant and wildlife species, identify plant and wildlife species protected under the federal Endangered Species Act, and determine the likelihood of occurrence of any special-status plant or wildlife species.

Based on the desktop review and the reconnaissance survey, three special-status plant species and eight special status wildlife species have low potential to occur within the project site. However, none of these species nor their sign were observed during the reconnaissance survey.

Dudek shared the Biological Assessment Report (report) for the Prairie Pass Energy Storage System Project (Dudek 2024a) with Colorado Parks and Wildlife (CPW) on March 20th, 2025, to request some preliminary comments related to the report's findings and potential project design constraints. On March 25th, 2025, CPW representative Lexi Hamous-Miller provided preliminary comments for the project. CPW concurred with the findings of the report including the recommended next steps related to nesting bird surveys, fencing design, mortality reporting, and power line compliance (L. Hamous-Miller, personal communication, March 20, 2026). Concerns related to natural drainages and wildlife corridors were not noted during the preliminary consultation and are assumed to not be an issue for this project. Dudek will continue to consult with CPW regarding special-status species potential to occur

within the project site and will mitigate any impacts, if applicable, according to CPW recommendations as the project moves forward in the design phase.

2.3 Wetlands

Dudek conducted an aquatic resources field delineation on June 13, 2024. Potential aquatic resources were delineated based on methodology described in the USACE Wetlands Delineation Manual (USACE 1987) and the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (USACE 2010). Non-wetland waters of the United States were delineated based on the presence of an ordinary high-water mark (OHWM).

All National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD) features were visited during the field delineation. A sample point was taken within the lowest depressional point of the Project site within the NWI/NHD feature that crosses the southwestern corner of the project site. This was the only location within the Project site that showed potential wetland indicators. Although surface soil cracks, a secondary hydrological indicator, were noted at this sample point, dominant vegetation included Mexican-fireweed (*Bassia scoparia*; facultative upland) and cereal rye (upland [UPL]). Additionally, hydric soil indicators were not observed, ruling out this area as a wetland.

The freshwater emergent wetland mapped by NWI was also field-verified during the delineation. This feature occurs in an upland area and is completely dominated by cheatgrass (UPL) and cereal rye (UPL) with no hydrological indicators present. Therefore, both NWI and NHD features were determined to not be present due to a lack of wetland indicators and an absence of an OHWM. Dudek is currently consulting with USACE to confirm these results.

For additional information please refer to the Aquatic Resources Delineation Report for the Prairie Pass Energy Storage System Project prepared by Dudek in July 2024 (Dudek 2024b).

2.4 Noise

The project is subject to the Adams County noise limit of 55 dBA during daytime hours (7 a.m. to 10 p.m.) and 50 dBA during nighttime hours (10 p.m. to 7 a.m.) at the nearest residential property. Sound-sensitive receptors, in the form of rural residences, are located to the north and west of the site. Noise sources affecting noise levels on the Project site and in the vicinity mainly include vehicular traffic on nearby roads and from nearby industrial uses. The proposed BESS will be enclosed in purpose-built enclosures. The Project will be designed to meet the requirements of General Ordinances of Adams County. Dudek will conduct a Sound Study to assess potential operational noise impacts associated with the project to ensure county ordinances are met.

2.5 Visual Resources

The Project will follow Section 2-02-09-06 (Conditional Use Permit Criteria for Approval) of the Adams County Development Standards and Regulations (ACDSR). The Project Landscaping Plan identifies landscaping and screening requirements consistent with Section 4-19 (Landscaping) of the ACDSR as applicable. Any additional requirements related to visual resources identified during permitting will be incorporated into the final site plan.

2.6 Air Quality

During operation, the Project would not have any direct emissions during normal operations. The Project would store energy but would not itself be a source of air pollutant emissions. The Project would not increase operational mobile source emissions as minimal vehicle trips would be added by the Project.

3 Project Characteristics

The Project is designed to discharge electricity to the grid via battery energy storage enclosures with associated on-site support facilities consisting of inverters, collector lines, fencing, all weathered access roads, supervisory control, a SCADA (Supervisory Control And Data Acquisition) system, and other ancillary facilities and equipment (see Site Plan submitted under separate cover). The Project would also include a collector substation and gen-tie line that will support interconnection to the existing Xcel 230 kV Green Valley substation.

The Project is expected to create approximately 125 jobs during construction, many of which can be sourced from the County and adjacent areas. The Project will prefer to hire local construction workers during the build phase of the Project if possible. The Project would be operated remotely but would require periodic maintenance to be performed by regional employees and contractors.

The Project would generate tax revenue for the County during construction and operations. The total tax revenue has not been calculated at this time, but it will be based on the total Project cost during construction.

3.1 Battery Energy Storage System

The Project will consist of battery energy storage enclosures and Power Conversion System (PCS) units, which contain a medium voltage transformer, an inverter, and a switchgear¹. The battery enclosures are pre-fabricated off site and arrive to the site ready to be installed and operated. The quantity of energy storage enclosures and the equipment manufacturer are subject to change based on available battery technology at the time of construction. Each battery energy storage enclosure would have insulation, a module cooling system, a battery management system, and fire detection equipment. Ancillary equipment includes power conversion systems (PCS) containing electronic controls, inverters, and a separate medium voltage step-up transformer. The primary storage components would consist of self-contained electrochemical battery systems using conventional storage technologies with proven safety and performance records. The BESS enclosures would be designed such that the periodic maintenance and replacement of underperforming battery components can be easily performed on an as-needed basis without replacing the entire enclosure. The battery energy storage product supplier has not been selected at this time; however, the dimensions of each enclosure are expected to be approximately 20 feet long, 8 feet wide, and 12 feet high.

Fire detection measures are intrinsically incorporated into the Project design in accordance with National Fire Protection Association (NFPA) safety standards. Since the selection of batteries has not yet been finalized, the capacity and size of the battery enclosures may vary, as may the ratings of the conversion equipment (inverters and transformers). While the components and total megawatts of the Project may end up differing from preliminary drawings, the overall project footprint size will remain consistent.

¹ The battery energy storage containers are manufactured by Hithium, Sungrow, Tesla, Fluence, CATL, LG Chem, and a number of other manufacturers. A specific technology has not been selected at this time and will be finalized during detailed design

Individual lithium-ion, or similar technology, battery cells are the smallest unit within the battery enclosure and contain the chemistry which stores electrical energy. Cells are assembled in sealed battery modules. The battery modules are installed in self-supporting racks that are electrically connected to each other and fit inside of the larger weather-proof BESS enclosure.

The BESS facility would be unstaffed and would include remote operational control; inspections/maintenance would be performed as necessary. The BESS facility would be uninhabited with no bathroom facilities, running water, or permanent office space. Project operations would be monitored remotely through the SCADA system adjacent to the collector substation. Periodic inspections and maintenance activities would occur on the Project site.

3.1.1 Fire Protection System

Should a thermal event occur, the BESS units are designed and certified so that fire will not propagate from one enclosure to the neighboring enclosure. Fire protection would also include multiple fire detection systems on site and within the individual BESS units. Each BESS unit contains an onboard battery management system that monitors the appropriate state of individual battery cells and relays information back to a control center 24-7.

Pursuant to manufacturer specifications, all BESS products considered for the project are fully certified up to the most rigorous international safety standards. Some of the relevant certifications are listed as follows:

- UL 1642 – Standard for Lithium Batteries
- UL 1973 – Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications
- UL 9540 – Standard for Energy Storage Systems and Equipment
- UL 9540A – Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems
- IEC 62619 – Standard for Battery Safety in Stationary Applications
- NFPA 855 - Standard for the Installation of Stationary Energy Storage Systems
- NFPA 68 – Standard on Explosion Protection by Deflagration
- NFPA 69 – Standard on Explosion Prevention Systems

Brighton Fire Rescue District (the authority having jurisdiction) would have review and approval rights for the facility fire protection and suppression plans. Prairie Pass has prepared drafts of a Fire Master Plan, a Hazard Mitigation Analysis, and Emergency Response Plan which are attached to this submittal package and have been sent to Chief Godek at the Brighton Fire Rescue District.

3.1.2 Battery Energy Storage System Enclosures and Controller

The BESS enclosure consists of cells, modules, and racks. Cells are the smallest component of the BESS enclosure and look like motorcycle batteries. These cells are lined up and inserted into modules, which are used to hold rows of cells and provide battery health monitoring capabilities. Each module is then inserted into a rack, and multiple racks make up the BESS enclosure. The enclosure structures are hermetically sealed and temperature controlled via heating, ventilation, and HVAC.

The Battery Energy Storage System (BESS) includes two distinct levels of controls: the Battery Management System (BMS) and the Energy Management System (EMS). The BMS is responsible for monitoring and protecting individual battery modules, managing voltage, temperature, state of charge, and health to ensure safe operation at the cell and rack level. Separately, the EMS coordinates the operation of the full system, including inverters, the medium-voltage system, and the connection to the electrical grid. It provides real-time control logic to optimize performance, ensure response to grid signals (e.g., frequency or voltage events), and implement site-wide shutdown protocols if needed. Together, these layered controls ensure both operational performance and safety, allowing the system to autonomously respond to grid emergencies while protecting critical components.

3.1.3 Power Conversion System

The Power Conversion System (PCS) would consist of an inverter, a medium-voltage transformer, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, harmonic filters, equipment terminals, and a connection cabling system. The PCS may consist of standalone units connected to multiple BESS enclosures, or they can be integrated into the BESS enclosures themselves. The PCS converts electrical energy from AC to DC when the energy is transferred from the grid to the battery enclosure, and from DC to AC when the energy is transferred from the battery enclosure to the grid. The energy conversion between AC and DC is achieved using a bi-directional inverter that connects the DC battery enclosure to the AC electrical grid. The PCS units also include a transformer that steps up and down the voltage to maintain 34.5 kV AC at the PCS inverter level to increase the overall efficiency of the BESS.

3.2 Project Collector and Xcel Substation

The Project collector substation is where power is transformed between 34.5kV and the 230kV interconnection voltage at the Xcel Green Valley substation. This voltage change is achieved via a step-up transformer (a.k.a main power transformer). The open-air collector substation would be constructed on site and connect to the existing Xcel Green Valley substation via a new gen-tie line. Lightning structures are anticipated to be over 35-feet-tall, which is the maximum height of structures within the A-3 zone per Section 3-10-06-05-01 of the ACDSR. Therefore, Prairie Pass LLC will file a variance request with the updated permit package for the lightning structures. There will be a maximum of six standalone lightning masts on the project site, each up to 65-feet-tall, and two lightning spikes attached to the gen-tie line gantry mast in the substation that will not exceed 85-feet-tall.

3.3 Operations and Maintenance

Once constructed, the Project is expected to operate 7 days per week, 365 days per year. The facility would be remotely monitored by Prairie Pass or an affiliated company. Project operations would be monitored remotely through the SCADA system. The Project would include one single-story control shelter (approximately 400 to 700 square feet and a height of about 15 feet) near the collector substation that will contain project operations equipment including the SCADA system, relays, and a small backup power system. The Project would also include up to three conditioned trailers of approximately similar size and dimension to a 40-foot International Organization for Standardization (ISO) enclosure which are intended to be used by operations and maintenance personnel for parts storage and temporary workstations. Periodic augmentation of batteries within the Project site would occur to maintain the nameplate energy capacity over the project life. Occasionally on-site maintenance would be required, which would include replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

During Project operations, operation and maintenance staff would visit the site periodically for routine check-ins, equipment swaps, and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including, but not limited to, equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance.

Routine operations would require one or two workers in a light utility truck to visit the facility on a roughly daily basis.

3.4 Transmission Line

Energy would be transported to and from the Project collector substation to the existing Xcel Green Valley substation via a proposed gen-tie line. Gen-tie line poles are anticipated to be over 35-feet-tall, which is the maximum height of structures within the A-3 zone per Section 3-10-06-05-01 of the ACDSR. However, per correspondence with Greg Barnes on June 9th, 2026, gen-tie line poles over 35-feet-tall do not require a height variance as they are considered utility poles, which are exempt per Section 11-02-597 of the ACDSR.

3.5 Perimeter Fencing, Signage, Landscaping, Lighting, and Access

The perimeter of the Project would be enclosed by an approximately 7-foot-tall chain-link security fence topped with 1-foot-tall, barbed wire. Landscaping would be augmented as needed to meet screening and County Code requirements. Low-elevation security lighting would be installed throughout the project site. Primary access to the site would be via Cavanaugh Rd.

3.6 Construction

Construction would be primarily composed of the following activities:

- **Site Preparation:** Rough grading may be performed where required to accommodate support structures and all weathered access roads. Retention basins, if required, would be created for hydrologic control. All weathered access roads would be gravel or aggregate base depending on the final site geotechnical report. A temporary staging area would be constructed to hold materials and construction equipment. Foundations will be prepared for the electrical equipment to be placed on. Trenches will be dug and conduit will be placed for the underground cable connections required for the electrical work.
- **Fencing:** An approximately 7-foot-tall perimeter security fence topped with 1-foot-tall barbed wire would be installed around the BESS facility.
- **Electrical Work:** The cables necessary for the electrical equipment connections will be routed through the prepared conduit. The electrical equipment consisting of battery enclosures, PCS, and substation equipment will be delivered to site by trucks and placed onto the prepared foundations by crane as necessary. The prepared cables will be connected to the appropriate electrical equipment as instructed in manufacturer installation manuals.

The Project is anticipated to be built over an approximately 1.5-year period from the onset of site preparation activities through testing and commissioning of the facility. It is anticipated that construction crews would work 8 or 10 hours per day, with work occurring Monday through Friday. Overtime and weekend work would be used only

as necessary to meet scheduled milestones or accelerate the schedule and would comply with applicable Colorado labor laws and County limitations on working hours.

Although the Project site is fairly level, grading would be required, especially for the construction of roads, on-site substation, battery enclosures, and inverter pads. This would be accomplished with scrapers, graders, water trucks, dozers, and compaction equipment. The enclosures would be off-loaded and installed using cranes, boom trucks, forklifts, rubber-tired loaders, rubber-tired backhoes, and other small- to medium-sized construction equipment, as needed. Construction equipment would be delivered to the site on low-bed trucks unless the equipment can be driven to the site (e.g., boom trucks).

3.7 Traffic

Access to the Project site would be off Cavanaugh Road. During construction, typical vehicle trips per day would range from approximately 14 to 108 trips depending on the construction phase. However, construction traffic would be temporary, occurring over an approximately 1.5-year construction period. Construction traffic would include construction personnel, utility vehicles, and deliveries. During construction, delivery of material and supplies would reach the site through on-road truck delivery. The majority of truck deliveries would be for battery enclosures, as well as any aggregate material that may be required for site preparation. The heaviest delivery loads to the site would consist of rock truck deliveries, concrete trucks, and the high voltage step-up transformers. Typically, the rock would be delivered in “bottom dump trucks” or “transfer trucks” with six axles. Low-bed transport trucks would transport construction equipment to the site as needed. The size of the low-bed trucks (axles for weight distribution) would depend on the equipment/materials transported. During project operations the site will require low-frequency visits (roughly daily) from a small number of members from the operations and maintenance team in light utility trucks for routine maintenance checks.

3.8 Water Use

Water consumption during construction would be required for dust suppression and earthwork. Construction and operational water will likely be delivered from offsite sources via truck. Any existing wells on site that are not used for the Project would be properly abandoned.

3.9 Decommissioning

Most components of the BESS facility would be recycled at the end of the Project life. Battery cells contain lithium, which can be recycled or repurposed. Site structures composed of steel or concrete can be recycled. It is anticipated that all oils and battery cells would be recycled at an appropriate facility.

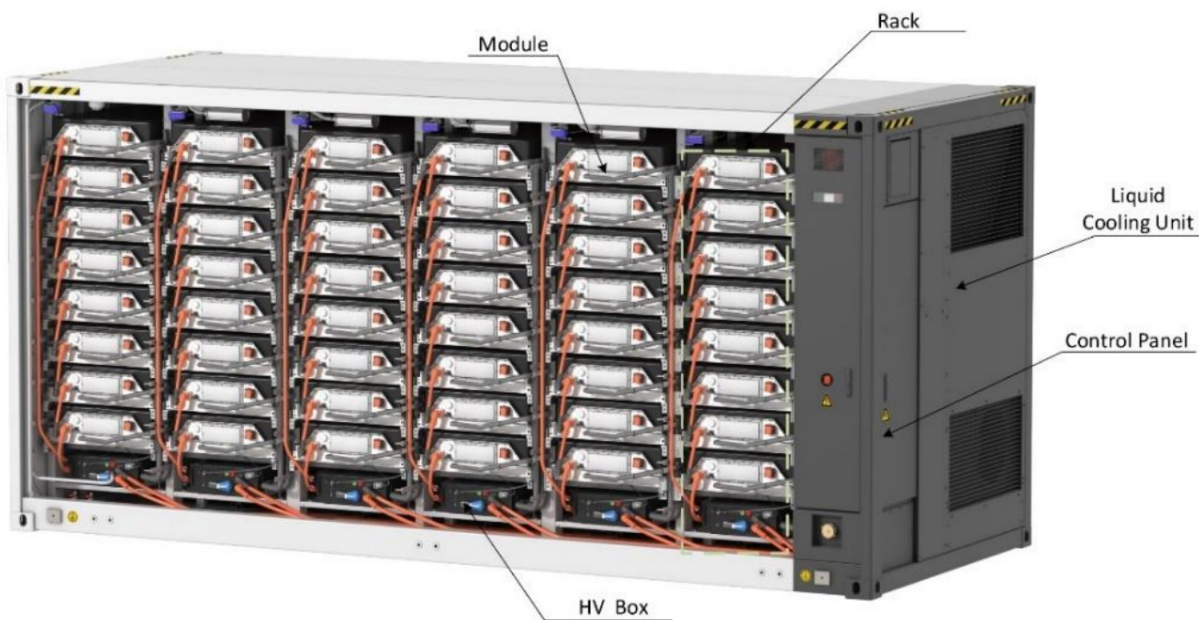
All decommissioning activities would comply with Certified Unified Program Agencies and Resource Conservation and Recovery Act standards as applicable.

Site personnel involved in handling these materials would be trained in the correct handling procedures. Any transportation of hazardous materials would comply with regulations for transporting hazardous materials, including those set by the U.S. Department of Transportation, the U.S. Environmental Protection Agency, Colorado Department of Transportation, Colorado Department of Public Health and Environment, and Colorado Division of Fire Prevention and Control.

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4 Representative Project Photos

Overview of a typical Battery Energy Storage enclosure



Pictured: Jupiter Power's Callisto I Energy Center in Houston, TX

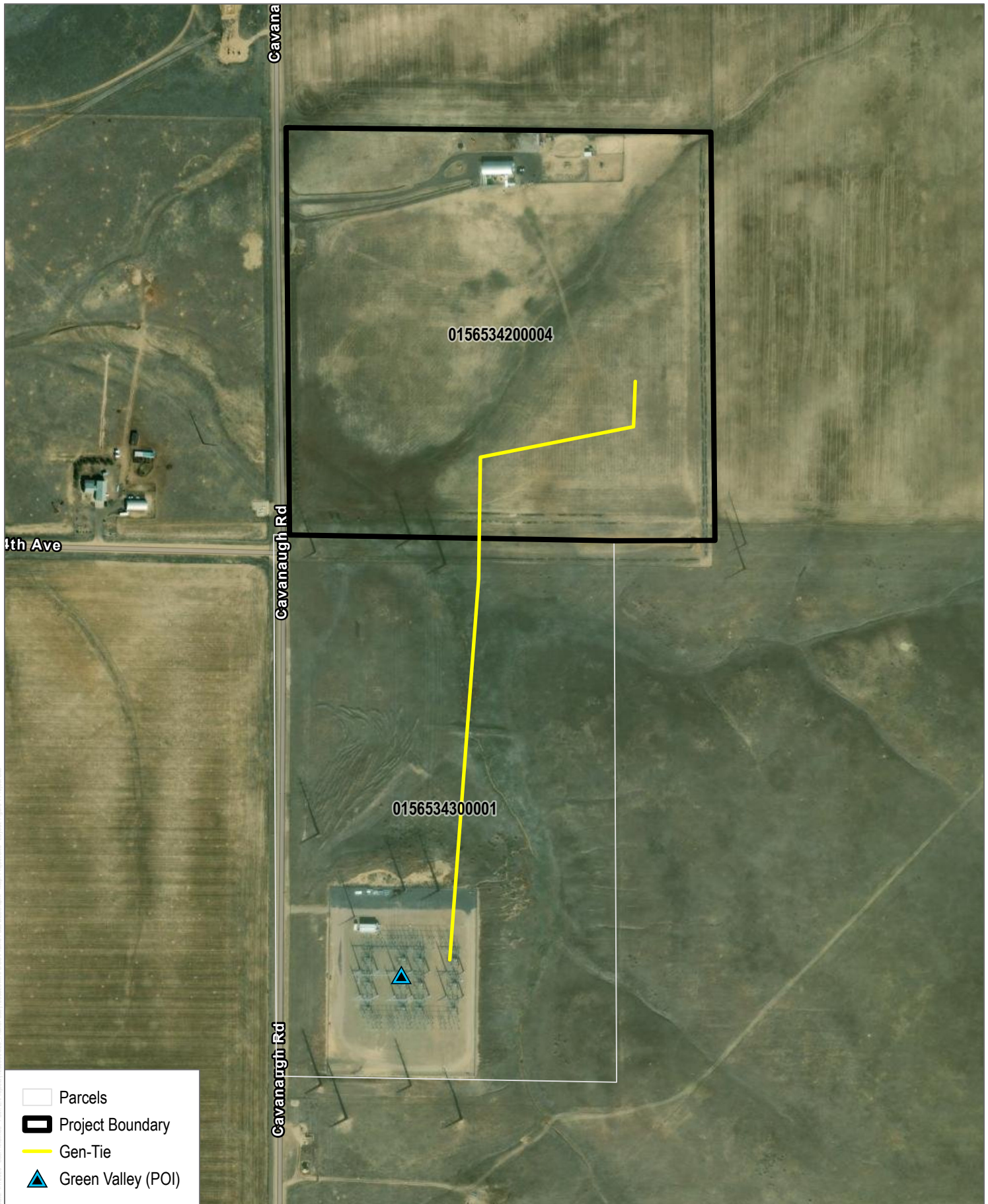
- 1: BESS Containers
- 2: Power Conversion Systems
- 3: Project Substation
- 4: Perimeter Fence/Wall



5 References

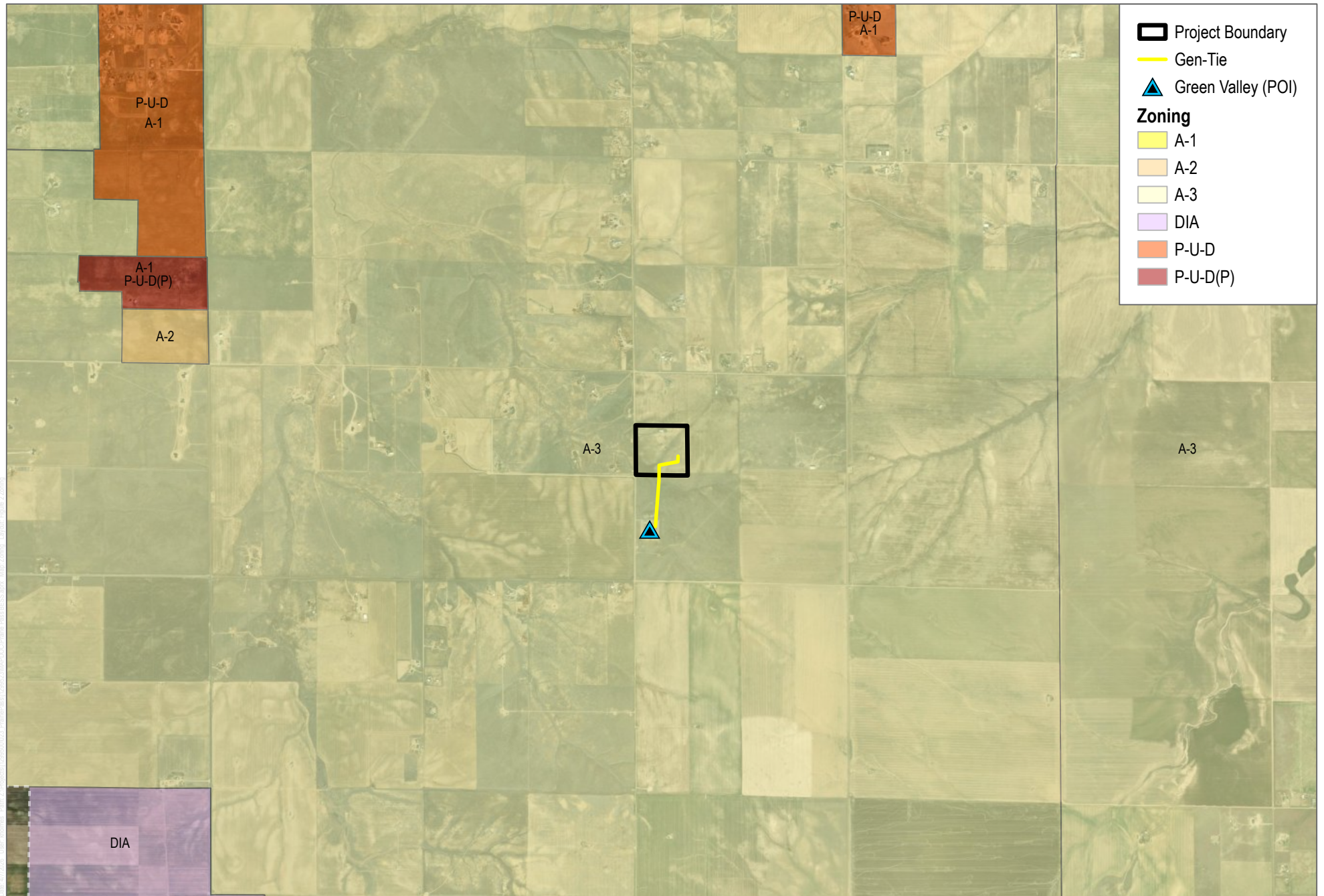
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SOURCE: Maxar 2023

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SOURCE: Maxar 2023

DUDEK



0 2,100 4,200 Feet

FIGURE 2
Zoning

Prairie Pass Energy Storage Project

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PRAIRIE PASS PRELIMINARY CIVIL PLAN SET

SHEET INDEX

G-001 - COVER SHEET

CIVIL
C-001 - GENERAL NOTES
C-100 - EXISTING CONDITIONS PLAN
C-200 - EROSION AND SEDIMENT CONTROL PLAN
C-201 - EROSION AND SEDIMENT CONTROL DETAILS
C-202 - EROSION AND SEDIMENT CONTROL DETAILS
C-300 - GRADING AND DRAINAGE PLAN
C-400 - OVERALL SITE PLAN
C-401 - CIVIL SITE PLAN
C-500 - CIVIL DETAILS

ELECTRICAL
E-100 - SITE PHOTOMETRIC PLAN

VICINITY MAP



PROJECT INFORMATION

ZONING: AGRICULTURAL
ACREAGE OF BESS FACILITY: 13.65 ACRES
ACREAGE OF DISTURBANCE: 23.62 ACRES

APPLICANT INFORMATION

APPLICANT: PRAIRIE PASS, LLC
CONTACT: GAGE FULLER
GAGE.FULLER@JUPITERPOWER.IO

PRELIMINARY
NOT FOR
CONSTRUCTION

DUDEK

Jupiter
POWER

PRAIRIE PASS BESS
DRAINAGE STUDY

0	06/18/2026	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION

PROJ. NO. 253044
DRAWN LFE
CHECKED BLW
DATE 06/18/2026

© COFFMAN ENGINEERS INC.

SHEET TITLE:

COVER SHEET

SHEET NO:

G-001

P:\DEN25\JOBS\253044_PRAIRIE PASS BESS DRAINAGE STUDY\01 DWG\SC253044 - GENERAL NOTES.DWG NOTES: KLOUDSI, TALEEN, LAST SAVED: April 2, 2026; PLOT DATE: 6/17/26

GENERAL NOTES

1. WORK AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS AND STANDARDS OF THE AUTHORITIES HAVING JURISDICTION. IF STANDARDS ARE NOT PROVIDED BY THE AUTHORITIES HAVING JURISDICTION, WORK AND MATERIALS SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS PROMULGATED BY THE COLORADO STATE DEPARTMENT OF TRANSPORTATION (CDOT).
2. THE CONTRACTOR SHALL CALL THE UNDERGROUND SERVICE ALERT ONE-CALL NUMBER 811 TWO BUSINESS DAYS PRIOR TO EXCAVATION.
3. INFORMATION ON EXISTING CONDITIONS SHOWN ON THESE PLANS WAS OBTAINED FROM A SURVEY NOT PERFORMED BY COFFMAN ENGINEERS. NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND REQUIRED ELEVATIONS AT THE SUBJECT SITE. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR EXCEPTIONS ENCOUNTERED PRIOR TO PROCEEDING. ANY COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL HAVE A COMPLETE SET OF APPROVED PLANS ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. THE DRAWINGS INDICATE LOCATIONS, DIMENSIONS, REFERENCES, AND TYPICAL DETAILS OF CONSTRUCTION. THE DRAWINGS DO NOT INDICATE EVERY CONDITION. WORK NOT FULLY DETAILED SHALL BE OF CONSTRUCTION SIMILAR TO PARTS THAT ARE FULLY DETAILED.
6. THE CONTRACTOR SHALL OBTAIN THE APPROPRIATE APPROVALS AND PERMITS FROM THE AUTHORITIES HAVING JURISDICTION PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL COORDINATE WITH THE AUTHORITIES HAVING JURISDICTION TO CONFIRM INSPECTION, TESTING, AND CERTIFICATION REQUIREMENTS.
7. EXISTING PROPERTY CORNERS AND SURVEY MONUMENTS SHALL BE PROTECTED DURING CONSTRUCTION. ANY DAMAGED OR OBLITERATED CORNERS OR MONUMENTS SHALL BE RE-ESTABLISHED BY A PROFESSIONAL SURVEYOR AT THE CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS. COORDINATE REQUIREMENTS WITH THE AUTHORITIES HAVING JURISDICTION.
9. SAFETY STANDARDS AND REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND COMPLIED WITH AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
10. THE CONTRACTOR SHALL HAVE THE APPROPRIATE LICENSES TO PERFORM THE SPECIFIED WORK IN CONFORMANCE WITH THE AUTHORITIES HAVING JURISDICTION.
11. RECORD DRAWINGS IDENTIFYING AND ACCURATELY LOCATING SUBSURFACE UTILITIES AND IMPROVEMENTS AND NOTING AS-CONSTRUCTED CONDITIONS SHALL BE PROVIDED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.

EROSION & SEDIMENT CONTROL NOTES

1. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL (ESC) PROBLEMS:
 - a) CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES (BMPS);
 - b) INSTALL TEMPORARY ESC BMPS, CONSTRUCTING SEDIMENT TRAPPING BMPS AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
 - c) CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
 - d) STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
 - e) CLEAR, GRUB AND GRADE SUBJECT SITE;
 - f) TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPS, SUBJECT SITE IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
 - g) CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (SUCH AS INLETS, PONDS, UNDERGROUND INJECTION CONTROL (UIC) FACILITIES, ETC.);
 - h) PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPS;
 - i) INSTALL PERMANENT ESC CONTROLS, WHEN APPLICABLE; AND,
 - j) REMOVE TEMPORARY ESC CONTROLS WHEN:
 - i. PERMANENT ESC CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
 - ii. ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION OR SEDIMENTATION PROBLEMS HAVE CEASED; AND,
 - iii. VEGETATION HAS BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED ESC PLAN ON FILE WITH THE LOCAL JURISDICTION.
2. INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
3. IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
4. IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
5. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.

6. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
7. INSPECT SEDIMENT CONTROL BMPS WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
8. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA. DO NOT USE WATER WHEN IT MAY DAMAGE ADJACENT CONSTRUCTION OR CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS, SUCH AS ICE, FLOODING, AND POLLUTION.
9. STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
10. PROTECT INLETS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.
11. KEEP ROADS ADJACENT TO INLETS CLEAN.
12. INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.
13. CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
14. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
15. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NONINERT WASTES PRESENT ON SITE FROM VANDALISM, USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.
16. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
17. CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
18. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPS. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACED BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
19. REMOVE TEMPORARY ESC BMPS WITHIN 30 DAYS AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.
20. PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES, ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY, INCLUDING OBTAINING THE APPROPRIATE PERMITS AND APPROVALS.
21. EROSION CONTROL MEASURES IN ADDITION TO THOSE INDICATED AS PART OF THIS PLAN MAY BE REQUIRED DUE TO UNFORESEEN CONDITIONS, IF THE MEASURES DO NOT FUNCTION AS INTENDED, OR IF THE AUTHORITIES HAVING JURISDICTION DETERMINE INDICATED MEASURES ARE INADEQUATE.
22. FILTER FENCE SHALL BE USED TO AID IN CONTAINING ANY SEDIMENT ON THE SITE DURING CONSTRUCTION. STABILIZED CONSTRUCTION ENTRANCES SHALL BE USED AT POINTS OF INGRESS AND EGRESS FOR CONSTRUCTION VEHICLES. STORM DRAIN INLET PROTECTION SHALL BE USED ON ALL STORM DRAIN STRUCTURES, INCLUDING CATCH BASINS AND DRYWELLS. THE CONTRACTOR SHALL KEEP THE AREAS ADJACENT TO THE SITE INCLUDING ROADWAYS AND PARKING LOTS FREE FROM DEBRIS. REFER TO THE EROSION AND SEDIMENT CONTROL MEASURE DETAILS FOR ADDITIONAL INFORMATION.
23. PROVIDE A DESIGNATED, POSTED CONCRETE WASHOUT AREA. THE CONCRETE WASHOUT SHALL NOT BE ALLOWED TO DRAIN OFF THE SITE OR INTO ANY EXISTING OR FUTURE STORM DRAINAGE FACILITIES. HARDENED CONCRETE WASHOUT SHALL BE BROKEN UP AND REMOVED FROM THE SITE.
24. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORMWATER DISCHARGES.

DEMOLITION NOTES

1. MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING ADJACENT OCCUPIED OR OPERATING FACILITIES UNLESS AUTHORIZED IN WRITING BY OWNER AND AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO OWNER AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE DEMOLITION OPERATIONS AND ANY REQUIRED UTILITY RELOCATIONS WITH THE OWNER AND APPROPRIATE UTILITY PURVEYOR, INCLUDING REQUIREMENTS AND SCHEDULING.
3. COORDINATE EXTENT OF DEMOLITION WITH PROPOSED IMPROVEMENTS. CONTRACTOR SHALL REVIEW THE PROJECT LIMITS TO DETERMINE THE QUANTITY AND TYPE OF DEMOLITION WASTE MATERIAL AND DEBRIS TO BE INCLUDED IN THEIR BID. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING, AND RELOCATING IF NECESSARY, ANY ITEMS NOT OTHERWISE NOTED THAT CONFLICT WITH THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICTING ITEMS NOT SHOWN ON THE PLANS THAT MUST BE REMOVED OR RELOCATED. FAILURE TO NOTIFY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF COST RESPONSIBILITY FOR REMOVING REQUIRED ITEMS.
4. COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE BEGINNING DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
5. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB; IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER AND OWNER.
6. CONDUCT DEMOLITION ACTIVITIES AND DEBRIS REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, WALKWAYS, AND OTHER ADJACENT FACILITIES.
7. REMOVE OBSTRUCTIONS, TREES, SHRUBS, GRASS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION. REFER TO LANDSCAPE PLANS FOR TREE PROTECTION AND TREE REMOVAL PROCEDURES TO PRESERVE HEALTH OF ADJACENT TREES.
8. AREAS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE CONSTRUCTED OR RESTORED TO ORIGINAL CONDITIONS OR BETTER, TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING CONDITIONS PRIOR TO CONSTRUCTION ACTIVITIES AND ANY DAMAGE THAT MAY OCCUR.
9. REMOVE DEMOLITION WASTE MATERIALS AND DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

EARTHWORK & GRADING NOTES

1. SITE PREPARATION, GRADING, EXCAVATION AND FILL REQUIREMENTS BELOW THE PROPOSED IMPROVEMENTS, EMBANKMENTS, AND UTILITY TRENCHING SHALL BE COMPLETED IN CONFORMANCE WITH CDOT STANDARD SPECIFICATIONS AND THE GEOTECHNICAL ENGINEERING EVALUATION FOR THE SUBJECT SITE.
2. EXAMINE EXPOSED SUBGRADES AND BASE SURFACES FOR COMPLIANCE WITH REQUIREMENTS FOR DIMENSIONAL, GRADING, AND ELEVATION TOLERANCES. PREVENT SURFACE WATER AND GROUNDWATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES AND BASE SURFACES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. PROTECT SUBGRADES AND BASE SURFACES FROM SOFTENING, UNDERMINING, WASHOUT, DAMAGE BY RAIN OR WATER ACCUMULATION, AND AGAINST FREEZING TEMPERATURES AND FROST.
3. SPOT ELEVATIONS ARE FOR FINISH GRADE UNLESS OTHERWISE NOTED.
4. UNLESS ELEVATIONS AND/OR CONTOURS ARE OTHERWISE SHOWN, NEW FINISH GRADE SURFACES SHALL BE PLACED TO ALLOW FOR POSITIVE DRAINAGE TO RUNOFF COLLECTION DEVICES OR FACILITIES. MAINTAIN POSITIVE DRAINAGE AWAY FROM STRUCTURES. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
5. GROUNDWATER OR UNANTICIPATED SUBSURFACE CONDITIONS SHALL BE REPORTED TO THE GEOTECHNICAL ENGINEER FOR ASSESSMENT AND RECOMMENDATIONS.
6. COMPACTION EFFORTS AND MASS GRADING SHALL BE MONITORED AND TESTED BY AN EXPERIENCED SOILS TECHNICIAN, UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER.

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POWER

PRAIRIE PASS BESS
DRAINAGE STUDY

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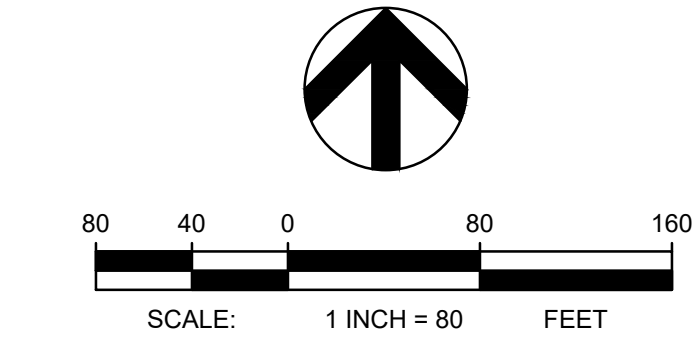
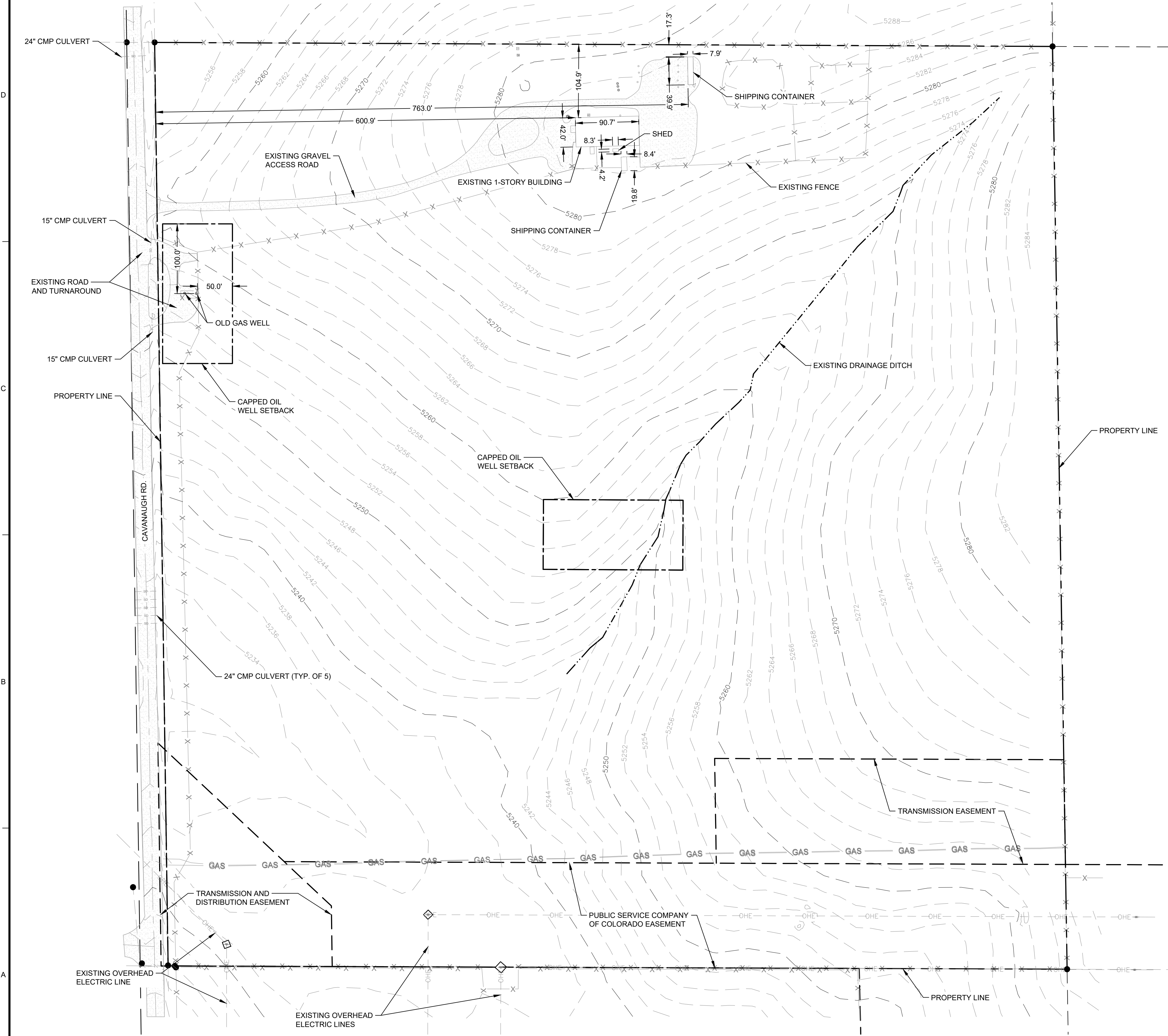
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SHEET TITLE:

GENERAL NOTES

SHEET NO:

C-001



LEGEND	
	EXISTING GRAVEL
	PROPERTY LINE
	EXISTING FENCE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING OVERHEAD ELECTRICAL LINE
	EXISTING STORM DRAIN
	EXISTING DRAINAGE DITCH
	EXISTING EASEMENT
	OIL WELL SETBACK
	EXISTING GAS LINE

NOTES

1. EXISTING CONDITIONS ARE BASED ON TOPO SURVEY PROVIDED BY OTHERS ON 11/14/2025.

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SHEET TITLE:

EXISTING
CONDITIONS
PLAN

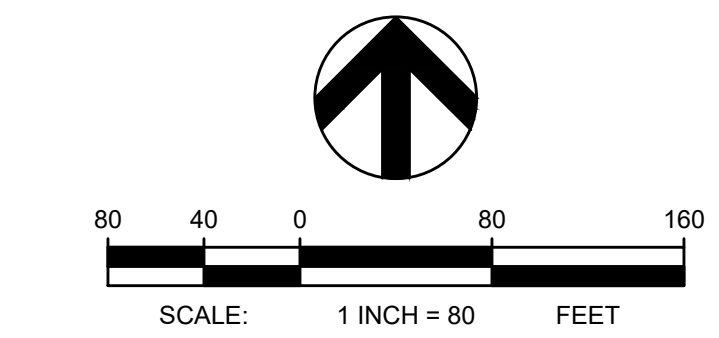
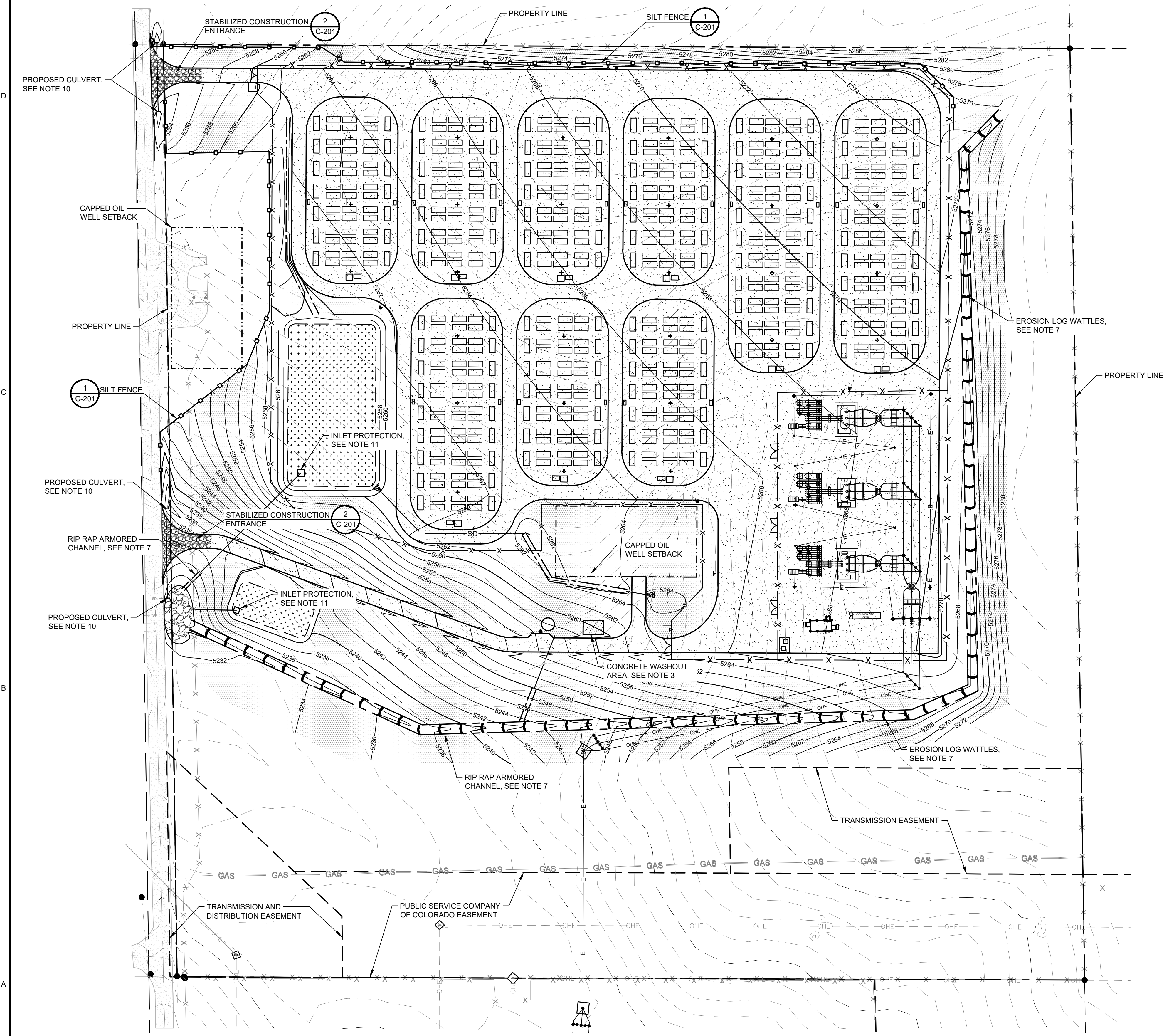
SHEET NO:

C-100

1 EXISTING CONDITIONS PLAN
C-100 SCALE: 1"=80'



Know what's below.
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LEGEND	
	EXISTING GRAVEL
	PROPOSED GRAVEL
	DETENTION POND
	SLOPE STABILIZATION, SEE NOTE 8
	PROPERTY LINE
	EXISTING FENCE
	PROPOSED FENCE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING OVERHEAD ELECTRIC LINE
	PROPOSED OVERHEAD ELECTRIC LINE
	PROPOSED ELECTRIC LINE
	EXISTING GAS LINE
	EASEMENT
	DITCH FLOW LINE
	SILT FENCE
	RIP RAP ARMORED CHANNEL
	OIL WELL SETBACK

- NOTES**
- REFER TO SHEET C-001 FOR GENERAL NOTES.
 - REFER TO SHEET C-201 FOR EROSION AND SEDIMENT CONTROL DETAILS.
 - INSTALL DEDICATED CONCRETE WASHOUT AREA AT MAIN ENTRANCE TO BESS YARD. SEE DETAIL 2, SHEET C-201 FOR MORE INFORMATION.
 - ELECTRICAL LAYOUT RELATED TO BATTERY ENCLOSURES AND ALL RELATED EQUIPMENT, ROADWAY WIDTHS AND ACCESS ROUTES, AND SITE LAYOUT DESIGNED BY OTHERS.
 - FIRE PROTECTION DESIGN AND CODE COMPLIANCE BY OTHERS.
 - SUBSTATION AND HV DESIGN BY OTHERS.
 - INSTALL TEMPORARY EROSION LOGS PER DETAIL 5, SHEET C-202 IN OFFSITE CONVEYANCE CHANNEL DURING CONSTRUCTION ACTIVITIES. ONCE CONSTRUCTION HAS BEEN COMPLETED AND SITE SLOPES HAVE BEEN STABILIZED, CONTRACTOR TO INSTALL RIP RAP ARMORING AS SHOWN ON SHEET C-300.
 - STABILIZE ALL REGRADED SLOPES WITH EROSION CONTROL BLANKETS PER THE MILE HIGH FLOOD DISTRICT "EROSION CONTROL BLANKET CONSTRUCTION GUIDANCE CHECKLIST."
 - SITE DISTURBANCE ANTICIPATED TO EXCEED 1-ACRE. FINAL DESIGN TO INCORPORATE A STORMWATER MANAGEMENT PLAN (SWMP) FOR MANAGEMENT OF CONSTRUCTION STORMWATER TO SUPPORT APPLICATION OF A CDPHE COR400000 CONSTRUCTION STORMWATER DISCHARGE PERMIT.
 - PROTECT CULVERT INLET AND OUTLET PER DETAIL 3, SHEET C-201.
 - POND OUTFALL CATCH BASIN STRUCTURE TO BE PROTECTED BY EROSION LOG AS SHOWN ON DETAIL 3, SHEET C-201, AS WELL AS INLET PROTECTION DEVICE (INLET INSERT) PER DETAIL 4, SHEET C-201.

1 EROSION AND SEDIMENT CONTROL PLAN
C-200 SCALE: 1"=80'

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SHEET TITLE:

EROSION AND
SEDIMENT
CONTROL PLAN

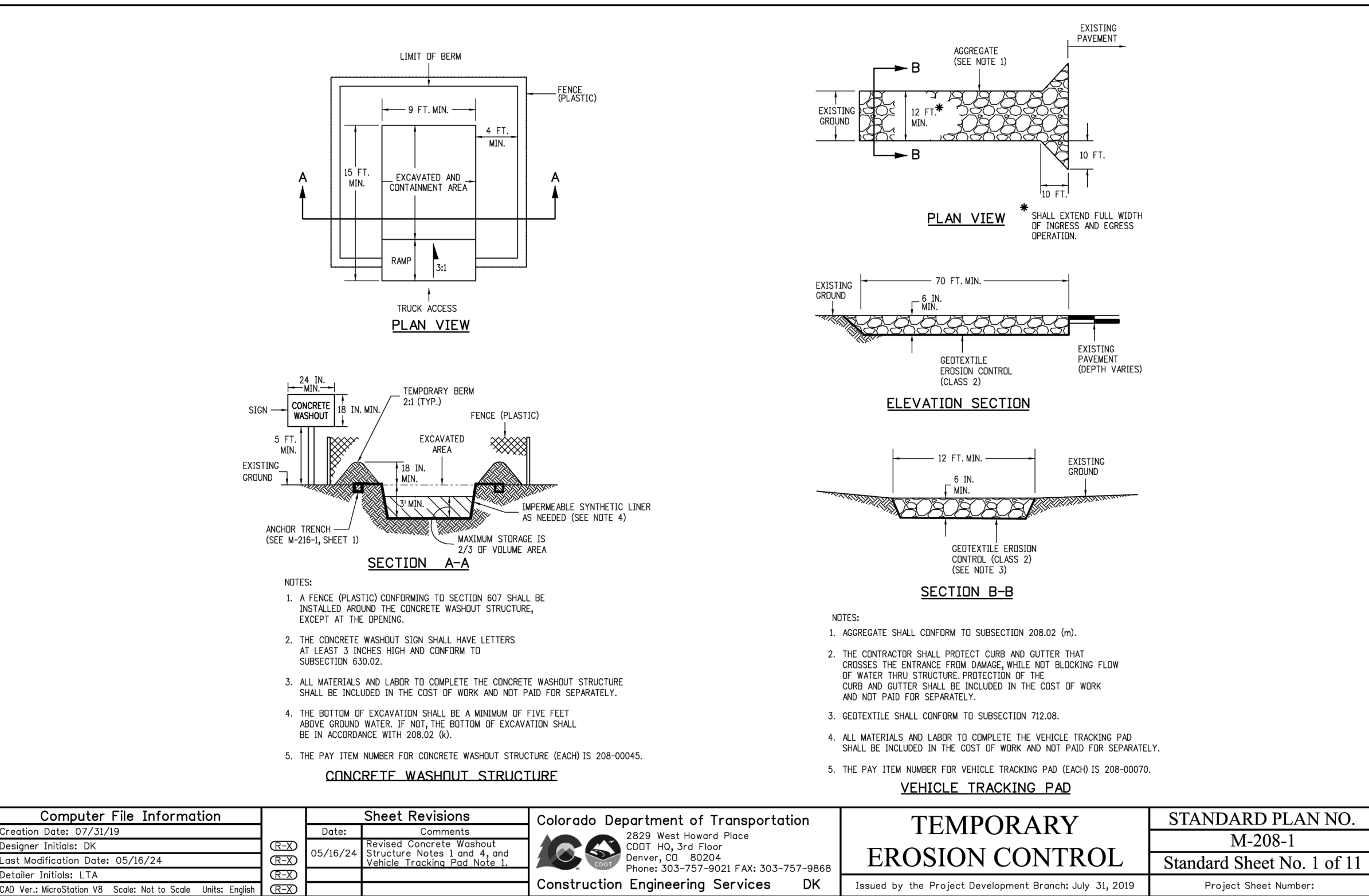
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C-200

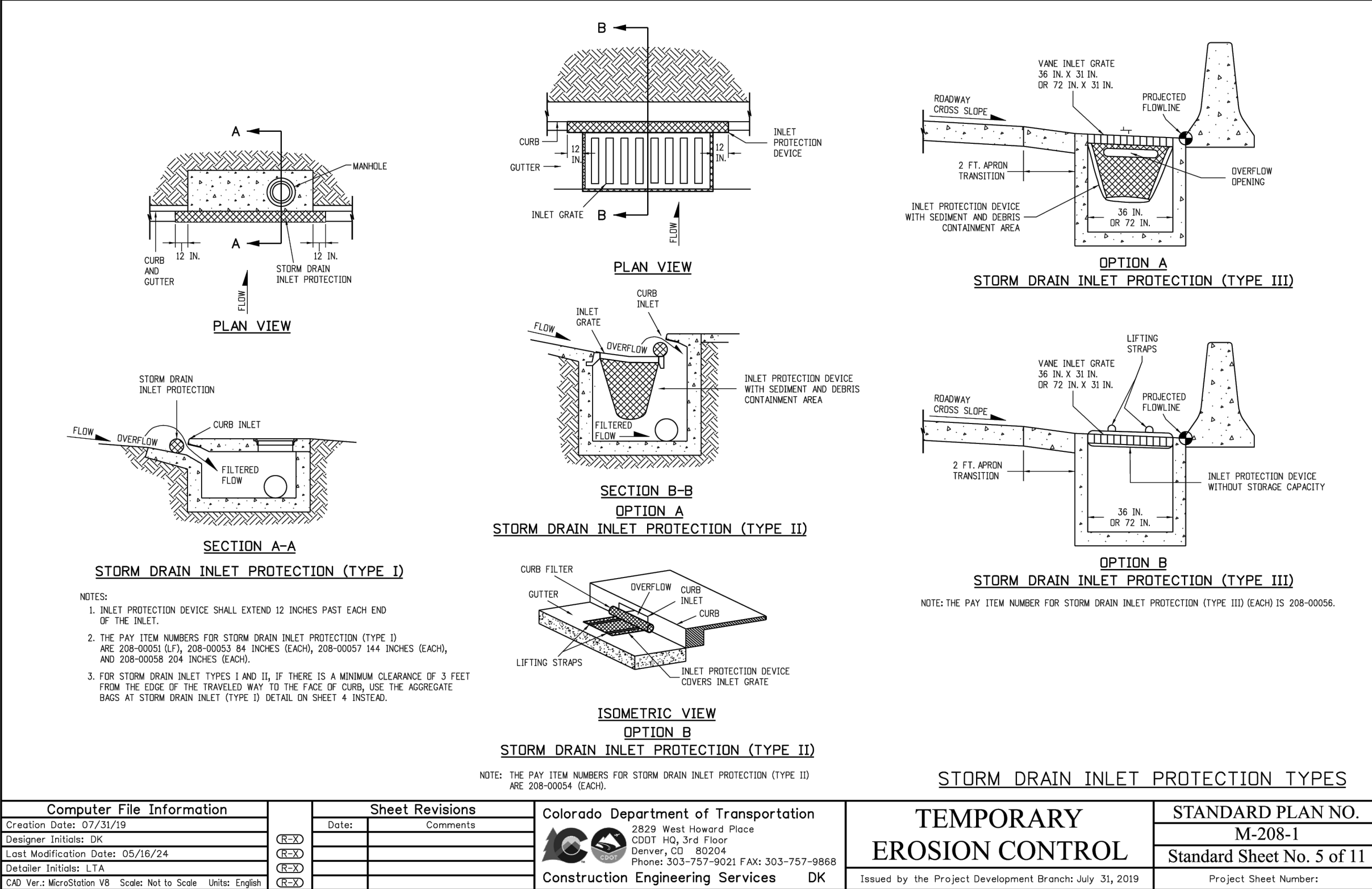


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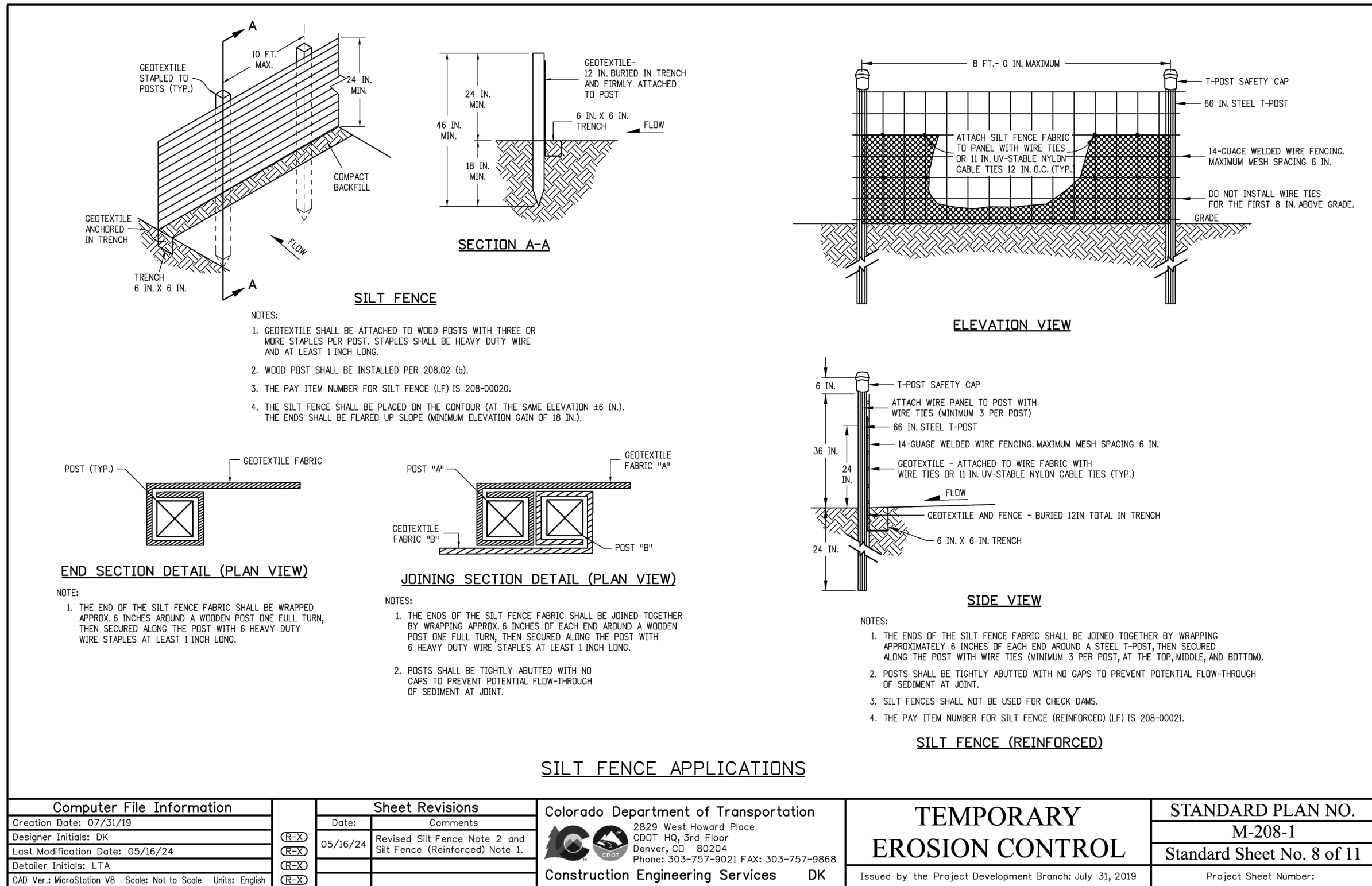
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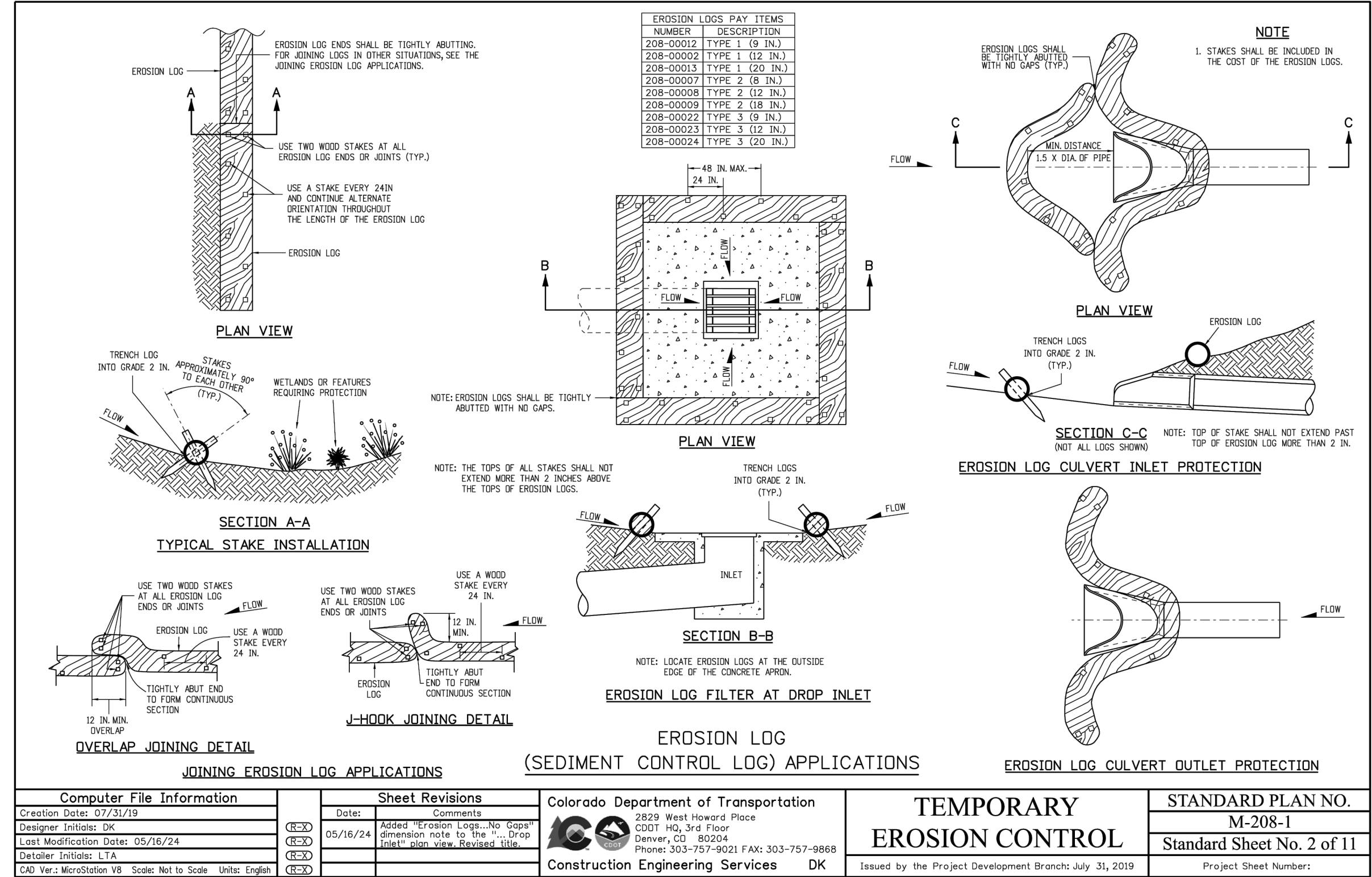
2 STABILIZED CONSTRUCTION ENTRANCE
C-201 SCALE: NTS



3 INLET INSERT
C-201 SCALE: NTS



1 SILT FENCE
C-201 SCALE: NTS



3 EROSION LOG INLET PROTECTION
C-201 SCALE: NTS

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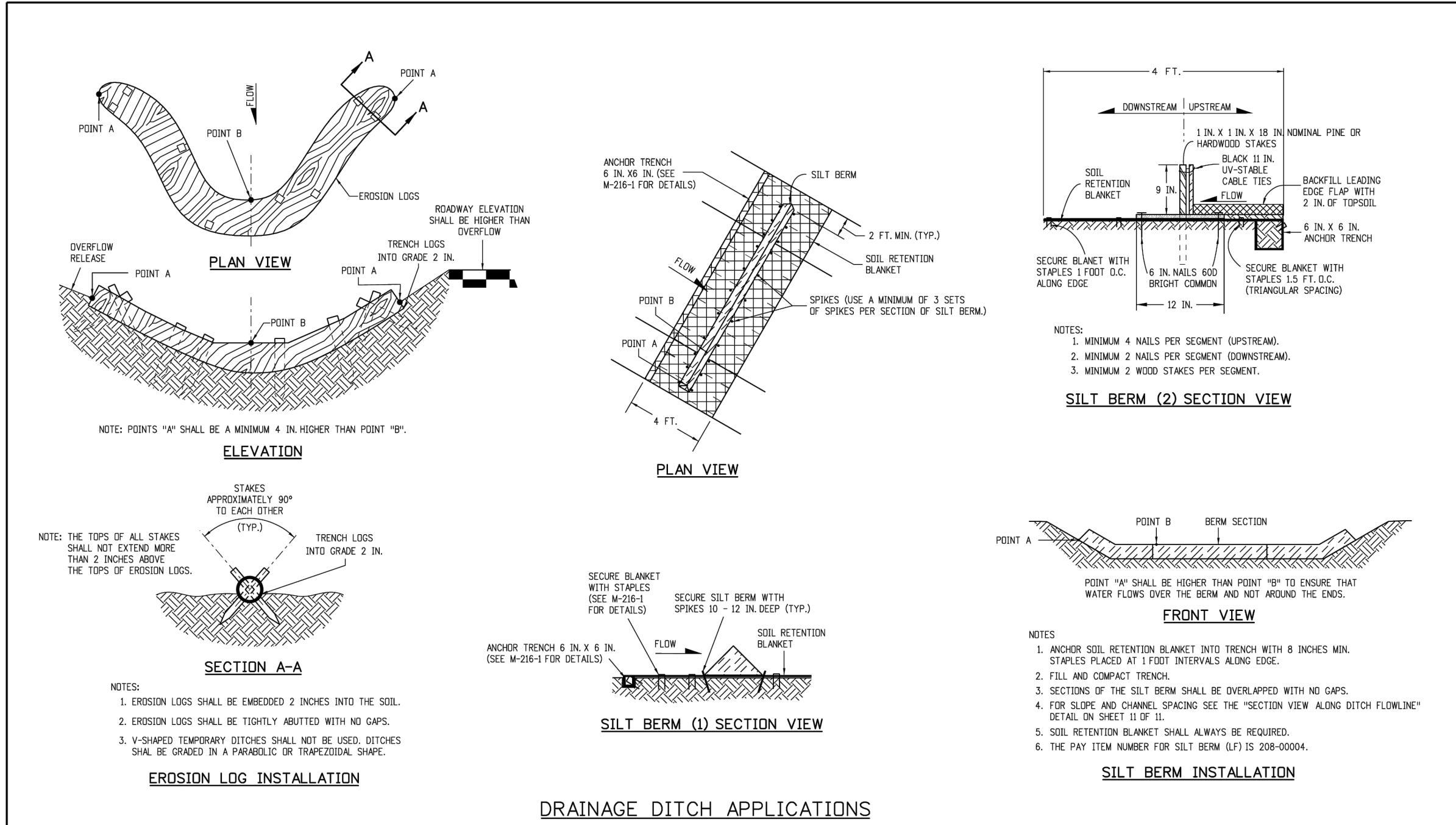
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SHEET TITLE:

EROSION AND
SEDIMENT
CONTROL
DETAILS

SHEET NO:

C-201



Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Construction Engineering Services DK	STANDARD PLAN NO.	
Creation Date: 07/23/19	(ECX)	Date:	Comments:		M-208-1	
Designer Initials: DK	(ECX)				Standard Sheet No. 6 of 11	
Last Modification Date: 05/16/24	(ECX)					
Detailer Initials: LTA	(ECX)					
CAD Ver.: MicroStation V8	(ECX)	Scale: Not to Scale	Units: English	Issued by: the Project Development Branch: July 31, 2019	Project Sheet Number:	

5

C-202

DRAINAGE DITCH EROSION CONTROL

SCALE: NTS

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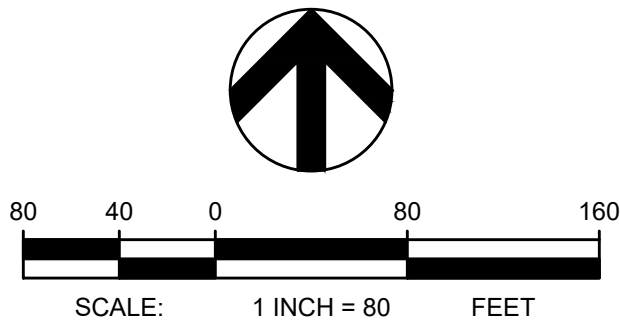
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SHEET TITLE:

EROSION AND
SEDIMENT
CONTROL
DETAILS

SHEET NO:

C-202



LEGEND

	EXISTING GRAVEL
	PROPOSED GRAVEL
	PROPERTY LINE
	EXISTING FENCE
	PROPOSED FENCE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING OVERHEAD ELECTRICAL LINE
	PROPOSED OVERHEAD ELECTRICAL LINE
	PROPOSED ELECTRIC LINE
	EXISTING STORM DRAIN
	PROPOSED STORM DRAIN
	EXISTING GAS LINE
	OIL WELL SETBACK
	DITCH FLOW LINE
	EXISTING EASEMENT
	RIP RAP ARMORING

ABBREVIATIONS

ME	MATCH EXISTING
TC	TOP OF CURB
TP	TOP OF PAVEMENT
EL	ELEVATION
CMP	CORRUGATED METAL PIPE
IE	INVERT ELEVATION
SD	STORM DRAIN
MH	MANHOLE
R	RIM ELEVATION
CB	CATCH BASIN

EARTHWORK QUANTITIES

CUT: 163,140 CY
FILL: 116,492 CY
NET CUT: 46,648 CY
ASSUMPTIONS:
1. VOLUME DISPLACED SOIL TO RECOMPACTED SOIL IS 1:1 RATIO.
2. 6" TOP SOIL STRIPPED AND DISPOSED OF OFFSITE OVER GRADING EXTENTS.
3. 5" GRAVEL SECTION PER GEOTECHNICAL RECOMMENDATIONS.
4. 24" REMOVAL AND RECOMPACTION UNDER GRAVEL SECTION PER GEOTECHNICAL RECOMMENDATIONS.

NOTES

- REFER TO SHEET CC-001 FOR GENERAL NOTES.
- CONTOURS SHOWN ARE 2 FOOT CONTOUR LINES UNLESS OTHERWISE NOTED.
- ELECTRICAL LAYOUT COMPLETED BY OTHERS.
- FIRE PROTECTION DESIGN AND CODE COMPLIANCE BY OTHERS.
- SUBSTATION AND HV DESIGN BY OTHERS.
- GRADING DESIGN ASSUMES FOUNDATIONS WILL BE DEEP FOUNDATION (PILES) ELEVATED ABOVE GRADE, ALLOWING FOR RUNOFF TO PASS UNDER BATTERY UNITS. IF MAT FOUNDATIONS ARE SELECTED AS FOUNDATION SYSTEM, A NEW GRADING CONCEPT WILL BE NEEDED TO SHOW RUNOFF DIRECTED AWAY FROM FOUNDATIONS.
- INSTALL RIP RAP ARMORING IN PROPOSED CONVEYANCE DITCH. FINAL DESIGN OF RIP RAP WIDTH, DEPTH, AND ROCK SIZE BY ENGINEER OF RECORD.
- RIP RAP ARMORED OUTFALL AREA UPSTREAM OF EXISTING CULVERT CROSSING AT CAVANAUGH ROADWAY. EXCAVATE EXISTING UPSTREAM INVERT OF HALF BURIED ROADWAY CULVERTS AND PROVIDE GENTLY SLOPED RIP RAP OUTFALL AREA TO DISIPATE ENERGY OF ONSITE AND OFFSITE RUNOFF SOURCES PRIOR TO DISCHARGE TO EXISTING ROADWAY CULVERT SYSTEM.

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SHEET TITLE:

GRADING AND
DRAINAGE PLAN

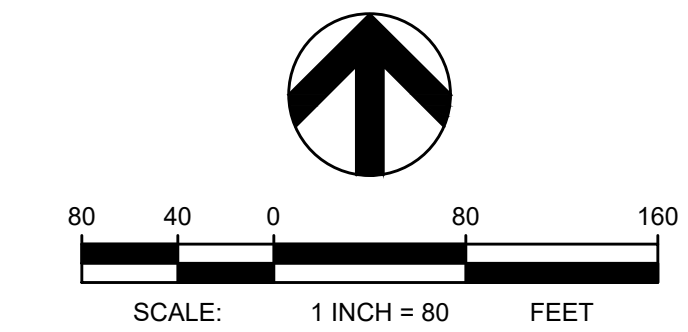
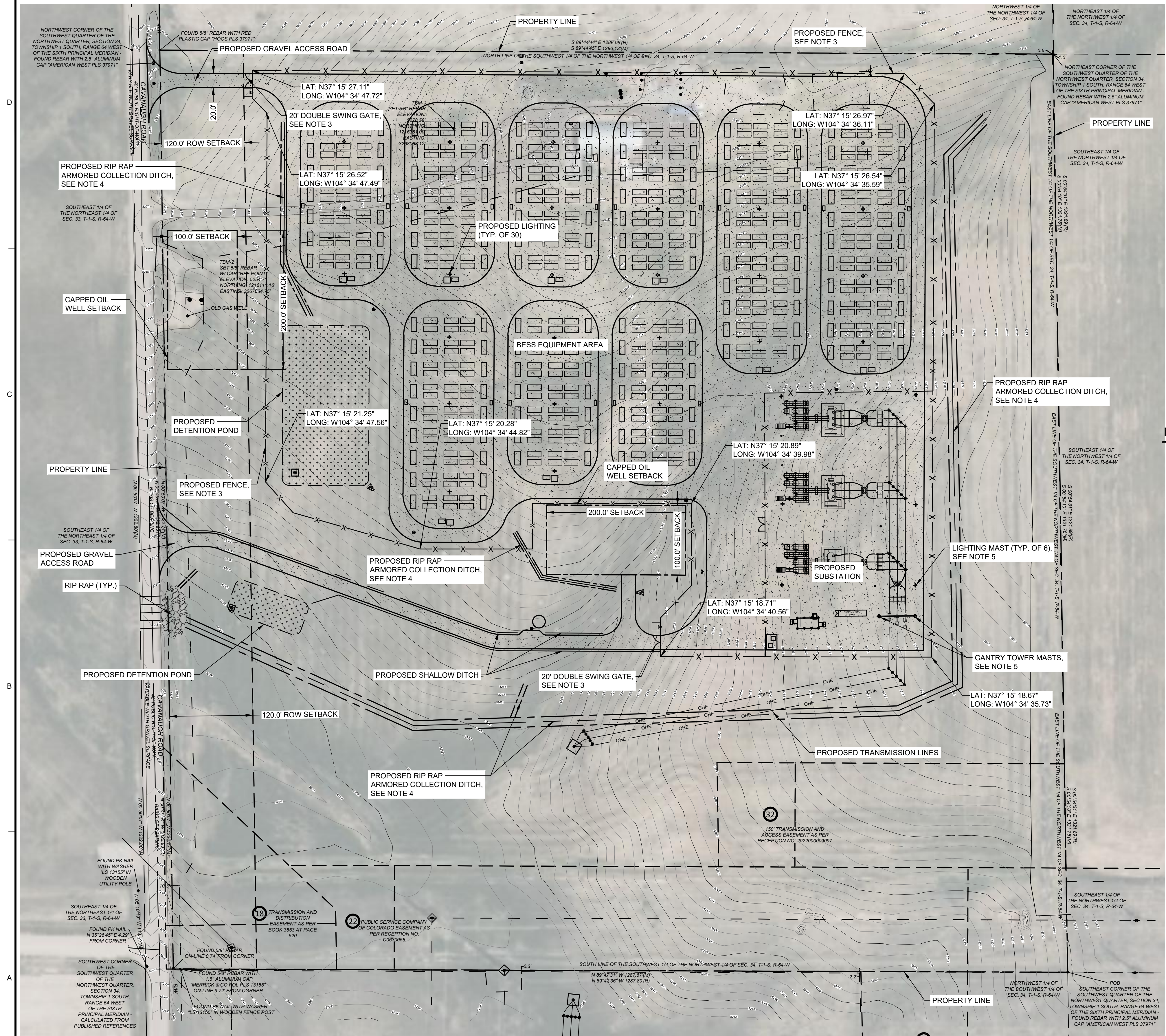
SHEET NO:

C-300



Know what's below.
Call before you dig.

1 GRADING AND DRAINAGE PLAN
C-300 SCALE: 1"=80'



LEGEND

	EXISTING GRAVEL
	PROPOSED GRAVEL
	PROPOSED POND
	PROPERTY LINE
	EXISTING FENCE
	PROPOSED FENCE
	EXISTING OVERHEAD ELECTRICAL LINE
	PROPOSED OVERHEAD ELECTRICAL LINE
	OIL WELL SETBACK
	DITCH FLOW LINE
	EXISTING EASEMENT
	RIP RAP ARMORING

NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES.
2. SEE GRADING AND DRAINAGE PLAN, SHEET C-300 FOR MORE INFORMATION ON SLOPING AND STORMWATER IMPROVEMENTS.
3. FENCING TO BE 7-FOOT CHAIN LINK FENCE. INSTALL FENCING PER DETAIL 1, SHEET C-500. INSTALL 20' DOUBLE SWING GATE PER DETAIL 2, SHEET C-500.
4. INSTALL RIP RAP ARMORING IN PROPOSED CONVEYANCE DITCH. FINAL DESIGN OF RIP RAP WIDTH, DEPTH, AND ROCK SIZE BY ENGINEER OF RECORD.
5. LIGHTNING MASTS AND GANTRY TOWER MASTS WILL NOT EXCEED 85' IN HEIGHT.

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DRAINAGE STUDY

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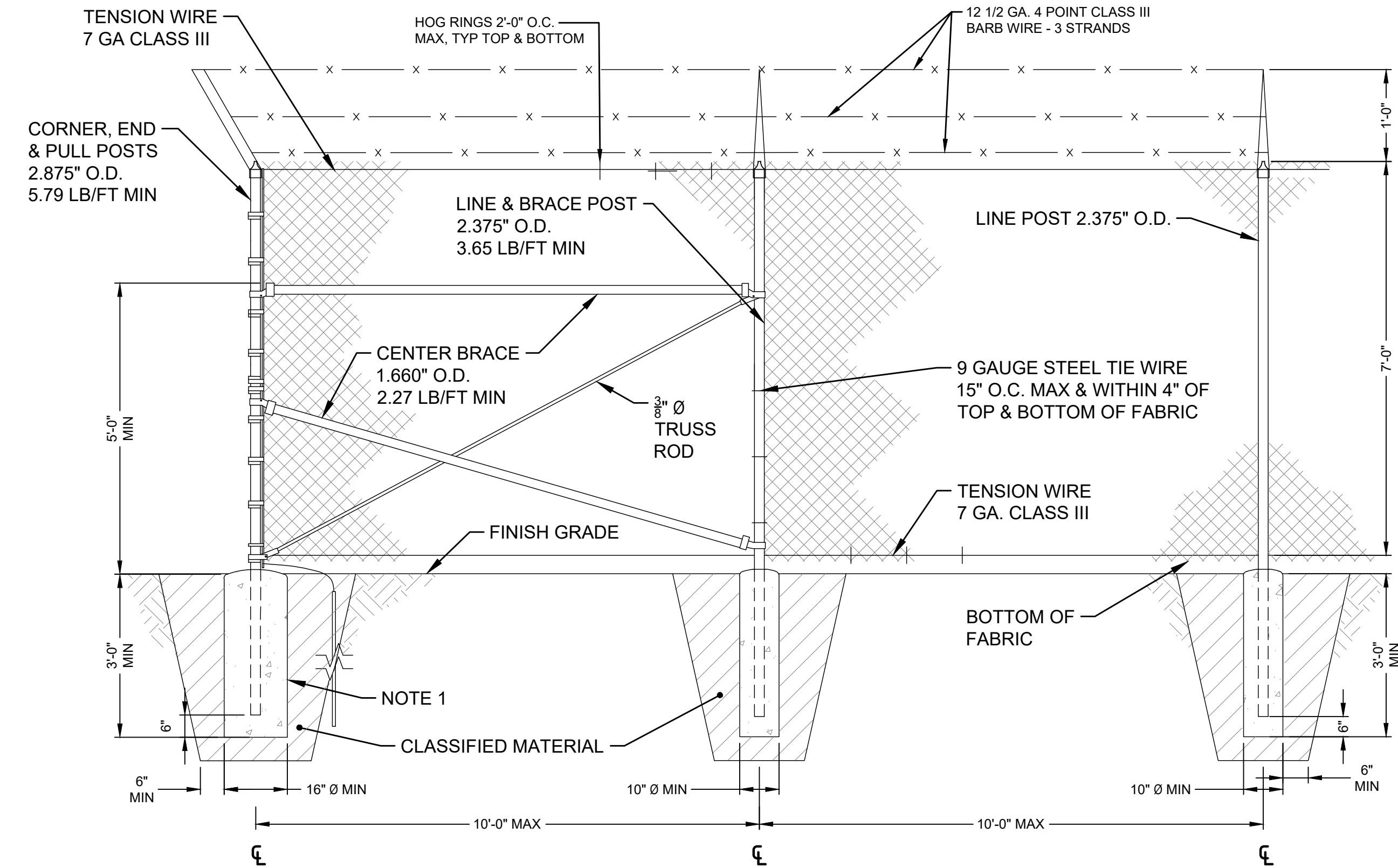
OVERALL SITE
PLAN

SHEET NO:

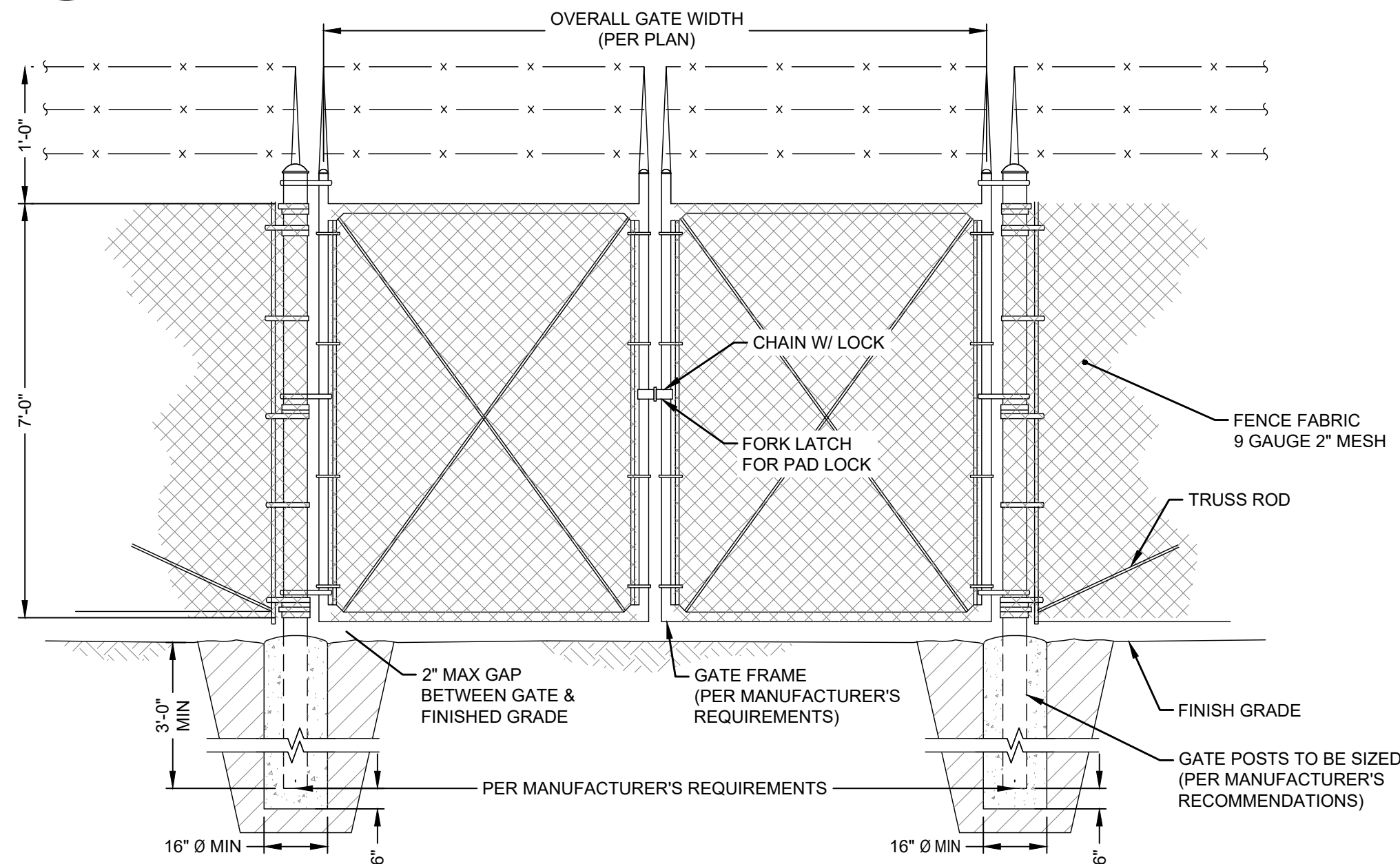
C-400



Know what's below.
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1 CHAIN LINK FENCE DETAIL
C-500 SCALE: NTS



NOTE:

1. KNOX BOX TO BE PROVIDED AT GATE ENTRIES FOR FIRE DEPARTMENT ACCESS.

2 DOUBLE SWING GATE
C-500 SCALE: NTS

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DUDEK

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POWER

**PRAIRIE PASS BESS
DRAINAGE STUDY**

REV	DATE	DESCRIPTION
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DATE 06/18/2026

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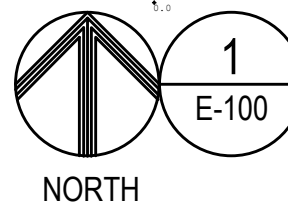
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CIVIL DETAILS

SHEET NO:

C-500

P:\DEN25\05253044_PRAIRIE PASS BESS DRAINAGE STUDY\00 DWG\SEE-101 - SITE PHOTOMETRIC PLAN.DWG SITE PHOTOMETRIC PLAN - KOUJISI, TALEEN - LAST SAVED: June 12, 2026 - PLOT DATE: 6/7/26



SITE PHOTOMETRIC PLAN

SCALE: 1"=50'

AREA	ILLUMINANCE (fc)					
	AVERAGE	MAXIMUM	MINIMUM	AVG/MIN	MAX/MIN	MAX/AVG
BESS AREA	2.87	7.50	1.20	2.39	6.25	2.61
BESS AREA_1	3.05	7.80	1.30	2.35	6.00	2.56
BESS AREA_2	3.06	7.70	1.40	2.19	5.50	2.52
BESS AREA_3	3.07	8.00	1.40	2.19	5.71	2.61
BESS AREA_4	3.00	7.60	1.30	2.31	5.85	2.53
BESS AREA_5	2.80	7.80	1.00	2.80	7.80	2.79
BESS AREA_6	2.63	7.70	0.90	2.92	8.56	2.93
BESS AREA_7	3.18	7.80	1.70	1.87	4.59	2.45
BESS AREA_8	3.12	7.40	1.50	2.06	4.93	2.37
DRIVEWAYS	1.28	5.10	0.10	12.80	51.00	3.98
EAST PROPERTY LINE	0.00	0.00	0.00	-	-	-
NORTH PROPERTY LINE	0.07	0.10	0.00	-	-	1.43
SOUTH PROPERTY LINE	0.00	0.00	0.00	-	-	-
WEST PROPERTY LINE	0.00	0.00	0.00	-	-	-

Luminaire Summary

Luminaire Schedule Symbol	Qty	Label	Arrangement	LLF	Description	Tag	Luminaire Lumens	Luminaire Watts	Mounting Height
DSX1	1	DSX1 LED P6 50K 80CRI T4M EGS_1	3 @ 90 Degrees	0.700	DSX1 LED P6 50K 80CRI T4M EGS	S2	15891	165.25	25
DSX1	29	DSX1 LED P6 50K 80CRI T4M EGS	4 @ 90 Degrees	0.700	DSX1 LED P6 50K 80CRI T4M EGS	S1	15891	165.25	25

GENERAL NOTES

- SITE LUMINARIES ARE ANALYZED AT A HEIGHT OF 25 FEET FROM GRADE.
- PHOTOMETRIC VALUES FOR THE BESS AREAS, DRIVEWAYS, AND 20' BEYOND PROPERTY LINES ARE CALCULATED AT GROUND LEVEL.
- THE RESULTS OF THIS PHOTOMETRIC STUDY REPRESENT AN ANTICIPATED PREDICTION OF LIGHTING SYSTEM PERFORMANCE AND MAY VARY FROM STUDY RESULTS AND ARE SUBJECT TO MEANS AND METHODS BEYOND THE CONTROL OF COFFMAN ENGINEERS.
- LUMINAIRE LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. FINAL LOCATIONS SHALL BE DETERMINED BY FINAL DESIGN ENGINEER WHEN STAMPED/SIGNED ISSUED FOR CONSTRUCTION DRAWINGS ARE DEVELOPED.
- THE PRELIMINARY LIGHTING DESIGN AND PHOTOMETRIC CALCULATIONS SHOW THAT DESIGN IS IN COMPLIANCE WITH ADAMS COUNTY DEVELOPMENT STANDARDS, WHICH ALLOW UP TO 0.1 FOOT-CANDLES 20' BEYOND THE PROPERTY LINE.

DRIVEWAYS (TYPICAL)

PROPERTY BOUNDARY (TYPICAL)

BESS AREA

BESS AREA_1

BESS AREA_2

BESS AREA_3

BESS AREA_4

BESS AREA_5

BESS AREA_7

BESS AREA_8

BESS AREA_6

SUBSTATION
N.I.C.

PRELIMINARY
NOT FOR
CONSTRUCTION

DUDEK

Jupiter
POWER

PRAIRIE PASS BESS
DRAINAGE STUDY

0	06/18/2026	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION

PROJ. NO. 253044
DRAWN LFE
CHECKED BLW
DATE 06/18/2026

© COFFMAN ENGINEERS INC.

SHEET TITLE:

SITE
PHOTOMETRIC
PLAN

SHEET NO:

E-100

0 25 50 100 150
1"=50'-0"

Equipment Type	Maximum Height (feet)
Battery enclosures	11
PCS	11
Control enclosure	15
Main power transformer	34
Lighting poles	34
Transmission structures	Average 120
Lightning protection masts	85
Communication equipment	30
Other substation equipment	Less than 35
Fence	8

Budgetary Decommissioning Estimate - Prairie Pass Battery Storage



Estimate

Date:
Valid Until:
Quote #:
Customer ID:

10-Jun-26

10-Jul-26
60717285639
JUPITER PWR

Customer

Jupiter Power

Prairie Pass Battery Storage (EOL) Budgetary Decommissioning

Quote/Project Description

To assist in fulfilling the site Owner's permitting requirements, Renewance is providing a budgetary decommissioning estimate based on present day costs, current industry trends and project plans. These estimates are intended solely for the Customer's financial reporting purposes and do not constitute a formal proposal.

Description	Qty
Total estimated cost for project management and site labor for battery removal and packaging, balance of plant removal, including all necessary supplies and rental equipment	\$11.34 M
Total estimated transportation cost	\$3.52 M
Total estimated cost to recycle batteries	\$17.40 M
Total estimated cost for site restoration (concrete removal, below grade material down to 3ft, and site re-planted/re-seeded)	\$3.62 M
Total estimated scrap credit	-\$0.44 M

Special notes and instructions

End-of-Life (EOL) configuration. For budgetary/accounting purposes only. Not a formal proposal. Reflects Qty: (130) PCS and Qty: (390) SBB2.0 containers.

Subtotal \$35.44 M

Tax Rate n/a

Tax \$0.00

Total \$35.44 M

If you have any questions concerning this quote contact, James Polcyn +1 (331) 322-4240

Thank you for your business!

321 W Lake St., Suite E, Elmhurst, IL 60126

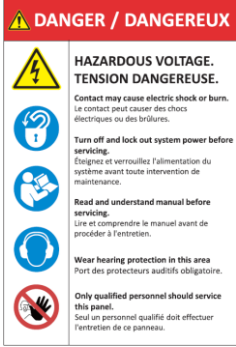
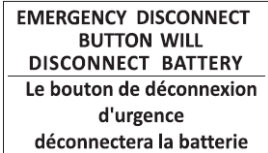
<https://batterystewardship.com> 1 800-233-5038

<https://batterystewardship.com> 1 800-233-5038

2.4. Information of Safety Label for SBB

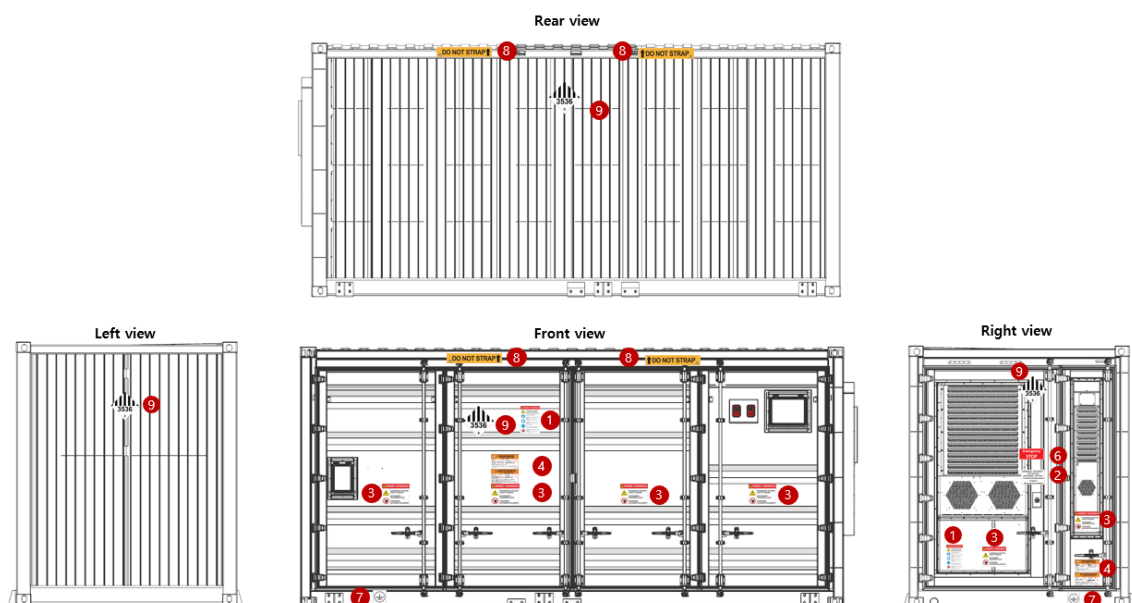
The types and purposes of the labels are described in the table below, and installation and commissioning personnel must read the cautions on each label before proceeding.

[Table 21] Safety Label for SBB Exteria (T.B.C)

Item No.	Safety Label	Descriptions
1		DANGER HAZARDOUS VOLTAGE The system must be de-energized before any maintenance work in locations where there is a possibility of exposure to high voltages. Lock out the breaker and read the manual of the supplied equipment. Only authorized maintenance personnel may perform maintenance.
2		EMERGENCY DISCONNECT BUTTON WILL DISCONNECT BATTERY The emergency stop button cuts off DC Power from the battery system.
3		DANGER HAZAROUS VOLTAGE AUTHORIZED PERSONNEL ONLY There is a risk of high voltage, and only authorized personnel can open the door.
4		WARNING ARC FLASH AND SHOCK HAZARD This equipment poses a risk of arc flash, and the label indicates the intensity of the arc flash and the allowable limits of approach. Maintenance personnel must wear protective gear at the level indicated on the label before starting work. The values in this label are changeable according to the rating of product.

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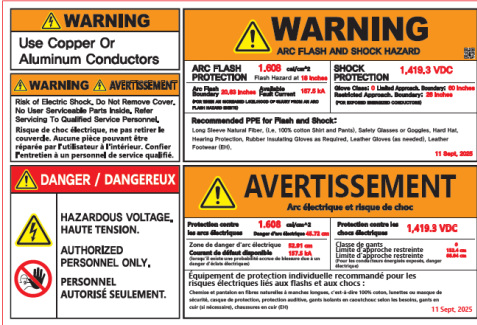
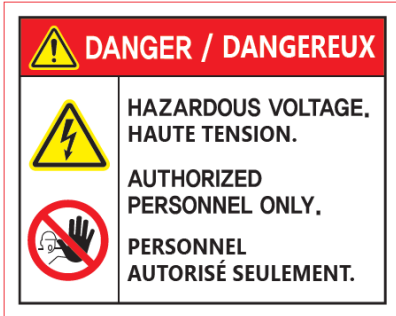
Item No.	Safety Label	Descriptions
5		CAUTION HOT AIR EXHAUST Be careful of hot air from chiller and HVAC.
6		EMERGENCY STOP Press the red button in case of emergency stop.
7		GROUND (GND) It indicates an electrical grounding component.
8		DEFLAGRATION PANEL GUIDE Do not strap over the deflagration panel.
9		UN3536 There is a Class 9, UN3536 cargo transport unit(CTU) with lithium ion batteries installed.

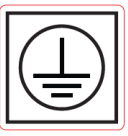
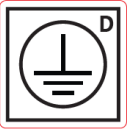
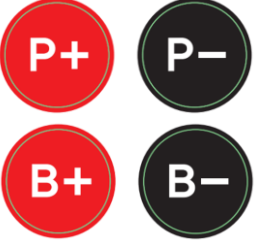
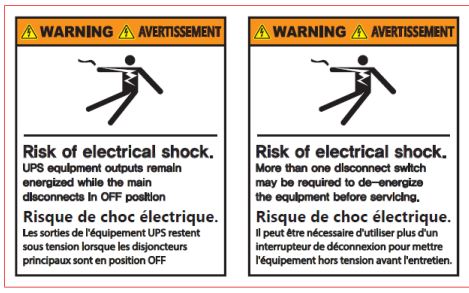


[Fig 24] Location of Safety Labels for SBB Exteria

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[Table 22] Safety Label for SBB Interia

Item No.	Safety Label	Descriptions
1		WARNING Material It is made of copper or aluminum, which allows electricity to flow WARNING Risk of Electrical Shock Do not remove the cover as there is a risk of electric shock. There are no user serviceable parts inside. Refer servicing to qualified service personnel. WARNING ARC FLASH AND SHOCK HAZARD This equipment poses a risk of arc flash, and the label indicates the intensity of the arc flash and the allowable limits of approach. Maintenance personnel must wear protective gear at the level indicated on the label before starting work. The values in this label are changable according the rating of product. DANGER HAZAROUS VOLTAGE AUTHORIZED PERSONNEL ONLY There is a risk of high voltage, and only authorized personnel can open the door.
2		DANGER HAZAROUS VOLTAGE AUTHORIZED PERSONNEL ONLY There is a risk of high voltage, and only authorized personnel can open the door.

Item No.	Safety Label	Descriptions
3		WARNING Risk of Electrical Shock Do not remove the cover as there is a risk of electric shock. There are no user serviceable parts inside. Refer servicing to qualified service personnel.
4		Alternating Current Supply Symbol
5		GROUND (GND) It indicates an electrical grounding component.
6		GROUND (GND) It indicates an electrical grounding component.
7		PCS Positive (P+) / PCS Negative (P-) At the connection point between the PCS and battery, the positive and negative are indicated Battery Positive (B+) / Battery Negative (B-) In the connection between the battery modules and the DSU, the positive and negative are indicated.
8		WARNING Risk of Electrical Shock There is a risk of electric shock. UPS equipment can still discharge electrically even when the main power is disconnected. WARNING Risk of Electrical Shock Prior to proceeding with the maintenance of this equipment, de-energization may be necessary, and one or more switches may need to be blocked

	ENERGY STORAGE SYSTEMS	
TYPE OF TECHNOLOGY		
SPECIAL HAZARDS		
EMERGENCY CONTACT INFORMATION		
SUPPRESSION SYSTEM		



Prairie Pass BESS

Preliminary Drainage Report

COFFMAN PROJECT NO. 253044

April 03, 2026

**Prairie Pass Battery Energy Storage
PRELIMINARY DRAINAGE REPORT**

Coffman Project Number: 253044

PREPARED BY:

**COFFMAN ENGINEERS, INC.
11080 Circle Point Road, Suite 220
Westminster, CO 80020**

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Brady Wiegand, P.E.
Kyle Cheesbrough, P.E.**

(720) 805-1955

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ATTACHMENTS

- A – Vicinity Map
- B – Supporting Figures
- C – Drainage Basin Maps
- D – Preliminary Hydrology Calculations
- E – Preliminary Ditch Calculations
- F – Preliminary Pipe Calculations
- G – Preliminary Culvert Calculations

PROJECT DESCRIPTION

Coffman Engineers was retained by Dudek to develop a preliminary drainage analysis for a new project in Adams County, Colorado. This report documents our team's findings for this preliminary study along with recommendations for the engineer of record to consider during final design.

The proposed Battery Energy Storage System (BESS) project is in Adams County, Colorado on a parcel approximately 39 acres in size. The required site development to support this project includes BESS and associated equipment, a project substation, a gravel access road, grading and drainage, as well as erosion and sediment control measures. The proposed project would develop a relatively flat site area with gravel surfacing to support the BESS equipment and two detention ponds sized per Adams County Stormwater requirements to the southwest.

The existing site consists of native grass used for agricultural purposes and a drainage ditch that conveys storm runoff from the northeast to the southwest where it outfalls to five existing culverts. The existing site includes structures and access roads located in the northern quarter of the parcel as well as two capped oil well setbacks to the northwest and the south. The parcel is north of the existing power generation infrastructure near the intersection of County Road 27 (Cavanaugh Rd.) and East 124th Ave. Hudson, Colorado. To the west of the site is an existing roadside ditch which services County Road 27 (Cavanaugh Rd.). Just south of the southern site entrance, there are five existing 24-inch culverts, and just north of the northern site entrance there is a single 24-inch culvert which manages the existing site's runoff and conveys it to the west. The existing grades range from 1 to 10% and slope from the northeast corner of the site to the southwest corner to existing roadside and onsite drainage ditches. An existing drainage easement maintained by the Mile High Flood District cuts through the southwest corner of the site. It is anticipated that runoff from the proposed site improvements will ultimately flow to this easement, maintaining existing drainage patterns.

The location of this project is Section 34, Township 1 South, Range 64 West, 6th Prime Meridian, Adams County, Colorado. See Attachment A for Vicinity Map.

PRE-DEVELOPMENT INFORMATION

The existing project site consists of native grass used for agricultural purposes and a drainage ditch bisecting the site from the northeast to the southwest. There are existing structures and gravel access roads to the north of the site and two existing capped oil wells are located to the east and south.

Pre-Development Basin A

This basin consists of native grass, a portion of the drainage ditch, a capped oil well, and the existing gravel access road and structures. Runoff from this basin splits and sheet flows southwest to the existing roadside ditch and southeast to the existing drainage ditch that cuts through the middle of the site. Runoff ultimately outfalls to the existing five southern culverts for conveyance. See Attachments A and D, for Pre-Development Basin Map and Pre-Development Hydrology Calculations.

Pre-Development Basin B

This basin consists of native grass in the northwest corner and southwest region of the site, as well as a single 24-inch corrugated metal pipe (CMP) culvert to the north and five 24-inch CMP culverts to the south. Runoff from the northwest portion of the basin sheet flows west toward the existing roadside ditch along Cavanaugh Road, entering the single 24-inch CMP culvert to be conveyed west. Runoff from the southwest portion sheet flows west to the existing five 24-inch CMP culverts. See Attachments A and D, for Pre-Development Basin Map and Pre-Development Hydrology Calculations.

Pre-Development Basin C

This basin consists of native grass and a portion of the drainage ditch. Runoff from this basin splits and flows west to an existing roadside ditch and southeast to the existing drainage ditch which outfalls to the existing five southern culverts. See Attachments A and D, for the Pre-Development Basin Map.

Pre-Development Basin D

This basin consists of native grass and a portion of the existing drainage ditch that bisects the site. Runoff from this basin splits and flows southwest and southeast toward the existing drainage ditch which outfalls to the existing five southern culverts. See Attachments A and D, for Pre-Development Basin Map and Pre-Development Hydrology Calculations.

	Impervious Area (Acre)			Pervious Area (Acre)	Percent Impervious	Total Area (Acres)	Total Runoff 100-Yr (cfs)
	Asphalt	Roofs	Gravel	Grass			
Basin A	0	0.09	0.71	15.93	3%	16.73	72.29
Basin C	0	0	0	2.06	0%	2.06	8.90
Basin D	0	0	0	4.40	0%	4.40	19.01

Pre-Development Culverts

There are six existing 24-inch CMP culverts which horizontally cross Cavanaugh Road (one at north crossing, five at south crossing) and provide stormwater conveyance for the proposed project location and off-site contributing areas. The culverts are assumed to receive stormwater runoff from the eastern half of Cavanaugh Road to the intersection at East 128th Avenue, the project site as well as the property to the north, see attachments for Basin Maps. These contributing areas were used to determine the total 10-year pre-development runoff as 43.58 cfs entering these culverts, see attachments D Dfor Hydrology Calculations.

The single 24-inch CMP northern culvert is assumed to convey runoff generated from off-site areas and Basin B. The five southern 24-inch CMP culverts are assumed to collect storm runoff from the off-site areas and Basins A, B, C, and D, see Hydrology Calculations. The existing culverts were found to have a total capacity to convey 175.14 cfs of runoff.

PRE-DEVELOPMENT CULVERT RUNOFF SUMMARY TABLE

	Impervious Area (Acre)			Pervious Area (Acre)	Percent Impervious	Total Area (Acres)	Total Runoff 10-Yr (cfs)
	Asphalt	Roofs	Gravel	Grass			
Basin A	0	0.09	0.71	15.93	3%	16.73	11.92
Basin C	0	0	0	2.06	0%	2.06	1.47
Basin D	0	0	0	4.40	0%	4.40	3.13
Off-Site	0	0	0.75	37.24	1%	37.99	27.06
Total						61.18	43.58

PRE-DEVELOPMENT CULVERT SUMMARY TABLE

	Length (ft)	Grade (ft/ft)	Existing Culvert Capacity (cfs)
24-Inch CMP – North	34.94	0.006	19.26
24-Inch CMP – South 1	30.15	0.021	36.03
24-Inch CMP – South 2	29.78	0.017	32.41
24-Inch CMP – South 3	30.55	0.016	31.45
24-Inch CMP – South 4	30.57	0.017	32.41
24-Inch CMP – South 5	31.15	0.009	23.58
Total Capacity			175.14

METHODOLOGY

Stormwater management should be provided in conformance with the Adams County Stormwater Drainage Design and Stormwater Quality Control Regulations and the Mile High Flood District (MHFD) standards when required. A combination of hydrographic methods is recommended to determine the storage volume and flow control requirements – each with a 100-year return frequency.

The Rational Method is recommended to determine the peak flow rate using intensities, runoff coefficients, and percent impervious values provided by Adam's County and the MHFD. The hydrologic soil group (HSG) for the site were classified as soil group C per the National Resource Conservation Service (NRCS), see attachments for supporting figures. The required detention volume was estimated as the 100-year storm event plus 50% of the total Water Quality Capture Volume (WQCV) and 1 foot of additional free board. Onsite drainage systems and detention ponds should consider the minor (5-year) storm event to ensure proper design while minimizing damage and maintenance. The Bowstring Method was then utilized to determine if the proposed detention pond volume would be adequate given an outflow rate more conservative than the pre-development peak flowrate and the maximum allowable release rate provided by Adam's County.

The existing drainage ditch manages off-site runoff from a larger contributing area and is recommended to be re-routed along the east perimeter of the project site to reduce risk of impacting the proposed BESS equipment and to maintain existing flow patterns. The proposed ditch re-route will match back into the existing drainage ditch before out-falling to the existing five southern culverts, maintaining existing drainage patterns. Runoff generated by the proposed development will not contribute to the proposed re-routed ditch, maintaining separate storm systems for the on-site and off-site hydrology.

POST-DEVELOPMENT BASIN INFORMATION

It is recommended that stormwater runoff from the post-development project be managed by two proposed on-site detention ponds, see Attachments for Post-Development Basin Maps.

Post-Development Basin A

This basin consists of most of the site improvements including the proposed access road aside from the entrances, the BESS facility, substation, a capped oil well, and the proposed northern detention pond. An existing capped oil well and its associated 50-foot by 100-foot setback are located within this basin. Filling above the southern capped oil well setback is recommended and considered acceptable, as no cut or permanent improvements are proposed over the setback area. Runoff from this basin is recommended to sheet flow southwest to a proposed northern or southern roadside ditch that is sized in accordance with Adams County requirements to convey the 10-year peak flowrate. The proposed northern roadside ditch is recommended to follow the perimeter of the site and convey water south to outfall to the northern detention pond for storage. The proposed southern roadside ditch is proposed to follow the perimeter of the existing capped oil well and is intended to convey water north to a proposed underground 18" storm culvert to be piped to the proposed detention pond. The proposed ditches are intended to convey stormwater to the northern detention pond to be managed on-site. The pond is expected to be 3.5 feet deep providing the required storage for the impervious areas and compliance with the authorities having jurisdiction (AHJ). The pond is recommended to be served by a 12" outfall pipe that discharges to the existing five southern culverts, which conveys runoff west, mimicking existing drainage patterns. The capacity of the 12" outfall should be less than the maximum allowable release rate as defined by Adams County and should be less than the pre-development peak flowrate for the design storm event. Therefore, the 12" outfall could act as an orifice throttling back the design storm event and filling the pond. Armored rip rap is recommended to be installed at the outfall for the proposed 12" pipe to minimize erosion. See Attachment D for calculations supporting these recommendations.

Post-Development Basin B

This basin consists of the proposed northern and southern access road driveways and adjacent re-graded areas. Due to the existing topography, the proposed access roads are intended to slope steeply upward to tie into the proposed gravel pad. As a result, runoff from both of the access roads and the adjacent re-graded areas is expected to drain back toward the existing roadside ditch along Cavanaugh Road. The access roads contribute only a minor amount of impervious area, and the adjacent re-graded area do not introduce any impervious surface, so neither is expected to generate a meaningful increase in runoff beyond existing conditions. Therefore, this additional flow should be considered negligible and within the capacity of the existing roadside swales. No hydrology calculations are provided for these basins; however, it is recommended that the EOR further evaluate these drainage contributions to confirm adequate capacity of the existing roadside ditch.

Post-Development Basin C

This basin consists of the proposed southern access road, two proposed roadside ditches, and a southern detention pond. Stormwater generated in this basin is recommended to sheet flow south into a northern or southern roadside ditch to be conveyed west to outfall into the proposed southern detention pond. The proposed northern roadside ditch is recommended to be split into two, the eastern portion is intended to convey water west to outfall into the proposed south entrance culvert for conveyance. The western portion of the roadside ditch is recommended to be piped directly to a proposed 6" pipe to discharge into the re-routed drainage ditch, this ditch collects a minimal amount of runoff from existing native grasses that the increased runoff to the drainage ditch is negligible. The pond is recommended to be 1.75' deep, providing the required storage and maintaining compliance with the AHJ. The pond is recommended to be served by an 8" outfall pipe that discharges to the existing five 24-inch CMP culverts, mimicking existing drainage patterns. The capacity of the 8" outfall should be equal to the maximum allowable release rate as defined by Adam's County and should be less than the pre-development peak flowrate for the design storm event. Therefore, the 8" outfall could act as an orifice throttling back the design storm event and filling the pond. Armored rip rap is recommended be installed at the outfall for the proposed 8" pipe to minimize erosion. See Attachment D for calculations supporting these recommendations.

Post-Development Basin D

This basin consists of the proposed rerouted drainage ditch and adjacent re-graded areas. Runoff generated in this basin should flow south along the rerouted drainage ditch, around the BESS improvements, to tie back into the existing drainage ditch to maintain pre-development drainage conditions. It is recommended that the EOR further evaluate offsite drainage contributions to this basin to ensure adequate conveyance capacity of the proposed channel. See the Post-Development Basin Map in Attachment C for the proposed drainage ditch routing and connection to the existing ditch.

POST-DEVELOPMENT BASIN SUMMARY TABLE

	Impervious Area (Acre)	Pervious Area (Acre)	Percent Impervious	Total Area (Acres)	Total 100-yr Runoff (cfs)	Required Storage Volume ¹ (cf)	Provided Storage Volume ² (cf)	Outfall Rates (cfs)
Basin A	13.97	2.76	63%	16.73	107.70	87,589	117,962	9.51 ³
Basin C	0.43	1.63	13%	2.06	9.45	2,118	11,503	2.06 ³
Basin D	0.00	4.40	0%	4.40	19.01	N/A	N/A	N/A

1. Required storage is determined as the 100-year volume plus 50% of the WQCV.
2. Provided storage is determined as the 100-year volume plus 50% of the WQCV plus 1-foot of additional freeboard as required.
3. Pond outfall rates determined via maximum allowable flow rate for provided pipe outfall.

Post-Development Culverts

The existing 24-inch CMP culverts along Cavanaugh Road provide conveyance for the proposed project location and off-site contributing areas. The existing off-site contributing areas are intended to remain the same throughout development; therefore, no additional runoff will be generated from these areas maintaining existing drainage patterns. The proposed project improvements are intended to increase the generated runoff from the site but will be conveyed through series of proposed roadside ditches and two detention ponds for storage. The discharge rates for both proposed detention ponds are intended to outfall at a rate lower than the maximum allowable release rate as determined by acreage and soil group. These contributing areas were used to determine the total 10-year post-development runoff as 41.76 cfs entering these culverts, see attachment D for Hydrology Calculations.

POST-DEVELOPMENT CULVERT RUNOFF SUMMARY TABLE

	Impervious Area (Acre)			Pervious Area (Acre)	Total Area (Acres)	Total Runoff 10-Yr (cfs)	Proposed Discharge Rate (cfs)
	Asphalt	Roofs	Gravel	Grass			
Basin A	0	0.09	0.71	15.93	16.73	45.28	9.51
Basin C	0	0	0	2.06	2.06	2.35	2.06
Basin D	0	0	0	4.40	4.40	3.13	3.13
Off-Site	0	0	0.75	37.24	37.99	27.06	27.06
Total					61.18	77.82	41.76

RESULTS

Hydrology Calculations

The following table summarizes the results of the preliminary basin hydrology calculations. Runoff generated is calculated using the Rational Method. The required detention volume is determined as the runoff generated from the 100-year, 24-hour storm event, 50% of the Water Quality Capture Volume (WQCV), and an additional 1 foot of freeboard. See Hydrology Calculations in Attachments.

ON-SITE STORAGE AND FLOW CONTROL REQUIREMENT SUMMARY TABLE

Basin	Pre-Development Generated 100-yr Storm (cfs)	Post- Development Generated 100-yr Storm (cfs)	Required Storage Volume ¹ (cf)	Provided Total Volume ² (cf)	Proposed Discharge Rate (cfs)
Basin A	72.29	107.70	87,859	117,962	9.51 ⁴
Basin C	8.90	9.45	2,118 ³	11,503	2.06 ⁴

1. Required storage is determined as the 100-year volume plus 50% of the WQCV.
2. Provided storage is determined as the 100-year volume plus 50% of the WQCV plus 1-foot of additional freeboard as required.
3. Bowstring Method produced a larger required storage volume than the 100-year volume for the South Basin.
4. Pond outfall rates determined via maximum allowable flow rate for provided pipe outfall.

The total projects improvements are expected to increase the required storage for the site by a total of 89,977 cf for the 100-year design storm event which is intended to be stored within the proposed northern and southern detention ponds. The proposed storage improvements are recommended to provide 129,465 cf of total storage, which is adequate for this development and meets compliance with Adam's County stormwater manual.

Basin D Re-Routed Drainage Ditch

The proposed Basin D re-routed drainage ditch is conservatively sized in accordance with Adams County requirements to convey the 100-year peak flowrate rather than the 10-year peak flowrate. The existing drainage ditch manages off-site runoff from a larger contributing area, and it is recommended to be re-routed along the eastern perimeter of the project site. Further evaluation of offsite drainage contributions is recommended by the EOR and compiling computer models such as HEC HMS for the off-site analysis may be required. The drainage ditch is recommended to capture runoff generated from Basin D and off-site hydrology and convey that runoff southwest to outfall at the existing ditch and existing culverts. The proposed re-routed drainage ditch has the calculated capacity of 164.41 cfs per Manning's Equation, which is greater than the 100-year pre-development peak flow rate of 155.52 cfs required to be maintained. See the Attachment D and E for Hydrology Calculations and Roadside Ditch Capacity Calculations.

POST-DEVELOPMENT BASIN DITCH SUMMARY TABLE

	Post-Development 100-yr Runoff (cfs)	Proposed Roadside Ditch Capacity (cfs)
Basin D Re-Routed Drainage Ditch	155.52 ¹	164.41

1. 100-Year Runoff is determined as the 100-year peak flowrate from the existing off-site contributing areas, see Basin Maps and Ditch Calculations.

Pipe Calculations

The Basin A and Basin C detention ponds are recommended to have a 12" and 8" outfall pipe, respectively. The two outfall pipes for the detention ponds were sized using Manning's Equation with contributing flow calculations determined by the Rational Method. The outfall pipes were sized to flow no more than 100-year, 24-hour maximum allowable release rate and the Pre-Development Peak Flowrate. The pipes are recommended to throttle runoff into the proposed northern and southern detention ponds, allowing stormwater to be stored before discharging to the existing culverts at a rate not exceeding the pre-development flow rate. See Pipe Calculations in Attachment F.

POST-DEVELOPMENT OUTFALL PIPE OUTFALL RATE

	Pre-Development 100-yr Runoff (cfs)	Post-Development 100-yr Runoff (cfs)	Maximum Allowable Release Rate (cfs)	Proposed Outfall Rate (cfs)
Basin A	60.97	93.33	16.73 ¹	9.51
Basin C	13.66	14.49	2.06 ¹	2.06

1. Maximum allowable release rates determined via MHFD Table 9.16

Roadside Ditch Culverts

The proposed northern and southern access entrances are intended to cross the existing roadside ditch along Cavanaugh Road. A single 24-inch culvert is proposed at each crossing to maintain conveyance and preserve pre-development drainage patterns. The maximum capacity of each culvert was determined using Manning's Equation. Further evaluation of offsite drainage contributions is recommended by the EOR and to compile computer models such as HEC HMS for the off-site analysis. See the Culvert Calculations in the Attachment G for more information.

POST- DEVELOPMENT CULVERT DISCHARGE RATE

Culvert	Required 10-yr Runoff ¹ (cfs)	Maximum Discharge Rate (cfs)
North Culvert	27.06	30.26
South Culvert	27.06	39.38

1. Required runoff is determined as the 10-year peak flowrate from the existing off-site contributing areas, see Basin Maps and Culvert Calculations.

The existing six 24-inch CMP culverts should have the capacity to handle the 10-year post-development runoff from the proposed site improvements as the existing culverts have a combined capacity of 175.14 cfs. The 10-year post-development peak flowrate is determined to be 41.76 cfs which is lower than the pre-development peak flowrate of 43.58 cfs that the existing culverts were maintaining.

CULVERT CONTRIBUTING RUNOFF SUMMARY

Total Pre-Development 10-Year Peak Flowrate (cfs)	Total Post-Development 10-Year Peak Flowrate (cfs)
43.58	41.76

Rip Rap Armoring

Larger diameter angular rock, or rip rap armoring, is recommended to be installed at all of the following locations:

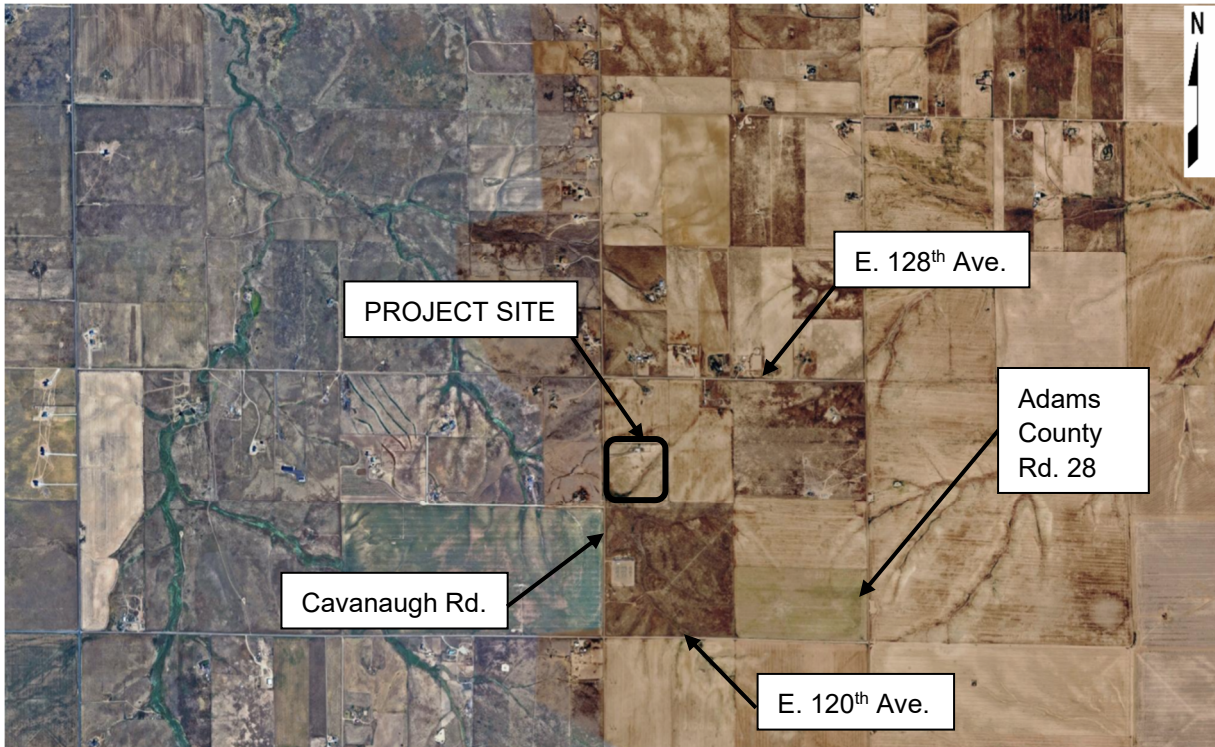
- Base of major conveyance channels
- Outfalls of pipes
- Inlets to new/existing culverts

Installing rip rap armoring at all of the locations listed will help to dissipate additional energy in the runoff generated by the proposed site improvements and will help limit erosion of the proposed stormwater management system. It is recommended that a large flat rip rap area be installed upstream of all proposed/existing culverts to help reduce velocities and settle sediment in the runoff prior to reaching the culvert. Final depth, width, and rock sizing to be determined by the engineer of record.

CONCLUSIONS

The above-described system of stormwater control provides the necessary systems to manage runoff for the proposed BESS project, if built per this report's recommendations. The proposed detention ponds would have sufficient storage volume and flow control requirements for a 100-year return frequency based on the calculations and assumptions in this report. Based on the inputs, available data, and required design methodology, if the recommendations of this manual are followed and the proper construction erosion and sediment control measures employed, impacts are not anticipated for the existing culverts or surrounding properties, adjacent site features as well as the nearby Mile High Flood District Easement. See Attachments for additional information.

ATTACHMENT A: VICINITY MAP



ATTACHMENT B: SUPPORTING FIGURES



POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 8, Version 2

PF tabular

PF graphical

Supplementary information

 Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.237 (0.189-0.298)	0.290 (0.231-0.365)	0.388 (0.309-0.491)	0.481 (0.380-0.610)	0.624 (0.483-0.837)	0.747 (0.561-1.01)	0.882 (0.638-1.22)	1.03 (0.713-1.45)	1.24 (0.826-1.80)	1.42 (0.911-2.06)
10-min	0.347 (0.277-0.437)	0.425 (0.339-0.535)	0.569 (0.452-0.718)	0.704 (0.556-0.893)	0.914 (0.707-1.22)	1.09 (0.822-1.48)	1.29 (0.935-1.78)	1.51 (1.04-2.13)	1.82 (1.21-2.63)	2.07 (1.33-3.01)
15-min	0.423 (0.338-0.532)	0.518 (0.413-0.652)	0.693 (0.551-0.876)	0.859 (0.678-1.09)	1.12 (0.863-1.49)	1.34 (1.00-1.80)	1.57 (1.14-2.17)	1.84 (1.27-2.60)	2.22 (1.47-3.21)	2.53 (1.63-3.67)
30-min	0.572 (0.457-0.721)	0.696 (0.555-0.878)	0.928 (0.738-1.17)	1.15 (0.906-1.46)	1.49 (1.15-2.00)	1.78 (1.34-2.41)	2.11 (1.53-2.91)	2.46 (1.71-3.48)	2.98 (1.98-4.31)	3.40 (2.19-4.94)
60-min	0.703 (0.561-0.885)	0.851 (0.679-1.07)	1.13 (0.899-1.43)	1.40 (1.11-1.78)	1.82 (1.42-2.45)	2.19 (1.65-2.96)	2.60 (1.88-3.59)	3.04 (2.11-4.31)	3.69 (2.46-5.35)	4.23 (2.72-6.14)
2-hr	0.834 (0.670-1.04)	1.01 (0.808-1.26)	1.34 (1.07-1.67)	1.65 (1.32-2.08)	2.16 (1.69-2.88)	2.60 (1.97-3.49)	3.08 (2.26-4.23)	3.62 (2.54-5.08)	4.41 (2.96-6.33)	5.06 (3.28-7.27)
3-hr	0.908 (0.734-1.13)	1.09 (0.880-1.36)	1.44 (1.16-1.80)	1.78 (1.42-2.23)	2.33 (1.83-3.09)	2.80 (2.14-3.74)	3.33 (2.45-4.54)	3.91 (2.76-5.46)	4.77 (3.22-6.80)	5.47 (3.57-7.82)
6-hr	1.08 (0.876-1.33)	1.28 (1.04-1.58)	1.67 (1.35-2.06)	2.04 (1.64-2.53)	2.64 (2.09-3.47)	3.16 (2.43-4.18)	3.74 (2.77-5.04)	4.38 (3.11-6.04)	5.31 (3.62-7.50)	6.08 (4.01-8.61)
12-hr	1.31 (1.08-1.60)	1.54 (1.26-1.88)	1.97 (1.61-2.42)	2.38 (1.93-2.92)	3.01 (2.40-3.90)	3.56 (2.75-4.64)	4.16 (3.10-5.54)	4.82 (3.45-6.57)	5.78 (3.97-8.06)	6.56 (4.36-9.18)
24-hr	1.56 (1.29-1.89)	1.85 (1.52-2.24)	2.36 (1.94-2.86)	2.81 (2.30-3.43)	3.49 (2.78-4.44)	4.06 (3.15-5.21)	4.66 (3.50-6.12)	5.31 (3.82-7.14)	6.23 (4.31-8.57)	6.96 (4.67-9.65)
2-day	1.79 (1.49-2.15)	2.15 (1.79-2.58)	2.76 (2.29-3.32)	3.28 (2.70-3.97)	4.02 (3.21-5.02)	4.61 (3.59-5.82)	5.22 (3.93-6.73)	5.84 (4.22-7.72)	6.70 (4.66-9.07)	7.36 (4.99-10.1)
3-day	1.96 (1.63-2.33)	2.32 (1.94-2.78)	2.94 (2.45-3.52)	3.47 (2.87-4.17)	4.22 (3.38-5.24)	4.82 (3.77-6.04)	5.43 (4.11-6.96)	6.06 (4.40-7.96)	6.92 (4.84-9.32)	7.59 (5.17-10.3)
4-day	2.09 (1.75-2.48)	2.46 (2.06-2.92)	3.07 (2.56-3.66)	3.60 (2.99-4.31)	4.36 (3.50-5.38)	4.95 (3.89-6.20)	5.57 (4.23-7.12)	6.21 (4.53-8.13)	7.09 (4.98-9.51)	7.77 (5.32-10.5)
7-day	2.38 (2.01-2.81)	2.77 (2.34-3.27)	3.42 (2.87-4.05)	3.98 (3.32-4.73)	4.76 (3.85-5.83)	5.38 (4.25-6.66)	6.00 (4.59-7.60)	6.66 (4.89-8.63)	7.54 (5.34-10.0)	8.22 (5.67-11.1)
10-day	2.64 (2.23-3.10)	3.06 (2.58-3.59)	3.75 (3.16-4.42)	4.33 (3.63-5.12)	5.14 (4.17-6.26)	5.78 (4.58-7.11)	6.42 (4.93-8.07)	7.08 (5.22-9.12)	7.96 (5.66-10.5)	8.64 (5.99-11.6)
20-day	3.38 (2.89-3.94)	3.88 (3.30-4.52)	4.68 (3.98-5.47)	5.35 (4.52-6.27)	6.25 (5.11-7.51)	6.95 (5.66-8.45)	7.64 (6.19-9.49)	8.34 (6.70-10.6)	9.25 (7.63-11.1)	9.94 (8.66-11.3)

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TABLE 6-2. RECOMMENDED IMPERVIOUSNESS BY LAND USE

LAND USE/DENSITY	IMPERVIOUSNESS
Residential	
Single-family Housing (SFH) – Rural (0 – 3 du/ac)	35%
SFH – Low & Medium-density (3 – 5 du/ac)	55%
SFH – High-density (5 – 20 du/ac)	65%
Manufactured Housing (>= 10 du/ac)	65%
Multi-family Housing (MFH) – Medium-density (5 – 20 du/ac)	65%
MFH – High-density MFH (>20 du/ac)	70%
Commercial	
Commercial – Low-density	65%
Commercial – Medium- to High-density	80%
Commercial – Urban Core	90%
Industrial/Institutional	
Schools	55%
Office/institutional	65%
Industrial Areas	75%
Solar Fields, Gravel Cover ^{1,2}	60%
Solar Fields, Grass Cover ^{1,2}	45%
Parks and Open Space	
Open Space, Undisturbed Native Grasses	5%
Community Parks	25%
Neighborhood Parks	15%
Golf Courses	30%
Cemeteries	25%

Note: Recommended imperviousness values shown in the table are the minimum imperviousness values for a specific land use. It is the engineer's responsibility to select imperviousness values that appropriately reflect the actual density of the proposed development.

¹ Use these values at the master planning scale or when the specific layout of panels is not known. Use values from the surface type (Table 6-3) at the site planning and design stage when panel width, panel spacing, and panel orientation relative to contours are known.

² Assumes 1:1 ratio of panels to aisles. See MHFD's technical memorandum regarding *Determination of Solar Panel Field Runoff Coefficients and Imperviousness Values* for additional information on procedures to reflect other impervious areas such as roads and pads that may be part of a solar field and layouts with wider inter-panel spacing.

TABLE 6-3. RECOMMENDED IMPERVIOUSNESS BY SURFACE TYPES

SURFACE TYPES		IMPERVIOUSNESS
Roadways and Paved Streets		95%
Concrete Driveways and Walks		95%
Roofs		95%
Gravel	No Traffic (Pedestrian Use)	40%
	Low-traffic Areas (Maintenance Paths and Substations)	60%
	High-traffic Areas (Roadways and Parking)	80%
Disturbed Soil (Including Lawns, Managed/Active Turf, Landscaped Areas with Water-Wise Vegetation, and Uncompacted Gravel/Mulch Planting Beds)		20%
Undisturbed or Decompacted Soil (Native Grasses and Open Space Areas)		5%
Artificial Turfs ¹	Landscape Applications (without Subgrade Drainage Layer)	25% – 45%
	Sport Fields (with Underdrain Pipe System)	60% – 80%
Water Surfaces (Lakes/Reservoirs/Irrigation Ponds)		100%
Solar Fields ²	Grass Cover (Varies with Panel Orientation Relative to Ground Contours)	10% – 45%
	Gravel Cover (Varies with Panel Orientation Relative to Ground Contours)	50% – 75%
Historic Flow Analysis, Greenbelts, Agricultural		5%
Newly Graded Areas		65%
Stormwater Control Measures ³	Retention Ponds & Constructed Wetland Ponds	100%
	Rooftop Systems – Blue Roofs	95%
	Rooftop Systems – Green Roofs (extensive)	65%
	Rooftop Systems – Green Roofs (intensive)	50%
	Permeable Pavement – CGP/PGP/RGP	55%
	Permeable Pavement – PICP	45%
	Extended Detention Basins	25%
	Receiving Pervious Areas (incl. Grass Buffers & Grass Swales)	20%
	Bioretention & Sand Filters	10%

¹ Consult with the manufacturer to get a recommended value.

² Assumes 1:1 ratio of panels to aisles. See MHFD's technical memorandum regarding *Determination of Solar Panel Field Runoff Coefficients and Imperviousness Values* for additional information on procedures for determining percent imperviousness based on panel width, panel spacing, and panel orientation relative to ground contours and how to reflect other impervious areas such as roads and pads that may be part of a solar field and layouts with wider inter-panel spacing.

³ See MHFD's technical memorandum regarding *Evaluation of Percent Imperviousness for Stormwater Control Measures* for background information.

Report — Map Unit Description

Adams County Area, Parts of Adams and Denver Counties, Colorado

WuE—Wiley-Adena-Renohill complex, 3 to 20 percent slopes

Map Unit Setting

National map unit symbol: 34xk
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Wiley and similar soils: 40 percent
Adena and similar soils: 30 percent
Renohill and similar soils: 15 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wiley

Setting

Landform: Hills
Landform position (three-dimensional): Base slope, side slope, nose slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

H1 - 0 to 3 inches: loam
H2 - 3 to 13 inches: clay loam
H3 - 13 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 9 to 20 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 high (0.20 to 0.60 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 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Description of Adena

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 22 inches: silty clay loam
H3 - 22 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 5 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Report — Map Unit Description

Adams County Area, Parts of Adams and Denver Counties, Colorado

AcC—Adena-Colby association, gently sloping

Map Unit Setting

National map unit symbol: 34vg
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Adena and similar soils: 40 percent
Colby and similar soils: 30 percent
Minor components: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adena

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 22 inches: silty clay loam
H3 - 22 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 5 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 (0.20 to 0.60 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 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Description of Colby

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 5 inches: loam
H2 - 5 to 56 inches: loam
H3 - 56 to 60 inches: sandy clay loam

Properties and qualities

Slope: 3 to 5 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 (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches

TABLE 6-8. RUNOFF COEFFICIENTS, C, NRCS HSG C/D

TOTAL OR EFFECTIVE % IMPERVIOUS	NRCS HSG C/D						
	WQE & 2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
2%	0.01	0.05	0.15	0.33	0.40	0.49	0.59
5%	0.03	0.08	0.17	0.35	0.42	0.50	0.60
10%	0.06	0.12	0.21	0.38	0.44	0.52	0.62
15%	0.10	0.16	0.24	0.40	0.47	0.55	0.64
20%	0.14	0.20	0.28	0.43	0.49	0.57	0.65
25%	0.18	0.24	0.32	0.46	0.52	0.59	0.67
30%	0.22	0.28	0.35	0.49	0.54	0.61	0.68
35%	0.26	0.32	0.39	0.52	0.57	0.63	0.70
40%	0.30	0.36	0.43	0.54	0.59	0.65	0.71
45%	0.34	0.40	0.46	0.57	0.62	0.67	0.73
50%	0.38	0.44	0.50	0.60	0.64	0.69	0.75
55%	0.43	0.48	0.54	0.63	0.66	0.71	0.76
60%	0.47	0.52	0.57	0.66	0.69	0.73	0.78
65%	0.51	0.56	0.61	0.68	0.71	0.75	0.79
70%	0.56	0.61	0.65	0.71	0.74	0.77	0.81
75%	0.60	0.65	0.68	0.74	0.76	0.79	0.82
80%	0.65	0.69	0.72	0.77	0.79	0.81	0.84
85%	0.69	0.73	0.76	0.80	0.81	0.83	0.86
90%	0.74	0.77	0.79	0.82	0.84	0.85	0.87
95%	0.79	0.81	0.83	0.85	0.86	0.87	0.89
100%	0.84	0.86	0.87	0.88	0.89	0.89	0.90

9-01-11-01-01

VOLUME ESTIMATES (EMPIRICAL FORMULA METHOD)

The volume available for detention storage for tributary catchments of 90 acres or less shall be based on the following empirical equations that follow. For larger catchments a CUHP hydrograph shall be generated and hydrologic routing shall be used for site detention. The maximum release rates for detention design provided in Table 9.16 shall not be exceeded.

$$V=KA$$

Equation 9.5

For the 100-year:

$$K_{100} = \frac{(1.78I - 0.002I^2 - 3.56)}{910}$$

Equation 9.6

For the 5-year:

$$K_5 = \frac{(0.77I - 2.26)}{1000}$$

Equation 9.7

In which,

- V = Required volume for the 100- or 5-year storm, acre-feet
- A = Tributary catchment area, acres
- I = Developed basin imperviousness, percent (%)

Adams County requires the WQCV be added to the 5-year detention volume. Adams County also requires that 50% of the WQCV be added to the calculated 100-year Volume.

An additional one (1)-foot of depth must be added to the overall volume to accommodate for freeboard. Administrative relief for exemptions or reductions in freeboard requirements may be granted by the County on a case by case basis as supported by sufficient technical justification. These empirical equations were developed as part of the MHFD hydrology research program and were based on a computer modeling study and represent average conditions. It is believed these equations provide consistent and effective approaches to sizing onsite detention facilities. For basins larger than 90 acres, the CUHP computer model may be used to more accurately represent site conditions.

3.0 Calculation of the WQCV

The WQCV is calculated as a function of imperviousness and BMP type using Equation 3-1 and Table 3-2, and as shown in Figure 3-1:

$$WQCV = a(0.91I^3 - 1.19I^2 + 0.78I) \quad \text{Equation 3-1}$$

Where:

WQCV = Water Quality Capture Volume (watershed-inches)

a = Coefficient corresponding to BMP type and based on WQCV design drain time (Table 3-2)

I = Imperviousness (percent expressed as a decimal) Note: At a planning level, the watershed imperviousness can be estimated based on the zoned density. When finalizing design, calculate imperviousness based on the site plan.

Table 3-2. Drain Time Coefficients for WQCV Calculations

Drain Time (hours)	Coefficient, a
12 hours (filtration BMPs and retention ponds)	0.8
24 hours (constructed wetland ponds)	0.9
40 hours (extended detention)	1.0
No attenuation (e.g., grass buffer or swale)	1.0

Figure 3-2, which illustrates the relationship between imperviousness and WQCV for various drain times, is appropriate for use in Colorado's high plains near the foothills. For areas beyond this region, use WQ-COSM (UWRI 2013) and local rainfall data to determine precipitation depth for WQCV event.

After calculating WQCV in watershed-inches, convert this to a volume using Equation 3-2. Note that the area in this equation is the entirety of the area tributary to the control measure. This is regardless of the volume treated upstream.

$$V = \frac{WQCV}{12} A \quad \text{Equation 3-2}$$

Where:

V = required storage volume (acre-feet)

A = watershed tributary area upstream (acres)

WQCV = Water Quality Capture Volume (watershed-inches)

9-01-11-02 MAXIMUM ALLOWABLE RELEASE RATE

The maximum allowable release rates for the corresponding storm events (5 and 100-year) are as presented in Table 9.16.

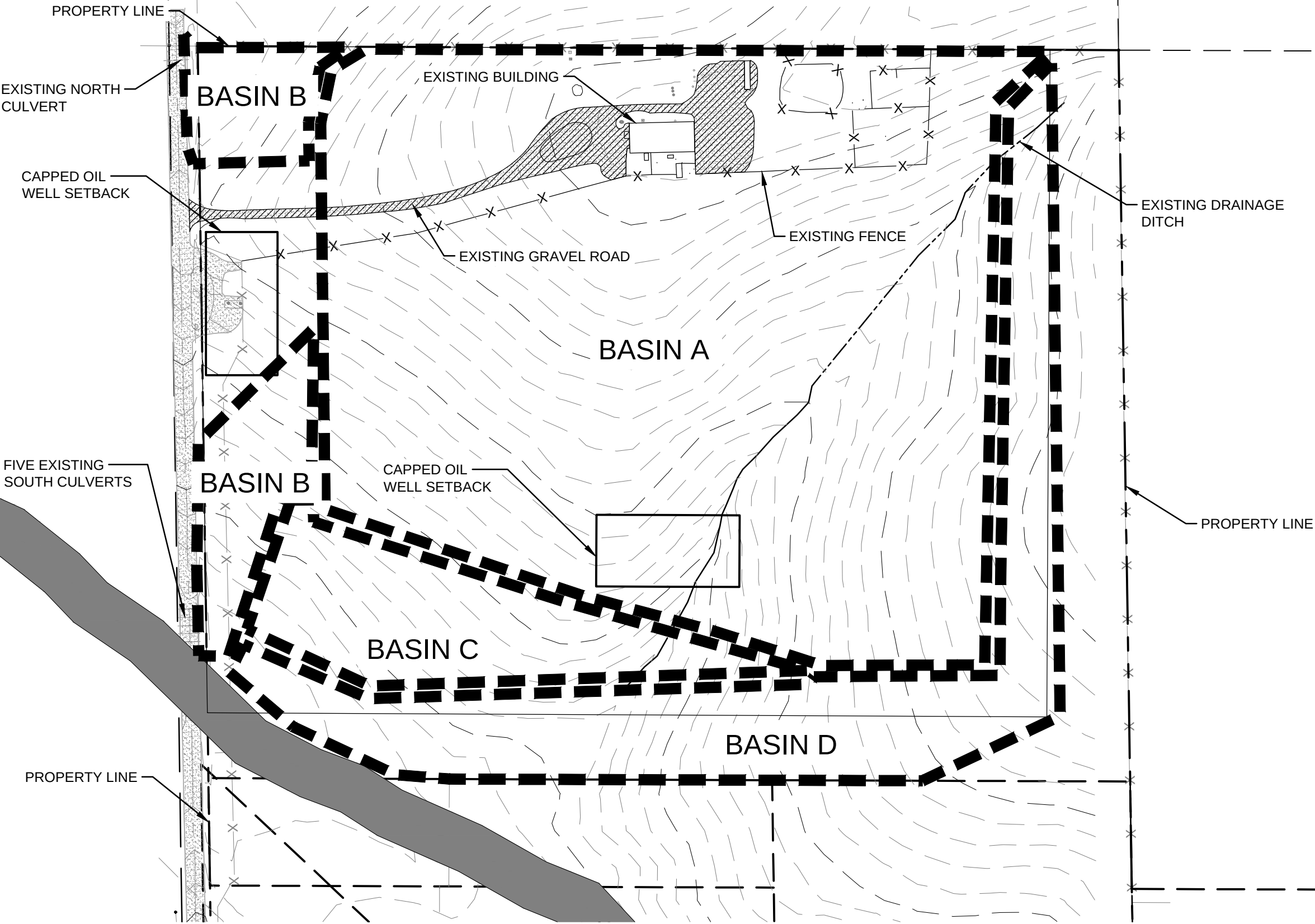
Table 9.16—Allowable Release Rates (CFS/Acre)

Control Frequency	Dominant Soil Group		
	A	B	C & D
5-year	0.07	0.13	0.17
100-year	0.50	0.85	1.00

ATTACHMENT C: BASIN MAPS

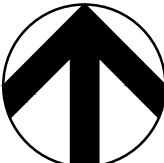


SCALE: 1"=150'

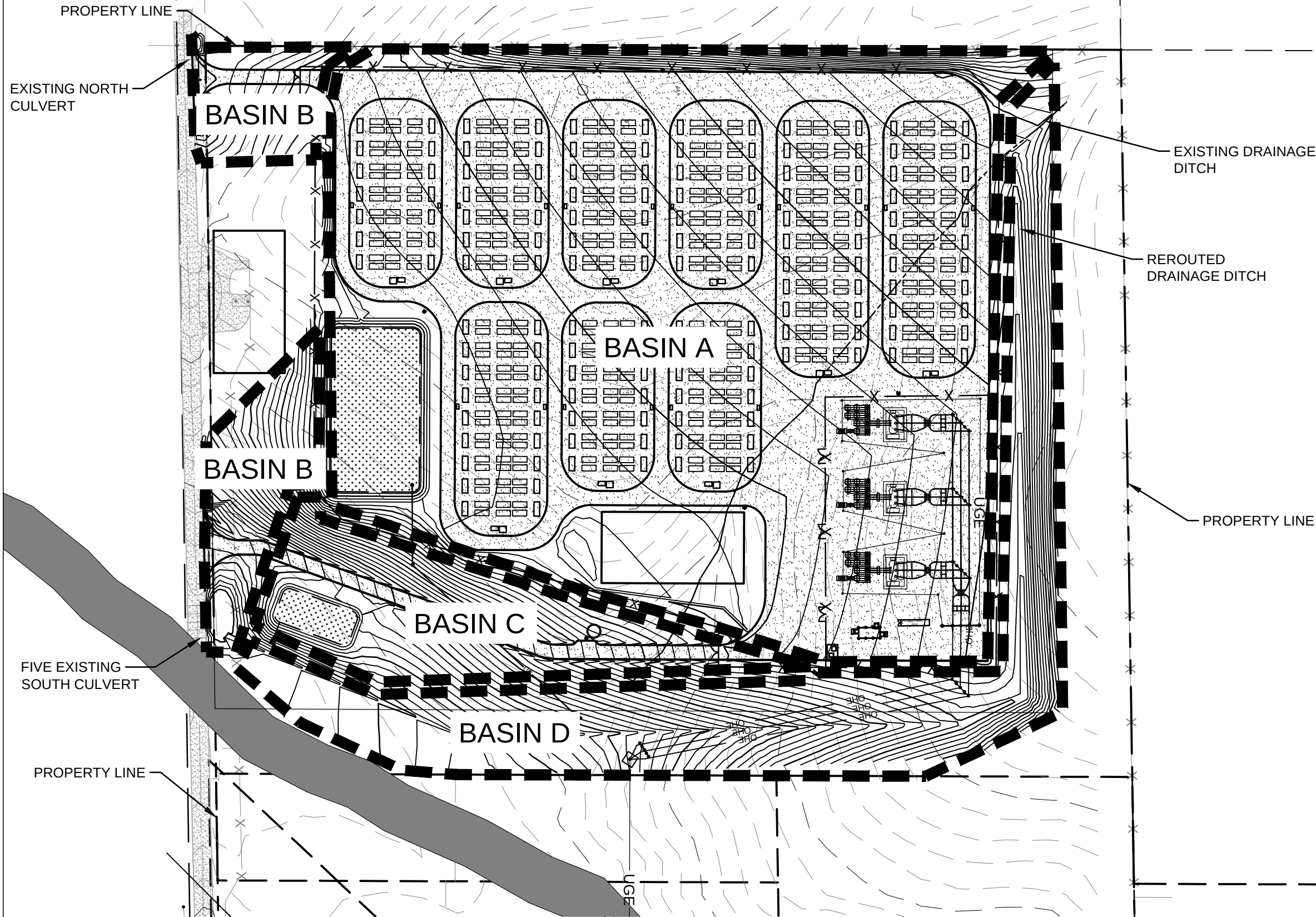


PRE-DEVELOPMENT BASIN MAP

 COFFMAN ENGINEERS 11080 Circle Point Rd. Ste 220 Westminster, CO 80020 ph 720.805.1955 www.coffman.com	project - PRAIRIE PASS DRAINAGE STUDY	by - TCK	
	location - ADAMS COUNTY, COLORADO	date - 03/27/26	
	client - DUDEK	checked - BLW	
		date - 03/27/26	



SCALE: 1"=150'



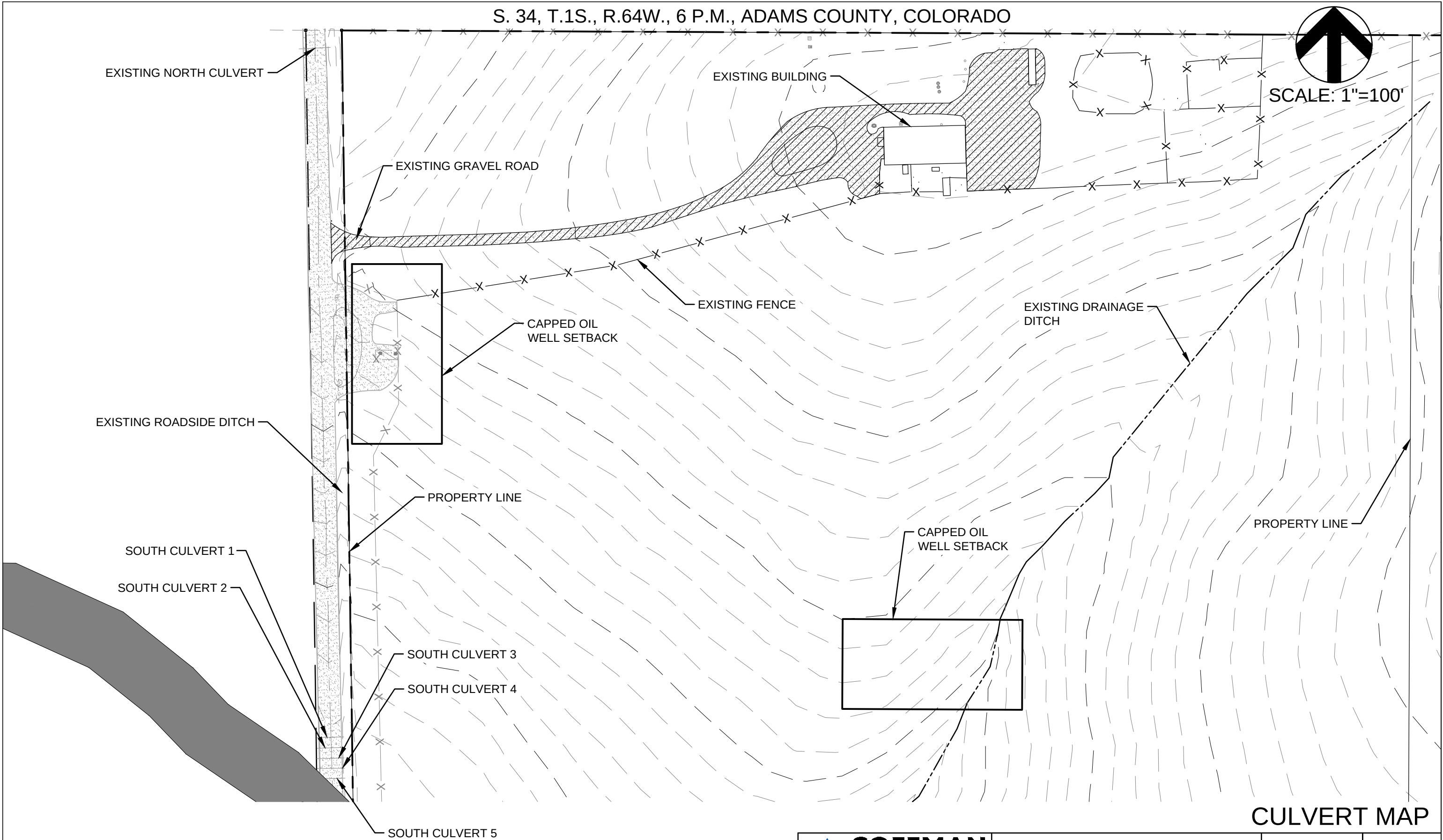
POST-DEVELOPMENT BASIN MAP

 COFFMAN ENGINEERS 11080 Circle Point Rd. Ste 220 Westminster, CO 80020 ph 720.805.1955 www.coffman.com	project - PRAIRIE PASS DRAINAGE STUDY	by - TCK	
	location - ADAMS COUNTY, COLORADO	date - 03/27/26	
	client - DUDEK	checked - BLW	
		date - 03/27/26	

S. 34, T.1S., R.64W., 6 P.M., ADAMS COUNTY, COLORADO



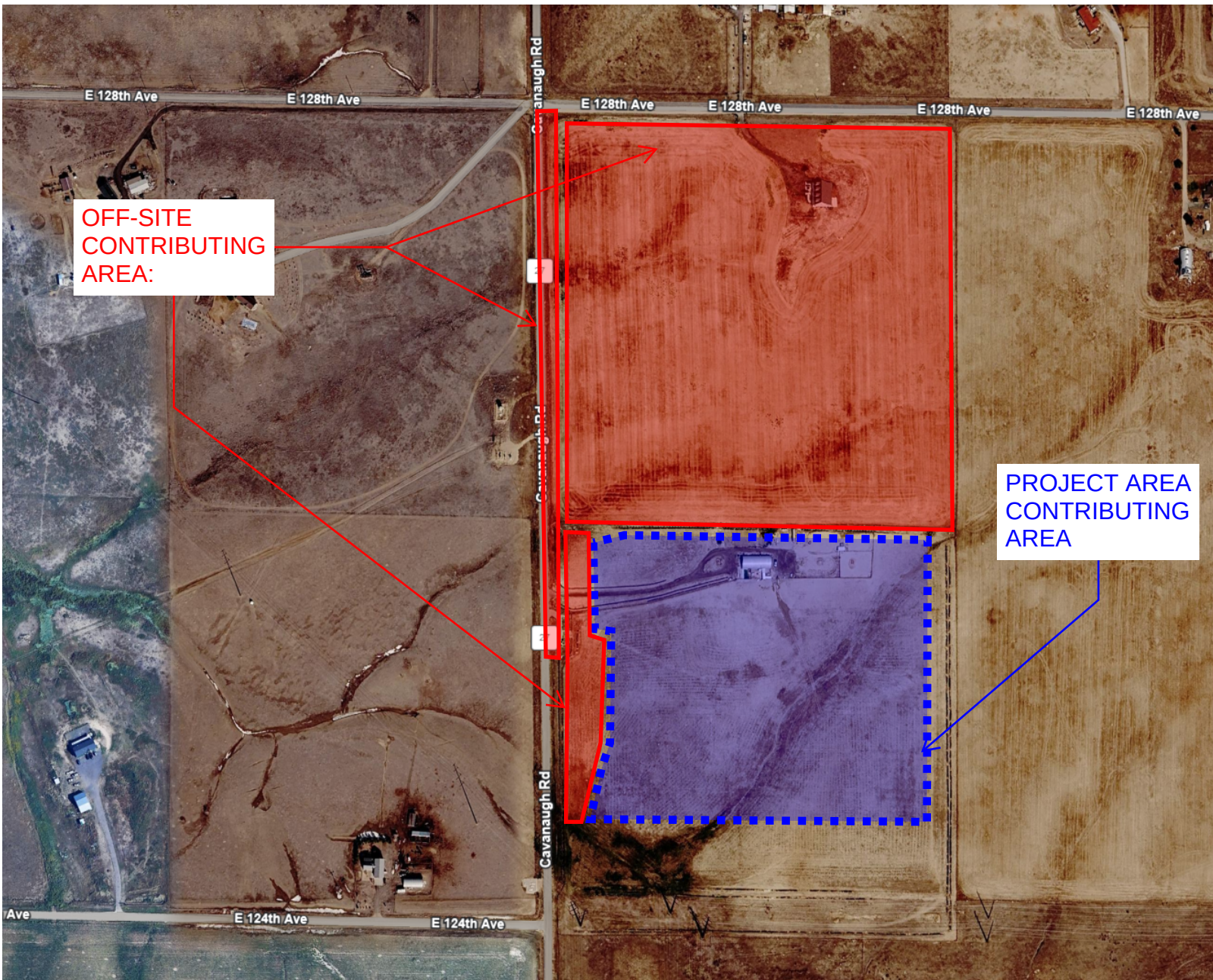
SCALE: 1"=100'



CULVERT MAP

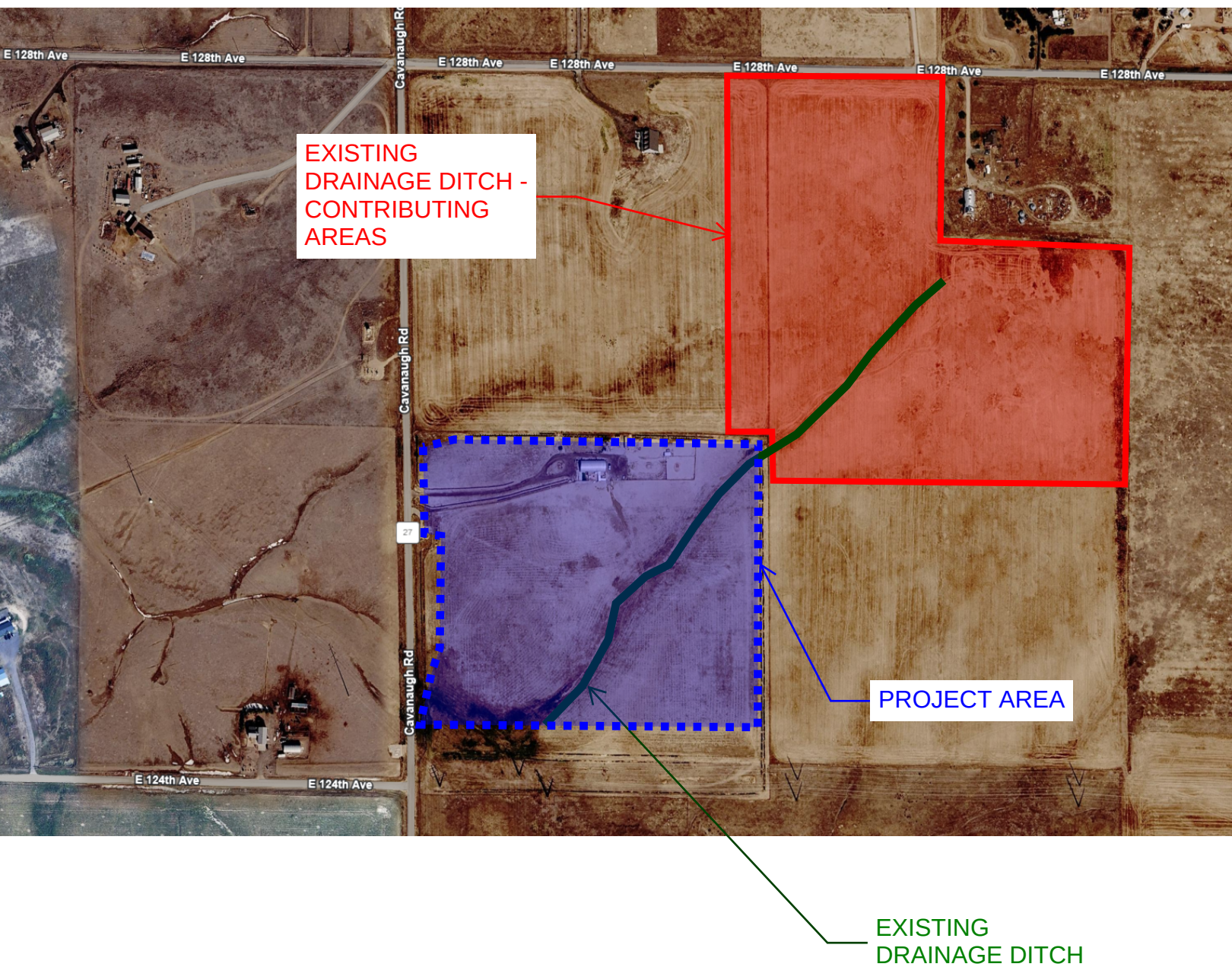
 COFFMAN ENGINEERS 11080 Circle Point Rd. Ste 220 Westminster, CO 80020 ph 720.805.1955 www.coffman.com	project - PRAIRIE PASS DRAINAGE STUDY	by - TCK	
	location - ADAMS COUNTY, COLORADO	date - 04/01/26	
	client - DUDEK	checked - BLW	
		date - 04/01/26	

EXISTING ROADSIDE DITCH AND CULVERT BASIN MAP:



BASIN B'S IMPERVIOUSNESS WAS CONSIDERED NEGLIGIBLE AND SO THE AREA WAS EVALUATED IN PRE-DEVELOPMENT OFF-SITE CONDITIONS FOR THE EXISTING ROADSIDE CUVLERTS.

EXISTING DRAINAGE DITCH BASIN MAP:



ATTACHMENT D: PRELIMINARY HYDROLOGY CALCULATIONS

100 Year Design Storm

11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

CONTRIBUTING AREAS

Site	16.73 Acres		728758.8 s.f.		
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	
Asphalt	0	0	95	0.00	Percent Impervious (%) 0.03
Sidewalks	0	0	95	0.00	
Roofs	0.09	0	95	8.55	
Gravel	0.71	0	60	42.60	
Native Grass	0	15.93	5	79.65	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	HSG - C (MHFD) Table 6-8
	<u>Impervious A</u>	<u>Pervious A</u>		<u>Percent Impervious</u>	<u>C</u>
	0.800	15.93		3.06	0.49

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	72.29

STORM WATER MANAGEMENT CALCULATIONS -

100 Year Design Storm

PROJECT: Prairie Pas
DATE: 4/1/26
BY: TCK



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Post-Development Basin A

CONTRIBUTING AREAS

Site	16.73 Acres	728758.8 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.63
Sidewalks	0	0	95	0.00	
Industrial	13.97	0	75	1047.75	
Gravel	0	0	60	0.00	
Retention Pond	0	0.66	100	66.00	
Native Grass	0	2.10	5	10.50	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	
	Impervious A	Pervious A		Percent Impervious	HSG - C (MHFD) Table 6-8
	13.97	2.76		62.63	C
					0.73

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 * P_1 / (10 + T_c)^{0.86}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	107.70

POND CALCULATIONS

Adam's County 9-01-11-01-01

Required Storage Volume	87589	cf
100-Year Storm Event + 50% WQCV (Eq. 9.5)	87589	cf
K ₁₀₀ (Eq. 9.6)	0.11	
5-Year Storm Event + 100% WQCV (Eq. 9.5)	48392	cf
K ₅ (Eq. 9.7)	0.05	
WQCV (Eq. 3-1 MHFD)	0.25	Watershed-Inches
WQCV (Eq. 3-2 MHFD)	14896	cf

Provided Treatment Volume:

Swale Number	Bottom Elevation Area (sf)	Depth to Treatment Elevation (ft)	Treatment Elevation Area (sf)	Depth to Top Elevation (ft)	Top Elevation Area (sf)	Treatment Volume (cf)	Storage Volume (cf)
1	28552.00	0.00	0	3.5	38855.00	0.00	117962.25
2	0.00	0.00	0	0.0	0.00	0	0
3	0	0.00	0	0.0	0.00	0	0
						0.00	117962.25

Adequate Storage Volume

*includes 1 foot of freeboard (Adam's County requirement)

*2.5 deep pond can store the 100-year volume.

*3.5 deep pond can store the 100-year volume + 1' of freeboard.

STORM WATER MANAGEMENT CALCULATIONS -**100 Year Design Storm**

PROJECT: *Prairie Pas*
DATE: *4/1/2026*
BY: *TCK*



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: **Post-Development Basin A**

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Time of Conc. (min) 5.00
Area (Acres) 16.73
Composite "C" 0.730
Volume Provided 117962
Outflow (cfs)
12" Culvert 9.51
Area * C" Factor 12.21

#1 Time Inc. (min.)	#2 Time Inc. (sec.) (#1*60)	#3 Intensity (in./hr.)	#4 Q dev. (cfs) (A*C*#3)	#5 V in (cu. ft.)	#6 V out (cu. ft.) (Outf.*#2)	#7 Storage (cu. ft.) (#5-#6)
5.00	300.00	8.82	107.70	43297	2853.00	40444
5	300	8.82	107.70	43297	2853.00	40444
10	600	7.03	85.91	60307	5706.00	54601
15	900	5.90	72.09	72231	8559.00	63672
20	1200	5.11	62.46	81326	11412.00	69914
25	1500	4.53	55.33	88647	14265.00	74382
30	1800	4.08	49.82	94761	17118.00	77643
35	2100	3.72	45.42	100007	19971.00	80036
40	2400	3.42	41.81	104601	22824.00	81777
45	2700	3.18	38.79	108688	25677.00	83011
50	3000	2.97	36.23	112370	28530.00	83840
55	3300	2.79	34.02	115723	31383.00	84340
60	3600	2.63	32.09	118803	34236.00	84567
65	3900	2.49	30.40	121651	37089.00	84562
70	4200	2.37	28.89	124302	39942.00	84360
75	4500	2.26	27.55	126783	42795.00	83988
80	4800	2.16	26.34	129115	45648.00	83467
85	5100	2.07	25.24	131316	48501.00	82815
90	5400	1.99	24.25	133401	51354.00	82047
95	5700	1.91	23.33	135382	54207.00	81175
100	6000	1.84	22.50	137270	57060.00	80210

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Maximum storage required by Bowstring = 84567 cf
Storage Provided = 117962 cf
Storage Volume: Adequate

BASIN: Pre-Development Basin A

CONTRIBUTING AREAS

Site	16.73 Acres	728758.8 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	
Asphalt	0	0	95	0.00	Percent Impervious (%) 0.03
Sidewalks	0	0	95	0.00	
Roofs	0.09	0	95	8.55	
Gravel	0.71	0	60	42.60	
Native Grass	0	15.93	5	79.65	
Unimproved	0	0	5	0.00	HSG - C (MHFD) Table 6-8
Other	0	0	5	0.00	
	Impervious A	Pervious A	Percent Impervious	C	
	0.800	15.93	3.06	0.15	

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	11.92

PROJECT: Prairie Pas

DATE: 4/1/26

BY: TCK



11080 Circle Point Rd #220

Westminster, CO 80020

(720) 805-1955

BASIN: Post-Development Basin A

CONTRIBUTING AREAS

Site	16.73 Acres		728758.8 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)	
Asphalt	0	0	95	0.00	0.63	
Sidewalks	0	0	95	0.00		
Industrial	13.97	0	75	1047.75		
Gravel	0	0	60	0.00		
Retention Pond	0	0.66	100	66.00		
Native Grass	0	2.10	5	10.50		
Unimproved	0	0	5	0.00		
Other	0	0	5	0.00		
	Impervious A	Pervious A	Percent Impervious		C	
	13.97	2.76	62.63		0.57	

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	28.5*P ₁ /((10+Tc) ^{1.86})	Q =CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	45.28

BASIN: Pre-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres		89733.6 s.f.	
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	2.06	5	10.30
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	2.06	0.00	0.49

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	8.90

STORM WATER MANAGEMENT CALCULATIONS -

100 Year Design Storm

PROJECT: Prairie Pass
DATE: 3/24/26
BY: TCK



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Post-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres	89733.6 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.13
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.43	0	60	25.80	
Retention Pond	0	0.13	100	13.00	
Native Grass	0	1.50	5	7.50	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	
	Impervious A	Pervious A		Percent Impervious	HSG - C (MHFD) Table 6-8 C
	0.43	1.63		12.52	0.52

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 * P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	9.45

SWALE CALCULATIONS

Adam's County 9-01-11-01-01

Required Storage Volume 2118 cf

100-Year Storm Event + 50% WQCV (Eq. 9.5)	2118	cf
K ₁₀₀ (Eq. 9.6)	0.02	
5-Year Storm Event + 100% WQCV (Eq. 9.5)	1267	cf
K ₅ (Eq. 9.7)	0.01	
WQCV (Eq. 3-1 MHFD)	0.08	Watershed-Inches
WQCV (Eq. 3-2 MHFD)	604	cf

Provided Treatment Volume:

Swale Number	Bottom Elevation Area (sf)	Depth to Treatment Elevation (ft)	Treatment Elevation Area (sf)	Depth to Top Elevation (ft)	Top Elevation Area (sf)	Treatment Volume (cf)	Storage Volume (cf)
1	5430.464	0.00	0	1.75	7715.84	0.00	11503.01
2	0.00	0.00	0	0.00	0.00	0	0
3	0	0.00	0	0.00	0.00	0	0
						0.00	11503.01

Adequate Storage Volume

*includes 1 foot of freeboard (Adam's County requirement)

*0.75 deep pond can store the 100-year volume.

*1.75 deep pond can store the 100-year volume + 1' of freeboard.

STORM WATER MANAGEMENT CALCULATIONS -**100 Year Design Storm**

PROJECT: **Prairie Pass**
DATE: **3/24/2026**
BY: **TCK**



COFFMAN
ENGINEERS

11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Post-Development Basin C

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Time of Conc. (min) 5.00
Area (Acres) 2.06
Composite "C" 0.520
Volume Provided 11503
Outflow (cfs) 2.06
Area * C" Factor 1.07

#1 Time Inc. (min.)	#2 Time Inc. (sec.) (#1*60)	#3 Intensity (in./hr.)	#4 Q dev. (cfs) (A*C*#3)	#5 V in (cu. ft.)	#6 V out (cu. ft.) (Outf.*#2)	#7 Storage (cu. ft.) (#5-#6)
5.00	300.00	8.82	9.45	3798	618.00	3180
5	300	8.82	9.45	3798	618.00	3180
10	600	7.03	7.53	5290	1236.00	4054
15	900	5.90	6.32	6335	1854.00	4481
20	1200	5.11	5.48	7133	2472.00	4661
25	1500	4.53	4.85	7775	3090.00	4685
30	1800	4.08	4.37	8312	3708.00	4604
35	2100	3.72	3.98	8772	4326.00	4446
40	2400	3.42	3.67	9175	4944.00	4231
45	2700	3.18	3.40	9533	5562.00	3971
50	3000	2.97	3.18	9856	6180.00	3676
55	3300	2.79	2.98	10150	6798.00	3352
60	3600	2.63	2.81	10420	7416.00	3004
65	3900	2.49	2.67	10670	8034.00	2636
70	4200	2.37	2.53	10903	8652.00	2251
75	4500	2.26	2.42	11120	9270.00	1850
80	4800	2.16	2.31	11325	9888.00	1437
85	5100	2.07	2.21	11518	10506.00	1012
90	5400	1.99	2.13	11701	11124.00	577
95	5700	1.91	2.05	11874	11742.00	132
100	6000	1.84	1.97	12040	12360.00	-320

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Maximum storage required by Bowstring = 4685 cf
Storage Provided = 11503 cf
Storage Volume: Adequate

BASIN: Pre-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres		89733.6 s.f.	
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	2.06	5	10.30
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	2.06	0.00	0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	1.47

STORM WATER MANAGEMENT CALCULATIONS -

10 Year Design Storm

PROJECT: Prairie Pass

DATE: 4/1/26

BY: TCK



11080 Circle Point Rd #220

Westminster, CO 80020

(720) 805-1955

BASIN: Post-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres	89733.6 s.f.			
	Impervious	Pervious			
	(Ac.)	(Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.13
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.43	0	60	25.80	
Retention Pond	0	0.13	100	13.00	
Native Grass	0	1.50	5	7.50	
Unimproved	0	0	5	0.00	HSG - C
Other	0	0	5	0.00	(MHFD) Table 6-8
	Impervious A	Pervious A		Percent Impervious	C
	0.43	1.63		12.52	0.24

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	2.35

BASIN: Pre-Development Basin D

CONTRIBUTING AREAS

Site	4.40 Acres	191664 s.f.		
	Impervious	Pervious	CN	(A*CN)
	(Ac.)	(Ac.)		
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	4.40	0.00	0.49

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q =CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	19.01

100 Year Design Storm



COFFMAN
ENGINEERS

BASIN: Post-Development Basin D

Site	4.40 Acres	191664 s.f.		
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Industrial	0	0	75	0.00
Gravel	0.00	0	80	0.00
Retention Pond	0	0.000	100	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	4.400	0	0.49

Time of Conc. (min)	5.00	Intensity @ Tc (ln/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1 / (10 + T_c)^{0.86}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	19.01

BASIN: Pre-Development Basin D

CONTRIBUTING AREAS

Site	4.40 Acres	191664 s.f.		
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	4.40	0.00	0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	3.13

BASIN: Post-Development Basin D

CONTRIBUTING AREAS

Site	4.40 Acres	191664 s.f.		
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	4.40	0.00	0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	3.13

STORM WATER MANAGEMENT CALCULATIONS -

10 Year Design Storm

PROJECT:	Prairie Pass		11080 Circle Point Rd #220 Westminster, CO 80020 (720) 805-1955
DATE:	4/2/26		
BY:	TCK		

BASIN: Cavanugh Road Ditch Analysis - Off-Site

CONTRIBUTING AREAS

Site	37.99 Acres	1654844.4 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.01
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.75	0	60	45.00	
Retention Pond	0	0.000	100	0.00	
Native Grass	0	37.24	5	186.20	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	HSG - C (MHFD) Table 6-8
	Impervious A	Pervious A	Percent Impervious		C
	0.75	37.24	1.18	0.15	

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1^{0.78}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	27.06

PROJECT: Prairie Pass

DATE: 4/1/26

BY: TCK



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Off-Site Analysis Re-Routed Drainage Ditch

CONTRIBUTING AREAS

Site	35.99 Acres	1567724.4 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.00
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.00	0	60	0.00	
Retention Pond	0	0.000	100	0.00	
Native Grass	0	35.99	5	179.95	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	
	Impervious A	Pervious A		Percent Impervious	
	0	35.99		0.00	0.49

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1^{0.78}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	155.52

ATTACHMENT E: PRELIMINARY DITCH CALCULATIONS

POST-DEVELOPMENT RE-ROUTED DRAINAGE DITCH CAPACITY

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.032
Channel Slope	0.025 ft/ft
Normal Depth	27.0 in
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Results	
Discharge	164.41 cfs
Flow Area	19.7 ft ²
Wetted Perimeter	16.2 ft
Hydraulic Radius	14.6 in
Top Width	15.50 ft
Critical Depth	30.4 in
Critical Slope	0.014 ft/ft
Velocity	8.35 ft/s
Velocity Head	1.08 ft
Specific Energy	3.33 ft
Froude Number	1.306
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	27.0 in
Critical Depth	30.4 in
Channel Slope	0.025 ft/ft
Critical Slope	0.014 ft/ft

ATTACHMENT F: PRELIMINARY PIPE CALCULATIONS

8" South Detention Pond Outfall Pipe

Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.057 ft/ft
Normal Depth	4.8 in
Diameter	8.0 in
Results	
Discharge	2.06 cfs
Flow Area	0.2 ft ²
Wetted Perimeter	1.2 ft
Hydraulic Radius	2.2 in
Top Width	0.65 ft
Critical Depth	7.6 in
Percent Full	59.4 %
Critical Slope	0.021 ft/ft
Velocity	9.54 ft/s
Velocity Head	1.42 ft
Specific Energy	1.81 ft
Froude Number	2.930
Maximum Discharge	3.35 cfs
Discharge Full	3.12 cfs
Slope Full	0.025 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	59.4 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.8 in
Critical Depth	7.6 in
Channel Slope	0.057 ft/ft
Critical Slope	0.021 ft/ft

12" North Detention Pond Outfall Pipe

Project Description	
Friction Method	Manning
Solve For	Formula Discharge
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.096 ft/ft
Normal Depth	8.1 in
Diameter	12.0 in
Results	
Discharge	9.51 cfs
Flow Area	0.6 ft ²
Wetted Perimeter	1.9 ft
Hydraulic Radius	3.5 in
Top Width	0.94 ft
Critical Depth	11.9 in
Percent Full	67.3 %
Critical Slope	0.056 ft/ft
Velocity	16.90 ft/s
Velocity Head	4.44 ft
Specific Energy	5.11 ft
Froude Number	3.848
Maximum Discharge	12.87 cfs
Discharge Full	11.96 cfs
Slope Full	0.061 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	67.3 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.1 in
Critical Depth	11.9 in
Channel Slope	0.096 ft/ft
Critical Slope	0.056 ft/ft

ATTACHMENT G: PRELIMINARY CULVERT CALCULATIONS

24" Culvert - Northern Access Road

Project Description

Friction Method	Manning
	Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.012
Channel Slope	0.016 ft/ft
Normal Depth	19.0 in
Diameter	24.0 in

Results

Discharge	30.26 cfs
Flow Area	2.7 ft ²
Wetted Perimeter	4.4 ft
Hydraulic Radius	7.3 in
Top Width	1.62 ft
Critical Depth	22.4 in
Percent Full	79.2 %
Critical Slope	0.013 ft/ft
Velocity	11.35 ft/s
Velocity Head	2.00 ft
Specific Energy	3.58 ft
Froude Number	1.561
Maximum Discharge	33.66 cfs
Discharge Full	31.29 cfs
Slope Full	0.015 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	Dry
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	79.2 %
Downstream Velocity	∞ ft/s
Upstream Velocity	∞ ft/s
Normal Depth	19.0 in
Critical Depth	22.4 in
Channel Slope	0.016 ft/ft
Critical Slope	0.013 ft/ft

24" Culvert - Southern Access Road

Project Description	
Friction Method	Manning
Solve For	Formula Discharge
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.028 ft/ft
Normal Depth	19.0 in
Diameter	24.0 in
Results	
Discharge	39.38 cfs
Flow Area	2.7 ft ²
Wetted Perimeter	4.4 ft
Hydraulic Radius	7.3 in
Top Width	1.62 ft
Critical Depth	23.4 in
Percent Full	79.2 %
Critical Slope	0.023 ft/ft
Velocity	14.76 ft/s
Velocity Head	3.39 ft
Specific Energy	4.97 ft
Froude Number	2.031
Maximum Discharge	43.80 cfs
Discharge Full	40.71 cfs
Slope Full	0.026 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	Dry
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	79.2 %
Downstream Velocity	∞ ft/s
Upstream Velocity	∞ ft/s
Normal Depth	19.0 in
Critical Depth	23.4 in
Channel Slope	0.028 ft/ft
Critical Slope	0.023 ft/ft

SURVEY TABLE OF CONTENTS

Sheet 1	Survey Notes, Certification, & Title Commitment Information
Sheet 2	Project Boundary Detail
Sheets 3-5	ALTA/NSPS Survey Drawing

SITE INFORMATION

PID #1 NF: CHAD AND ANGELA HUBBART 37980 EAST 128TH AVENUE, HUDSON, COLORADO 80102 APN: 0156534200003 PID #1 AREA: 1,648,616 SQ. FEET, OR 37.847 ACRES ±	
PID #2 NF: SOARING HEIGHTS, LLC 12500 CAVANAUGH ROAD, HUDSON, COLORADO 80102 APN: 0156534200004 PID #2 AREA: 1,701,309 ± SQUARE FEET, OR 39.057 ± ACRES	
PID #3 NF: PUBLIC SERVICE COMPANY OF COLORADO 0 CAVANAUGH ROAD, HUDSON, COLORADO 80102 APN: 0156534200001 PID #3 AREA: 1,688,670 SQ. FEET, OR 38.767 ACRES ±	
TOTAL SURVEYED AREA: 5,038,597 SQ. FEET, OR 115.670 ACRES ±	

ASSURANCE STATEMENT

THIS SURVEY WAS PREPARED WITH REFERENCE TO TITLE COMMITMENT(S) ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY. COMMITMENT NO. NCS-128151-NRG, EFFECTIVE DECEMBER 17, 2025 AT 5:00 P.M., COMMITMENT NO. NCS-1211716-NRG, EFFECTIVE APRIL 30, 2024 AT 5:00 P.M., AND COMMITMENT NO. NCS-1211716A-NRG, EFFECTIVE OCTOBER 27, 2025 AT 5:00 P.M., FROM WHICH THE LEGAL DESCRIPTIONS AND SCHEDULE B-II EXCEPTIONS SHOWN HEREON WERE DERIVED.

FOR CLARITY, THE PROPERTIES ASSOCIATED WITH THE FOLLOWING COMMITMENT NUMBERS ARE REFERRED TO THROUGHOUT THIS SURVEY AS THE FOLLOWING "PID #1" (PROPERTY IDENTIFICATION DESIGNATION NUMBER).

COMMITMENT NO. NCS-128151-NRG - PID #1

COMMITMENT NO. NCS-1211716-NRG - PID #2

COMMITMENT NO. NCS-1211716A-NRG - PID #3

ZONING INFORMATION

AT THE TIME OF THE ALTA SURVEY NO ZONING REPORT OR LETTER HAS BEEN PROVIDED TO THE SURVEYOR BY THE CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE IN ORDER TO LIST (TABLE A ITEM 6(A)) OR GRAPHICALLY DEPICT (TABLE A ITEM 6(B)) THE ZONING REQUIREMENTS HEREON.

SIGNIFICANT OBSERVATIONS

NONE OBSERVED AT THE TIME OF THE ALTANSPS SURVEY.

FLOOD ZONE INFORMATION

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 08001C03894, WHICH BEARS AN EFFECTIVE DATE OF 03/05/2007 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

ZONE "X" - AREA OF MINIMAL FLOOD HAZARD, USUALLY DEPICTED ON FIRMS AS ABOVE THE 500-YEAR FLOOD LEVEL. ZONE "X" IS THE AREA DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD AND PROTECTED BY LEVEE FROM 100-YEAR FLOOD.

UTILITY INFORMATION

REGARDING ALTANSPS TABLE A, ITEM 11(A): THE EVIDENCE OF UNDERGROUND UTILITIES ON OR SERVING THE SURVEYED PROPERTY HAS BEEN DEVELOPED BY COMBINING OBSERVED EVIDENCE OF ALL VISIBLE ABOVE-GROUND UTILITIES (PURSUANT TO ALTA SECTION 5.E.1.V.) WITH THE RESULTS FROM A COLORADO ONE-CALL UTILITY LOCATE REQUEST. NOTES OR EVIDENCE COLLECTED FROM THE 811 EFFORTS ARE SHOWN BELOW. THIS INFORMATION, IN ACCORDANCE WITH ALTA SECTION 5.E.IV, IS INTENDED TO PROVIDE A GENERAL VIEW OF THE UNDERGROUND UTILITIES ON THE PROPERTY.

- BLEW & ASSOCIATES MAKES NO WARRANTY REGARDING THE EXACT LOCATION OF ANY UNDERGROUND UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THIS DRAWING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- TO REQUEST FIELD LOCATION (GROUND MARKINGS) OF UNDERGROUND UTILITY LINES, PLEASE CONTACT COLORADO ONE-CALL AT 800-922-1987 OR DIAL 811 BEFORE DIGGING.

DIG TICKET NUMBER: **B417800737** DATE: **06/26/24**

CODE:	COMPANY:	CONTACT:
ADCPWF	ADAMS COUNTY PUBLIC WORKS	303-853-7103
RESPONSE: CLEAR - NO CONFLICT		
KFGS01	K.P. KAUFFMAN CO.	303-825-4822
RESPONSE: CLEAR - NO CONFLICT		
QLNCC00	CENTURYLINK	877-453-8353
RESPONSE: CLEAR - NO CONFLICT		
UNPR06	UNITED POWER, INC.	303-637-1300
RESPONSE: LOCATE AREA MARKED - LOCATION OF UNDERGROUND FACILITIES SHOWN HEREON.		
WESG	WESTERN MDSITRM	832-636-1009
RESPONSE: PRINTS PROVIDED - LOCATION OF UNDERGROUND FACILITIES SHOWN HEREON.		

REGARDING TABLE A, ITEM 11(B): A PRIVATE UTILITY LOCATE (PUL) WAS ADDITIONALLY CONDUCTED ON A PORTION OF THE SUBJECT PROPERTY BY BLEW & ASSOCIATES ON 01/30/2026.

UTILITY NOTES:

- BLEW & ASSOCIATES PAINTED AND FLAGGED WESTERN MIDSTREAM IN PINK AS REQUESTED.
- BLEW & ASSOCIATES CAN NOT LOCATE UTILITIES WITHIN THE UNITED POWER SUBSTATION.

IMPORTANT NOTICE TO CLIENT, INSURER, AND LENDER:

PLEASE NOTE THAT WITHOUT EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, OR RELIABLY DEPICTED. ADDITIONALLY, IN CERTAIN JURISDICTIONS, UTILITY LOCATE REQUESTS, SUCH AS 811 OR SIMILAR, MAY NOT ALWAYS PROVIDE A COMPLETE OR ACCURATE RESPONSE; IF MORE DETAILED OR EXACT INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

ALTANSPS LAND TITLE SURVEY

LOCATED IN: THE WEST HALF (1/2) OF SECTION 34, TOWNSHIP 1 SOUTH, RANGE 64 WEST, THE 6TH PRINCIPAL MERIDIAN, ADAMS COUNTY, COLORADO 80642

NOTES CORRESPONDING TO SCHEDULE B (PID #1)

- 20 — OIL, GAS AND/OR MINERAL RESERVATIONS CONTAINED IN WARRANTY DEED FROM ELEANOR M. HANSON AKA/ ELEANOR MAY HANSON, RECORDED APRIL 28, 1996 IN **BOOK 4734 PAGE 775**, ADAMS COUNTY RECORDS AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

THIS EXCEPTION DOES NOT CONSTITUTE A STATEMENT AS TO THE OWNERSHIP OF THIS INTEREST OR RIGHT. THERE MAY BE LEASES, GRANTS, EXCEPTIONS OR RESERVATION OF SUCH INTERESTS THAT ARE NOT LISTED (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 21 — PUBLIC SERVICE COMPANY OF COLORADO EASEMENT BY AND BETWEEN THE HAROLD W. HOSMER REVOCABLE TRUST, AKA: THE HAROLD W. HOSMER TRUST, BY HAROLD W. HOSMER, TRUSTEE AND LEONE HOSMER, TRUSTEE, THE LEONE HOSMER REVOCABLE TRIST AKA: THE LEONE HOSMER TRUST, BY LEONE HOSMER, TRUSTEE AND HAROLD W. HOSMER, TRUSTEE: LEONE HOSMER, AKA/ LEONE L. HOSMER, INDIVIDUALLY, Y. HAROLD W. HOSMER, INDIVIDUALLY AND PUBLIC SERVICE COMPANY OF COLORADO, A COLORADO CORPORATION, CREATED BY INSTRUMENT RECORDED JANUARY 7, 2000 IN **IAS BOOK 6005 PAGE 602**, OF ADAMS COUNTY RECORDS (DOES NOT AFFECT, PLOTTED AND SHOWN HEREON.)

- 22 — A DEED OF TRUST TO SECURE AN ORIGINAL INDEBTEDNESS OF \$548,250.00 RECORDED MARCH 30, 2021 AS **RECEPTION NO. 2021000039043** OF OFFICIAL RECORDS.
DATED: MARCH 23, 2021
TRUSTOR: CHAD HUBBART AND ANGELA HUBBART
TRUSTEE: PUBLIC TRUSTEE OF ADAMS COUNTY, COLORADO
BENEFICIARY: CALIBER HOME LOANS, INC., A DELAWARE CORPORATION AND MORTGAGE ELECTRONIC REGISTRATION SYSTEMS, INC. (AFFECTS, BLANKET IN NATURE.)

- 23 — A DEED OF TRUST TO SECURE AN ORIGINAL INDEBTEDNESS OF \$171,000.00 RECORDED MARCH 30, 2021 AS **RECEPTION NO. 2021000039044** OF OFFICIAL RECORDS.
DATED: MARCH 23, 2021
TRUSTOR: CHAD HUBBART AND ANGELA HUBBART
TRUSTEE: PUBLIC TRUSTEE OF ADAMS COUNTY, COLORADO
BENEFICIARY: CANVAS CREDIT UNION (AFFECTS, BLANKET IN NATURE.)

- 24 — A DEED OF TRUST TO SECURE AN ORIGINAL INDEBTEDNESS OF \$171,000.00 RECORDED APRIL 1, 2021 AS **RECEPTION NO. 2021000040130** OF OFFICIAL RECORDS.
DATED: MARCH 23, 2021
TRUSTOR: CHAD HUBBART AND ANGELA HUBBART
TRUSTEE: PUBLIC TRUSTEE OF ADAMS COUNTY, COLORADO
BENEFICIARY: CANVAS CREDIT UNION
NOTE: THIS APPEARS TO BE A RE-RECORDING OF **2021000039044**. (AFFECTS, BLANKET IN NATURE.)

NOTES CORRESPONDING TO SCHEDULE B (PID #2)

SCHEDULE B-II ITEMS 1-13 ARE EITHER STANDARD OR NOT RELATED TO SURVEY MATTERS AND, THEREFORE, ARE NOT LISTED HEREON.

- 14 — RIGHT OF WAY FOR DITCHES AND CANALS AS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES, AS RESERVED IN UNITED STATES PATENT RECORDED JUNE 22, 1916 IN **BOOK 108 AT PAGE 555** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 15 — OIL AND GAS LEASE RECORDED FEBRUARY 2, 1970 IN **BOOK 1584 AT PAGE 465**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 16 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE RIGHT-OF- WAY GRANT RECORDED FEBRUARY 3, 1975 IN **BOOK 1976 AT PAGE 173** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 17 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE NOTICE OF GENERAL DESCRIPTION OF AREA SERVED BY PANKHLEE EASTERN PIPE LINE COMPANY CONCERNING UNDERGROUND FACILITIES PURSUANT TO C.R.S. SEC. 9-1-5 103 (1) (1981) RECORDED JUNE 25, 1986 IN **BOOK 3182 AT PAGE 981** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 18 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE EASEMENT RECORDED JANUARY 7, 1992 IN **BOOK 3853 AT PAGE 520** (AFFECTS, PLOTTED AND SHOWN HEREON.)

- 19 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE MEMORANDUM OF GAS PURCHASE AND PROCESSING AGREEMENT RECORDED MAY 9, 1995 AT **RECEPTION NO. C0072130** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 20 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE OPTION TO PURCHASE OIL AND GAS INTERESTS RECORDED MAY 14, 1997 AT **RECEPTION NO. C0380352** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 21 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE ZONING HEARING DECISION RECORDED JANUARY 4, 2000 AT **RECEPTION NO. C0928891** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 22 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE PUBLIC SERVICE COMPANY OF COLORADO EASEMENT RECORDED JANUARY 7, 2000 AT **RECEPTION NO. C0630056** (AFFECTS, PLOTTED AND SHOWN HEREON.)

- 23 — MINERAL RIGHTS AS CONVEYED BY MINERAL DEED RECORDED JULY 15, 2005 AT **RECEPTION NO. 20050715000750710**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 24 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT RECORDED MARCH 31, 2006 AT **RECEPTION NO. 20060331000327060** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 25 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE MEMORANDUM OF GAS PURCHASE AND SALE AGREEMENT RECORDED DECEMBER 15, 2008 AT **RECEPTION NO. 2008000096558** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 26 — OIL AND GAS LEASE RECORDED JUNE 18, 2010 AT **RECEPTION NO. 2010000040619** AND RE-RECORDED JANUARY 31, 2012 AT **RECEPTION NO. 2012000007204**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 27 — OIL AND GAS LEASE RECORDED JUNE 18, 2010 AT **RECEPTION NO. 2010000040620** AND RE-RECORDED JANUARY 31, 2012 AT **RECEPTION NO. 2012000007205**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

NOTES CORRESPONDING TO SCHEDULE B (PID #2)

- 28 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE MEMORANDUM OF GAS PURCHASE AND SALE AGREEMENT RECORDED AUGUST 26, 2010 AT **RECEPTION NO. 2010000057308**.

AFFIDAVIT OF CORRECTION IN CONNECTION THEREWITH RECORDED NOVEMBER 29, 2010 AT **RECEPTION NO. 2010000082845** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 29 — MINERAL RIGHTS AS CONVEYED BY SPECIAL WARRANTY DEED RECORDED JANUARY 7, 2013 AT **RECEPTION NO. 2013000001583**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 30 — MINERAL RIGHTS AS CONVEYED BY MINERAL DEED RECORDED SEPTEMBER 16, 2013 AT **RECEPTION NO. 2016000077780**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 31 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE EASEMENT AGREEMENT AND ACKNOWLEDGMENT OF INTEREST RECORDED OCTOBER 2, 2020 AT **RECEPTION NO. 2020000100186** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 32 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE TRANSMISSION AND ACCESS EASEMENT AGREEMENT RECORDED FEBRUARY 1, 2021 AT **RECEPTION NO. 2022000009097** (AFFECTS, PLOTTED AND SHOWN HEREON.)

- 33 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE CONSENT RECORDED MARCH 15, 2022 AT **RECEPTION NO. 2022000022986** (AFFECTS, BLANKET IN NATURE.)

- 34 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS AND AGREEMENTS AS SET FORTH IN THE RESOLUTION 2023-143 RECORDED JUNE 8, 2023 AT **RECEPTION NO. 20230000032315** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 35 — RESERVATION OF OIL, GAS AND OTHER MINERALS AS RESERVED IN WARRANTY DEED RECORDED APRIL 29, 1996 AT **RECEPTION NO. C0168784**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 36 — DEED OF TRUST FROM RYAN SPECHT TO THE PUBLIC TRUSTEE OF ADAMS COUNTY FOR THE USE OF AMERICAN AGGREDIT, FLCA TO SECURE AN INDEBTEDNESS IN THE PRINCIPAL SUM OF \$101,500.00, AND ANY OTHER AMOUNTS AND/OR OBLIGATIONS SECURED THEREBY, DATED OCTOBER 3, 2017 AND RECORDED OCTOBER 11, 2017 AT **RECEPTION NO. 2017000089902**. (AFFECTS, BLANKET IN NATURE.)

NOTES CORRESPONDING TO SCHEDULE B (PID #3)

SCHEDULE B-II ITEMS 1-11, 22, AND 23 ARE EITHER STANDARD OR NOT RELATED TO SURVEY MATTERS AND, THEREFORE, ARE NOT LISTED HEREON.

- 12 — RIGHT OF WAY FOR DITCHES AND CANALS AS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES, AS RESERVED IN UNITED STATES PATENT RECORDED FEBRUARY 5, 1921 IN **BOOK 108 AT PAGE 555** (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 13 — OIL AND GAS LEASE RECORDED MARCH 19, 1971 IN **BOOK 1677 AT PAGE 216**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 14 — OIL AND GAS LEASE RECORDED SEPTEMBER 9, 1975 IN **BOOK 2016 AT PAGE 440**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)

- 15 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE RIGHT-OF-WAY GRANT RECORDED AUGUST 17, 1977 IN **BOOK 2166 AT PAGE 861** (AFFECTS, ASSUMED ASSOCIATED INFRASTRUCTURE SHOWN HEREON.)

- 16 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE RIGHT OF WAY GRANT RECORDED MAY 31, 1985 IN **BOOK 3007 AT PAGE 17** (AFFECTS, ASSUMED ASSOCIATED INFRASTRUCTURE SHOWN HEREON.)

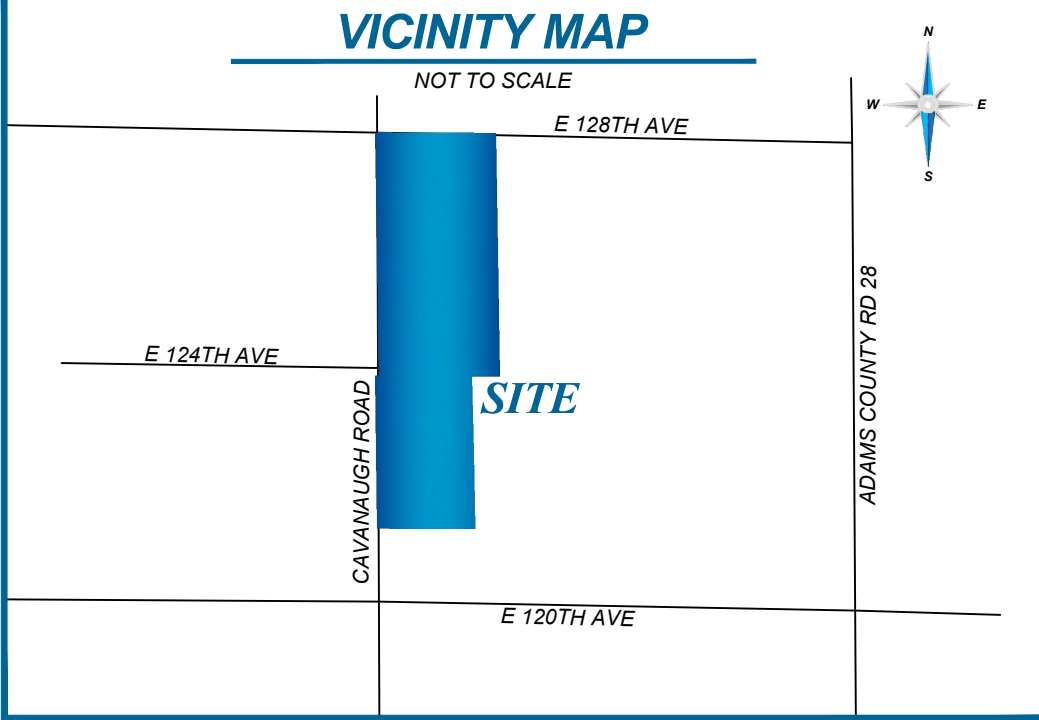
- 17 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE PIPELINE EASEMENT RECORDED OCTOBER 13, 1988 IN **BOOK 3499 AT PAGE 629** (AFFECTS, ASSUMED ASSOCIATED INFRASTRUCTURE SHOWN HEREON.)

- 18 — TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, EASEMENTS AND AGREEMENTS AS SET FORTH IN THE EASEMENT RECORDED JANUARY 7, 1992 IN **BOOK 3853 AT PAGE 517** (AFFECTS, PLOTTED AND SHOWN HEREON.)

- 19 — WATER AS CONVEYED BY QUIT CLAIM DEED RECORDED JANUARY 31, 2000 IN **BOOK 6921 AT PAGE 745** (AFFECTS, BLANKET IN NATURE.)

- 20 — RESERVATION OF OIL, GAS AND OTHER MINERALS AS RESERVED IN SPECIAL WARRANTY DEED RECORDED JANUARY 31, 2000 AT **RECEPTION NO. C0638203**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS, BLANKET IN NATURE.)

- 21 — MINERAL RIGHTS AS CONVEYED BY MINERAL DEED RECORDED SEPTEMBER 16, 2016 AT **RECEPTION NO. 2016000007778**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN. (AFFECTS PER DESCRIPTION, CONTAINS NO PLOTTABLE EASEMENT ITEMS.)



DIMENSIONS & BASIS OF BEARING NOTES

- THE BASIS OF BEARING OF THIS SURVEY IS GRID NORTH PER COLORADO STATE PLANE, NORTH ZONE, NAD83-11, BETWEEN A FOUND 5/8" REBAR WITH A RED PLASTIC CAP INSCRIBED "NCS SLS 37971" ON THE NORTH SIDE AND A FOUND 5/8" REBAR ON THE SOUTH SIDE, AS MEASURED ALONG THE WEST LINE OF THE SUBJECT PROPERTY WHICH BEARS N 00°50'07" W PER GPS COORDINATE OBSERVATIONS.
LATITUDE = 39°55'24.1680"
LONGITUDE = -104°32'39.0986"
CONVERGENCE ANGLE = 0°37'03.2815"
- DIMENSIONS ON THIS PLAT ARE EXPRESSED IN FEET AND DECIMAL PARTS THEREOF UNLESS OTHERWISE NOTED. MONUMENTS WERE FOUND AT POINTS WHERE INDICATED.
- THE DISTANCES SHOWN HEREON ARE UNITS OF GROUND MEASUREMENT.
- ELEVATIONS ESTABLISHED WITH GPS STATIC OBSERVATIONS UTILIZING ONLINE POSITIONING USER SERVICE (OPUS) FOR POST PROCESSING, VERTICAL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM (NAV83) IN US SURVEY FEET.

GENERAL NOTES

- SOME FEATURES SHOWN ON THIS PLAT MAY BE SHOWN OUT OF SCALE FOR CLARITY.
- IN REGARD TO TABLE A ITEM 8, ALL SUBSTANTIAL FEATURES OBSERVED DURING THE TIME OF THE ALTANSPS FIELDWORK, INCLUDING ANY OBSERVABLE ABOVE-GROUND UTILITIES ARE SHOWN HEREON.
- AT THE TIME OF THE ALTANSPS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP, OR SANITARY LANDFILL.
- AT THE TIME OF THE ALTANSPS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF SITE USE AS A CEMETERY, ISOLATED GRAVE SITE OR BURIAL GROUND.
- IN REGARD TO ALTANSPS TABLE A ITEM 10, NO VISIBLE DIVISION OR PARTY WALLS WITH RESPECT TO ADJOINING PROPERTIES WERE OBSERVED AT THE TIME THE FIELD SURVEY WAS PERFORMED, NOR WERE ANY DESIGNATED BY THE CLIENT.
- IN REGARD TO ALTANSPS TABLE A ITEM 14, THE NEAREST INTERSECTING STREET IS THE INTERSECTION OF CAVANAUGH ROAD AND EAST 124TH AVENUE, WHICH ABUTS THE SOUTHWEST CORNER OF PID #1 OF THE SUBJECT PROPERTY.
- IN REGARD TO ALTANSPS TABLE A ITEM 16, THERE WAS NO OBSERVABLE EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR ADDITIONS EXCEPT AS SHOWN HEREON.
- IN REGARD TO ALTANSPS TABLE A ITEM 17, THERE WERE NO KNOWN PROPOSED CHANGES IN RIGHT-OF-WAY LINES, RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS EXCEPT AS SHOWN HEREON.
- THE SUBJECT PROPERTY HAS DIRECT PHYSICAL ACCESS TO CAVANAUGH ROAD AND EAST 128TH AVENUE, BOTH BEING PUBLICLY DEDICATED RIGHTS-OF-WAY. ACCESS TO THE RIGHT-OF-WAY MAY BE SUBJECT TO OTHER AGREEMENTS OR PROPER GOVERNMENTAL APPROVALS.
- EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS PLAT, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT PROPERTY: EASEMENTS, OTHER THAN POSSIBLE EASEMENTS WHICH WERE VISIBLE AT THE TIME OF SURVEY; RESTRICTIVE COVENANTS; SUBDIVISION RESTRICTIONS OR OTHER LAND USE REGULATIONS; AND ANY OTHER FACTS WHICH AN ACCURATE TITLE SEARCH MAY DISCLOSE.
- NO SURVEYOR OR ANY OTHER PERSON OTHER THAN A LICENSED COLORADO ATTORNEY MAY PROVIDE LEGAL ADVICE CONCERNING THE STATUS OF TITLE TO THE PROPERTY DESCRIBED IN THIS SURVEY (THE "SUBJECT PROPERTY"), THE PURPOSE OF THIS SURVEY, AND THE COMMENTS RELATED TO THE SCHEDULE B-II EXCEPTIONS, IS ONLY TO SHOW THE LOCATION OF BOUNDARIES AND PHYSICAL OBSTRUCTIONS IN RELATION THERETO. TO THE EXTENT THAT THE SURVEY INDICATES THAT THE LEGAL INSTRUMENT "AFFECTS" THE SUBJECT PROPERTY, SUCH STATEMENT IS ONLY INTENDED TO INDICATE THAT PROPERTY BOUNDARIES INCLUDED IN SUCH INSTRUMENT INCLUDE SOME OR ALL OF THE SUBJECT PROPERTY. THE SURVEYOR DOES NOT PURPORT TO DESCRIBE HOW SUCH INSTRUMENT AFFECTS THE SUBJECT PROPERTY OR THE ENFORCEABILITY OR LEGAL CONSEQUENCES OF SUCH INSTRUMENT.
- THE NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS SHOWN HEREIN WERE OBTAINED FROM ADAMS COUNTY COLORADO WEBSITE (<https://adamscountycgo.gov/>)
- THE SUBJECT PROPERTY SHOWN HEREON FORMS A MATHEMATICALLY CLOSED FIGURE AND IS CONTIGUOUS WITH THE ADJOINING PUBLIC RIGHT-OF-WAY AND/OR ADJOINING PARCELS WITH NO GAPS OR OVERLAPS.
- NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER INITIAL DISCOVERY OF SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
- THIS SURVEY MEETS OR EXCEEDS THE MINIMUM STANDARDS FOR LAND SURVEYS AND PLATS AS ADOPTED BY THE STATE BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS, AND PROFESSIONAL LAND SURVEYORS.

SURVEYOR'S CERTIFICATE

TO: CHAD AND ANGELA HUBBART; SOARING HEIGHTS, LLC; PUBLIC SERVICE COMPANY OF COLORADO; OCCASIO POWER MANAGEMENT LLC; PRAIRIE PASS LLC, & FIRST AMERICAN TITLE INSURANCE COMPANY.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTANSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 6(A), 6(B), 7(B)(1), 7(C), 8, 9, 10, 11(A), 11(B), 13, 14, 16, 17 AND 19 OF TABLE A THEREOF.

THE FIELD WORK WAS COMPLETED ON 02/11/2026.

DATE OF PLAT OR MAP: 02/23/2026

DENVER WINCHESTER
PROFESSIONAL LAND SURVEYOR NO. 0038706
STATE OF COLORADO

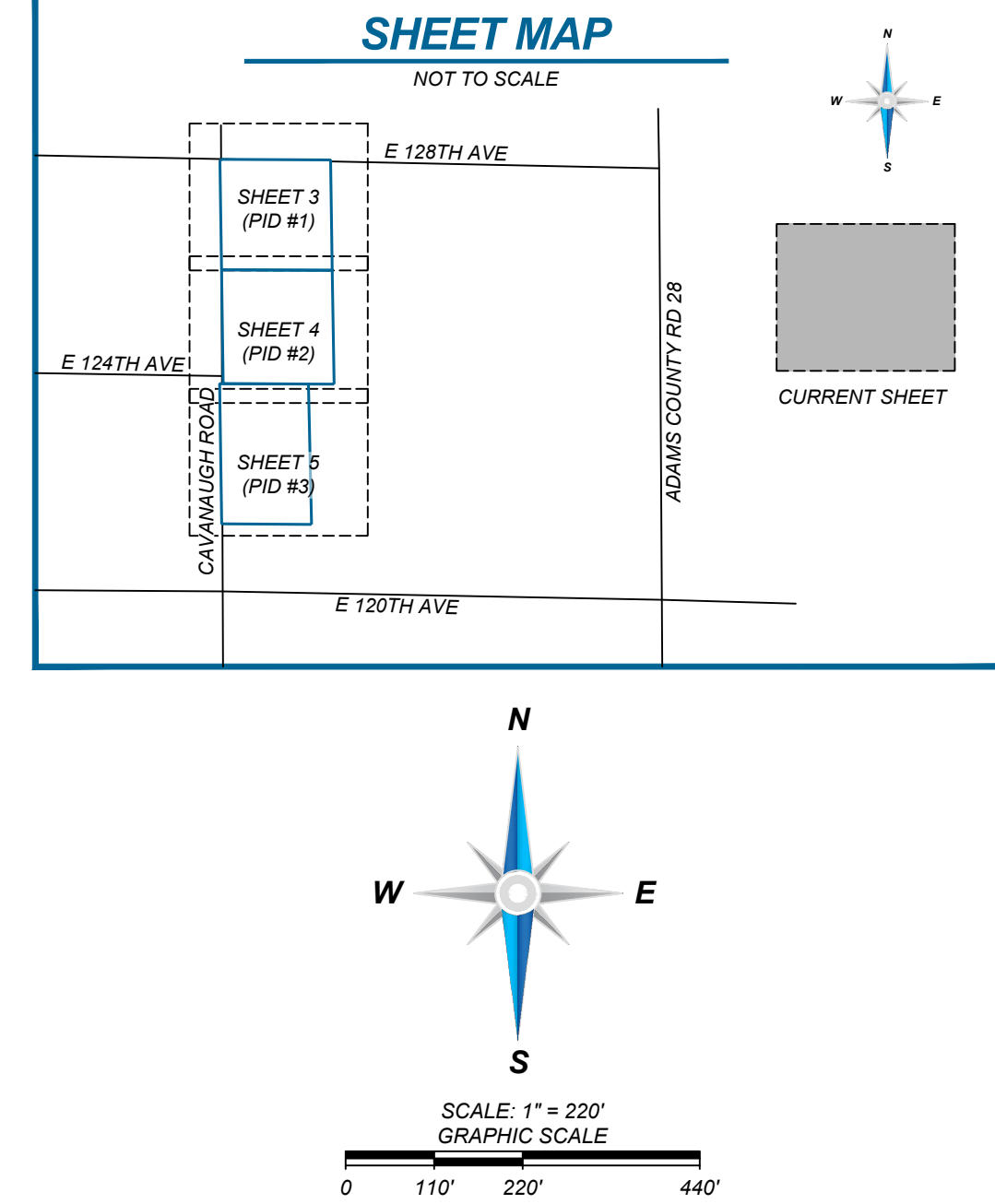
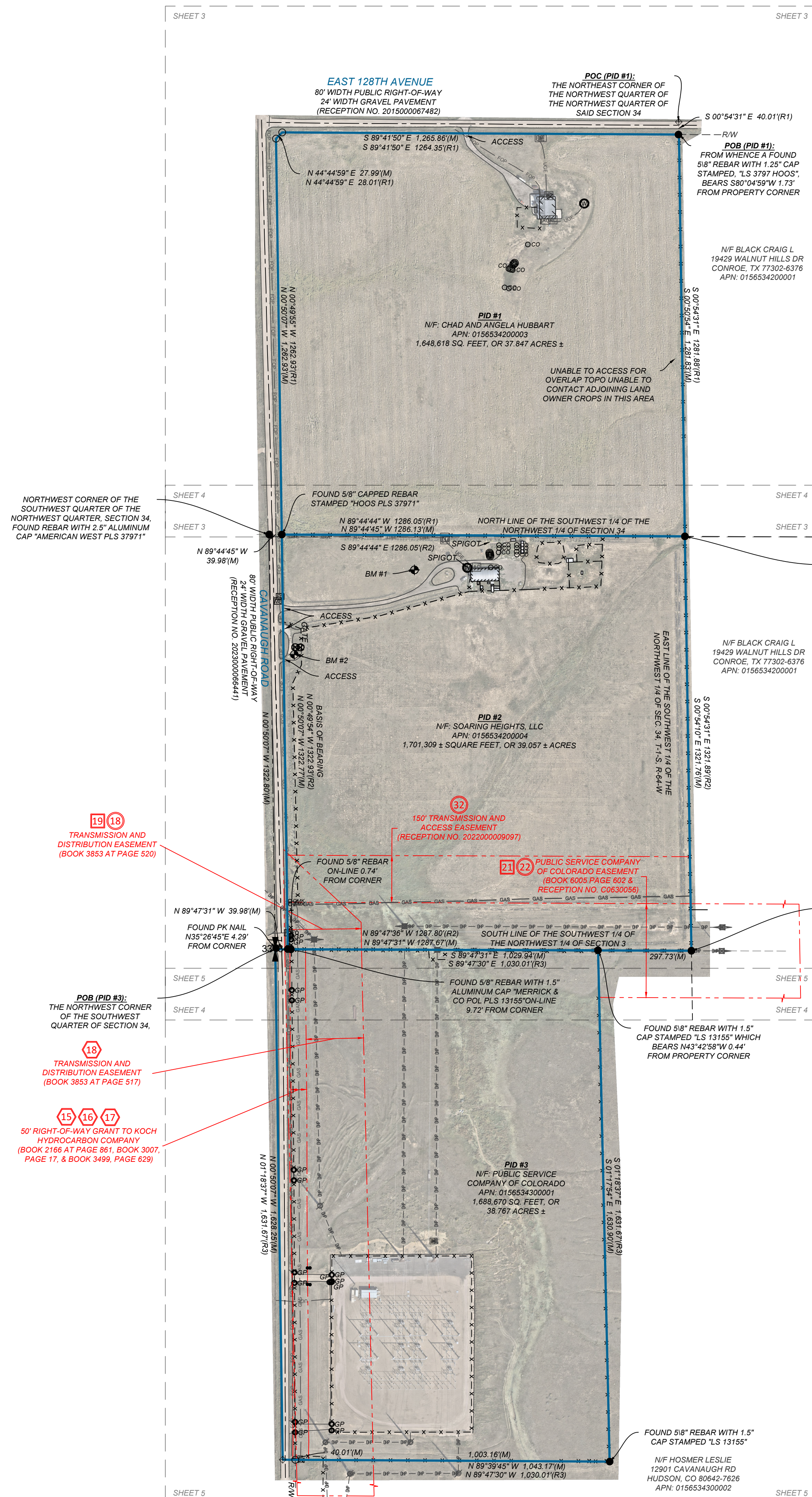
ALTANSPS LAND TITLE SURVEY

Blew & Associates, PA
3825 North Shiloh Drive
Fayetteville, Arkansas 72703
OFFICE: 479.443.4506
FAX: 479.562.1883
www.BLEWINC.com

Coordinated by:
WESTERN LAND SERVICES
701 Cedar Lake Blvd, Suite 200
Oklahoma City, OK 73114
Toll Free: (877) 843-0999
Local: (405) 848-3959



ALTA/NSPS LAND TITLE SURVEY							
SHEET:		1		OF		2	
JOB #:		24-3829		02			
DRAWN BY:		TJB		REVIEWED BY:		DM	
DATE:		02/23/2026		DATE:			
LAST REVISED:				REVISOR BY:			
DATE:				REVISOR BY:			
DATE:				REVISOR BY:			



SITE INFORMATION

PID #1
N/F: CHAD AND ANGELA HUBBART
37980 EAST 128TH AVENUE, HUDSON, COLORADO 80102
APN: 015653420003
PID #1 AREA: 1,648,618 SQ. FEET, OR 37.847 ACRES ±

PID #2
N/F: SOARING HEIGHTS, LLC
12500 CAVAUNAUGH ROAD, HUDSON, COLORADO 80102
APN: 015653420004
PID #2 AREA: 1,701,309 ± SQUARE FEET, OR 39.057 ± ACRES

PID #3
N/F: PUBLIC SERVICE COMPANY OF COLORADO
0 CAVANAUGH ROAD, HUDSON, COLORADO 80102
APN: 0156534300001
PID #3 AREA: 1,688,670 SQ. FEET, OR 38.767 ACRES ±

TOTAL SURVEYED AREA: 5,038,597 SQ. FEET, OR 115,670 ACRES ±

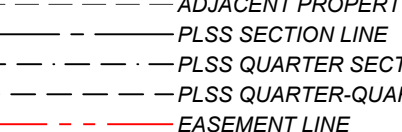
LEGEND OF SYMBOLS & ABBREVIATIONS

ALTA/NSPS SURVEY OBSERVATIONS & EXISTING IMPROVEMENTS:

SYMBOLS & ABBREVIATIONS:

● FOUND MONUMENT AS NOTED	⊞ ELECTRIC METER
⊕ COMPUTED POINT	⊞ ELECTRIC TRANSFORMER
○ SET 5/8" CAPPED REBAR STAMPED "PLS 003706 VINCHESTER"	⊞ AIR CONDITIONER
⊞ BENCHMARK (BM)	⊞ HIGH-TENSION TRANSFORMATION POLE
(M) MEASURED/CALCULATED DIMENSION	⊞ SEPTIC TANK LID
(R1) DIMENSION PER TITLE COMMITMENT (PID #1)	⊞ CLEANOUT
(R2) DIMENSION PER TITLE COMMITMENT (PID #2)	⊞ WELL
(R3) DIMENSION PER TITLE COMMITMENT (PID #3)	⊞ GAS WELL
N/F NOW OR FORMERLY	⊞ GAS UTILITY MARKER
P/B POINT OF BEGINNING	⊞ GAS VALVE
CMP CORRUGATED METAL PIPE	⊞ GATE POST
O/VH OVERHANG	⊞ FIBER OPTIC UTILITY MARKER
BHL BUILDING HEIGHT LOCATION	⊞ FIBER OPTIC VAULT
	● BOLLARD
	■ GRATED INLET

LINETYPES & HATCHES:



—————	PARENT PROPERTIES- PROPERTY LINE
—————	ADJACENT PROPERTY LINES
—————	PLSS SECTION LINE
—————	PLSS QUARTER SECTION LINE
—————	PLSS QUARTER-QUARTER SECTION LINE
— · — · —	EASEMENT LINE
R/W — — —	RIGHT-OF-WAY LINE
CL — — —	CENTERLINE
X — X — X —	FENCE LINE
— W — W — W —	OVERHEAD POWER LINE
— SD — SD — SD —	UNDERGROUND DRAINAGE LINE
— UGE — UGE — UGE —	UNDERGROUND ELECTRIC LINE
— FCP — FCP — FCP —	UNDERGROUND FIBER OPTIC LINE
— GAS — GAS — GAS —	UNDERGROUND GAS LINE
— — —	MINOR CONTOUR LINE (1' INTERVALS)
— — —	MAJOR CONTOUR LINE (5' INTERVALS)

* PLSS: PUBLIC LAND SURVEY SYSTEM

BENCHMARK INFORMATION			
BENCHMARK #1 (BM #1)		BENCHMARK #2 (BM #2)	
SET 5/8" REBAR		SET 5/8" REBAR WITH CAP	
ELEVATION:	5,278.58"	STAMPED "REF POINT"	
NORTHING:	1216381.01	ELEVATION:	5,254.71"
EASTING:	3268068.12	NORTHING:	1216111.16
		EASTING:	3267684.75

BLEW

Surveying | Engineering | Environmental

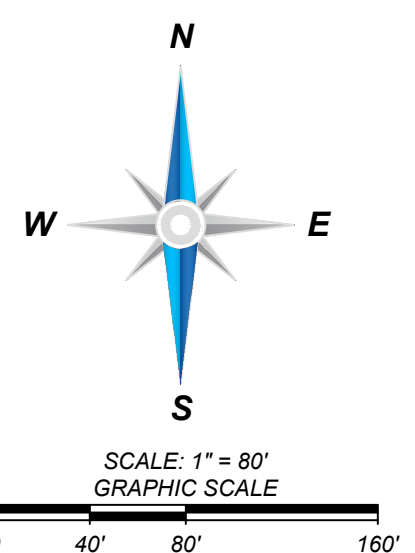
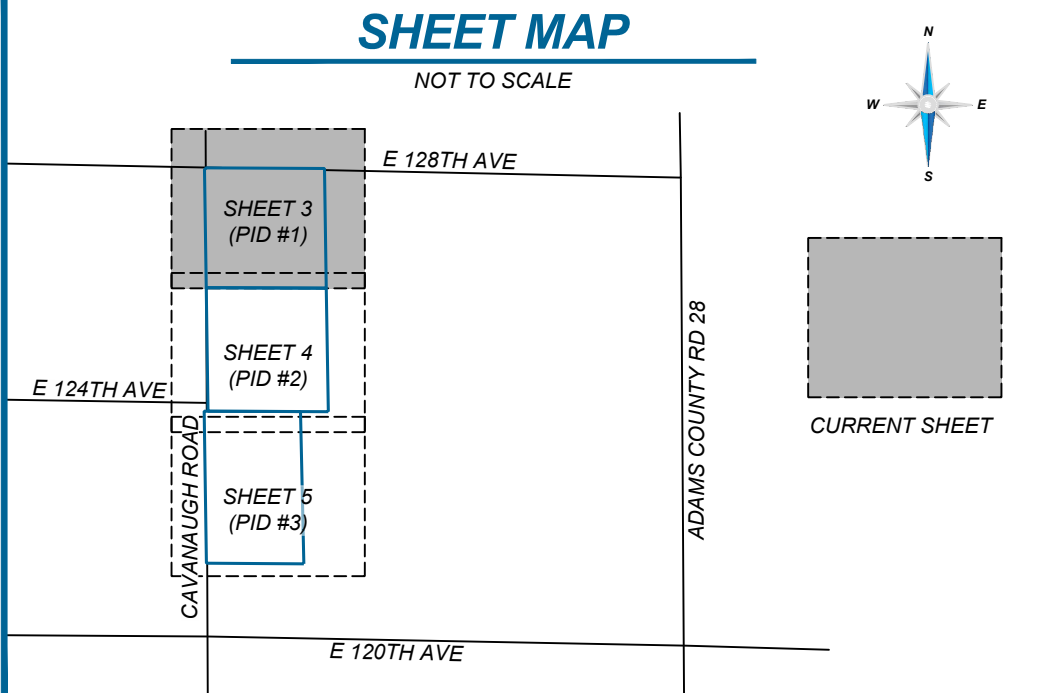
Blew & Associates, PA
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Coordinated by:
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Toll Free: (877) 843-0999
Local: (405) 848-3959



WESTERN LAND SERVICES
AN EMPLOYEE OWNED COMPANY

SHEET:	JOB #	DRAWN BY:	REVIEWED BY:	DATE:
LAST REVISED:	2 OF 2	24-3829.02	TJB	DM
			REVISED BY:	DATE:
			REVISED BY:	DATE:
			REVISED BY:	DATE:



SITE INFORMATION

PID #1	N/F: CHAD AND ANGELA HUBBART 37980 EAST 128TH AVENUE, HUDSON, COLORADO 80102 APN: 0156534200003 PID #1 AREA: 1,648,618 SQ. FEET, OR 37.847 ACRES ±
PID #2	N/F: SOARING HEIGHTS, LLC 12500 CAVANAUGH ROAD, HUDSON, COLORADO 80102 APN: 0156534200004 PID #2 AREA: 1,701,309 ± SQUARE FEET, OR 39.057 ± ACRES
PID #3	N/F: PUBLIC SERVICE COMPANY OF COLORADO 0 CAVANAUGH ROAD, HUDSON, COLORADO 80102 APN: 0156534300001 PID #3 AREA: 1,688,670 SQ. FEET, OR 38.767 ACRES ±
TOTAL SURVEYED AREA: 5,038,597 SQ. FEET, OR 115.670 ACRES ±	

LEGEND OF SYMBOLS & ABBREVIATIONS

ALTA/NSPS SURVEY OBSERVATIONS & EXISTING IMPROVEMENTS:

SYMBOLS & ABBREVIATIONS:

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⊕ COMPUTED POINT	⊞ ELECTRIC TRANSFORMER
○ SET 5/8" CAPPED REBAR STAMPED "PLS 0038706 WINCHESTER"	⊡ AIR CONDITIONER
⊕ BENCHMARK (BM)	⊡ HIGH-TENSION TRANSMISSION POLE
(M) MEASURED CALCULATED DIMENSION	⊕ SEPTIC TANK LID
(R1) DIMENSION PER TITLE COMMITMENT (PID #1)	⊕ CLEANOUT
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N/F: NOW OR FORMERLY	⊕ GAS UTILITY MARKER
POB: POINT OF BEGINNING	⊕ GAS VAULT
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OVH: OVERHANG	⊕ FIBER OPTIC UTILITY MARKER
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	● BOLLARD
	⊡ GRATED INLET

LINETYPES & HATCHES:

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* PLSS: PUBLIC LAND SURVEY SYSTEM

BENCHMARK INFORMATION

BENCHMARK #1 (BM #1)	BENCHMARK #2 (BM #2)
SET 5/8" REBAR	SET 5/8" REBAR WITH CAP STAMPED "REF POINT"
ELEVATION: 5,278.58'	ELEVATION: 5,254.71'
NORTHING: 1216381.00	NORTHING: 1216111.16
EASTING: 3268068.12	EASTING: 3267684.75

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WESTERN LAND SERVICES
AN EMPLOYEE OWNED COMPANY

ALTA/NSPS LAND TITLE SURVEY

SHEET: 2	OF 2	JOB # 24-3829.02	DATE 02/23/2026
LAST REVISED:		DESIGNED BY: TJB	REVIEWED BY: DM
		DATE	DATE
		REVISOR BY:	DATE
		DATE	DATE

POB (PID #3):
SOUTHWEST CORNER OF
THE SOUTHWEST QUARTER
OF THE NORTHWEST
QUARTER, SECTION 34.

18
TRANSMISSION AND
DISTRIBUTION EASEMENT
(BOOK 3853 AT PAGE 517)

15 16 17
50' RIGHT-OF-WAY GRANT TO KOCH
HYDROCARBON COMPANY
(BOOK 2166 AT PAGE 861, BOOK 3007
PAGE 17, & BOOK 3499, PAGE 629)

CAVANAUGH ROAD
24' WIDTH PUBLIC RIGHT-OF-WAY
(RECEPTION NO. 20200006441)

12" CMP
FL(N): 5.265.7
FL(S): 5.266.6

N 02°50'07" W 1,628.23(M)
N 01°18'37" W 1,631.67(M)

18" CMP
FL(N): 5.270.9
FL(S): 5.271.7

GATED ACCESS

GATED ACCESS

40.01(M)

N 89°39'45" W 1,043.17(M)
N 89°40'30" W 1,030.01(M)

FENCE ALONG
PROPERTY LINE

FOUND PK NAIL WITH
WASHER "LS 13155" IN
WOODEN FENCE POST

36" CMP
FL(N): 5.240.9
FL(S): 5.240.4

PID #3
N/F: PUBLIC SERVICE COMPANY OF COLORADO
0156534300001
1,688,670 SQ. FEET, OR 38.767 ACRES ±

GRAVEL

GRAVEL

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21 22
PUBLIC SERVICE COMPANY OF
COLORADO EASEMENT
(BOOK 6005 PAGE 602 &
RECEPTION NO. C0630056)

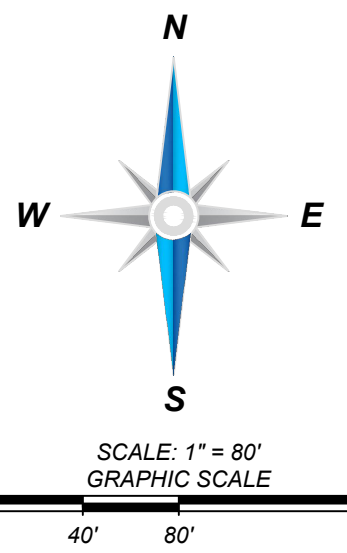
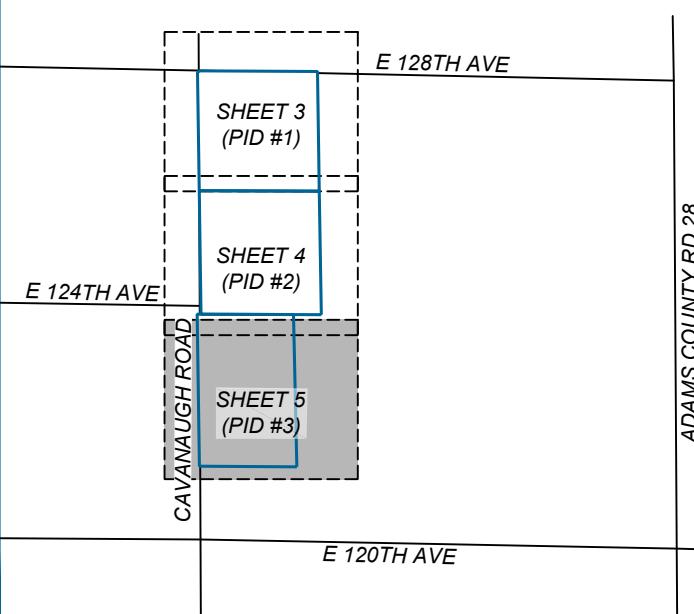
N/F HOSMER LESLIE
12901 CAVANAUGH RD
HUDSON, CO 80642-7626
APN: 0156534300002

FOUND 5/8" REBAR WITH 1.5"
CAP STAMPED "LS 13155"

N/F HOSMER LESLIE
12901 CAVANAUGH RD
HUDSON, CO 80642-7626
APN: 0156534300002

SHEET MAP

NOT TO SCALE



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EXISTING IMPROVEMENTS:

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- ⊕ CLEANOUT
- ⊕ WELL
- ⊕ GAS WELL
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- ⊕ GAS VAULT
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- ⊕ BOLLARD
- ⊕ GRATED INLET

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ALTA/NSPS LAND TITLE SURVEY

SHEET:	5	OF	5	JOB #:	24-3829.02	DATE:	02/23/2026
LAST REVISED:				DRAWN BY:	TJB	REVIEWED BY:	DM
						REVISOR BY:	
						REVISOR BY:	

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Surveying | Engineering | Environmental

ENGINEERING REVIEW

Transmittal Items

Primary Mandatory Items

- ☒ 1. Engineering Review Universal Application
- ☒ 2. Review fee (refer to fee schedule)
- ☒ 3. Construction plans/documents*
- ☒ 4. Drainage Report*
- ☒ 5. Traffic Impact Study*
- ☐ 6. Stormwater Operations and Maintenance Manual*

All construction documents must be stamped and signed by a Licensed Professional Engineer (PE) prior to submittal.

All construction documents must be in PDF format, with a separate PDF for each document. Do not combine into one PDF document.

*Contact Community & Economic Development - Engineering Review to determine if this item is required.

Community & Economic
Development Department
www.adcogov.org



4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

Engineering Review Application

Application Type:

☒ Construction Documents	☐ Subdivision
☐ Erosion and Sediment Control Plans	☐ Other _____

Have you attended a Conceptual Review? YES ☒ NO ☐

If Yes, please list PRE#:

APPLICANT

Name(s): Company:

Address:

City, State, Zip:

Phone #: Email:

OWNER

Name(s): Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Company:

Address:

City, State, Zip:

Phone #: Email:

DESCRIPTION OF SITE

Address:	12500 Cavanaugh Rd
City, State, Zip:	Hudson, Colorado, 80102
Area (acres or square feet):	36.06 acres
Tax Assessor Parcel Number	0156534200004
Existing Zoning:	A-3
Existing Land Use:	Agricultural
Proposed Land Use:	Battery Energy Storage Facility

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name:	Andrew Bowman, President	Date:	6/17/2026
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Owner's Printed Name

Name:	DocuSigned by:  7695AA5BDCBD44F...
	Owner's Signature



Community & Economic Development Department
4430 S. Adams County Pkwy.
1st Floor, Suite W2000B
Brighton, CO 80601
PHONE 720.523.6793
adamscountyco.gov

Property Owner Authorization Form

I/We, Ryan Specht, owner of Soaring Heights LLC, do hereby acknowledge my/our full awareness of the **Planning, Building, or Development** permit/land use applications for the reason(s) being presented on the application(s) to Adams County for the property that I/we own as follows:

Property Address: 12500 Cavanaugh Rd, Hudson, CO 80642 Assessor Parcel No.: 0156534200004

PROPERTY OWNER INFORMATION: (If more than one property owner, all property owners must be listed) (attach list)

Print Name: Soaring Heights LLC
Mailing Address: 19975 N Highway 127 Garfield AR 72732
P.O. Box/Street Address City/Town State Zip Code
Phone: 9703027426 E-mail: ryan@lazrinvestments.com

APPLICANT INFORMATION:

Print Name: Praire Pass LLC
Mailing Address: 1108 Lavaca St, Suite 110-349 Austin TX 78701
P.O. Box/Street Address City/Town State Zip Code
Phone: 3392212932 E-mail: gage.fuller@jupiterpower.io

Relationship of Applicant to Property Owner (e.g. Buyer of Property/Developer/Engineer/Architect, etc.):
Applicant has a lease agreement for the owner's parcel.

OWNER CERTIFICATION AND NOTARIZATION (Form must be signed in presence of a Notary Public)

I/We hereby certify, under penalty of perjury and after carefully reading the entire contents of this document, that the information stated above is true and correct to the best of my/our knowledge.

[Signature]
Property Owner Signature

3/20/26
Date

Property Owner Signature

Date

State of Arkansas
County of Benton ss.

The above and foregoing instrument was subscribed and sworn to before me this 20th day of March, 2026.

IN WITNESS WHEREOF, I have hereto set my hand and official seal.

[Signature]
Notary Public

My commission expires: 2-1-2030



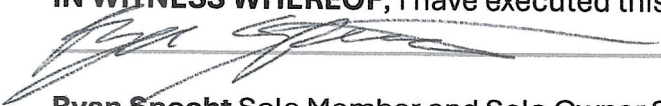
STATEMENT OF AUTHORITY

Soaring Heights LLC
STATE OF Colorado
COUNTY OF Adams

I, **Ryan Specht**, being the undersigned and duly sworn, do hereby certify and state under penalty of perjury as follows:

1. I am the **sole member and sole owner** of **Soaring Heights LLC** (the "Company"), a limited liability company duly organized and existing under the laws of the State of Colorado.
2. As the sole owner and member of the Company, I possess **full, unrestricted, and exclusive authority** to sign, execute, and deliver any and all documents, contracts, agreements, instruments, checks, promissory notes, deeds, mortgages, leases, and other writings on behalf of the Company, and to otherwise conduct, manage, and bind the Company in all business and legal matters without limitation.
3. No other person or entity has been granted, nor currently holds, any authority to bind the Company except through my express written direction. This authority arises from my position as sole member under the Company's operating agreement and the Colorado Limited Liability Company Act (C.R.S. § 7-80-101 et seq.).
4. This Statement of Authority is given to confirm and evidence my authority to third parties, including but not limited to financial institutions, governmental agencies, contractors, and other business associates.

IN WITNESS WHEREOF, I have executed this Statement of Authority on this 19th day of March, 2026.


Ryan Specht Sole Member and Sole Owner Soaring Heights LLC
19975 N Hwy 127 Garfield, AR 72732

ACKNOWLEDGMENT

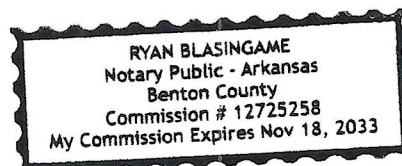
State of Arkansas County of Benton

On this 19 day of March, 2026, before me, the undersigned Notary Public, personally appeared Ryan Specht, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he executed the same for the purposes therein contained.

Notary Public

My Commission Expires: Nov 18 2033

(Seal)





Confirmation

[Business Home](#)

[Business Information](#)

[Business Search](#)

[FAQs, Glossary and Information](#)

Details			
Name	Soaring Heights LLC		
Status	Good Standing	Formation date	05/15/2012
ID number	20121246970	Form	Limited Liability Company
Periodic report month	May	Jurisdiction	Colorado
Principal office street address	12500 Cavanaugh Rd, Hudson, CO 80642, US		
Principal office mailing address	12500 Cavanaugh Rd, Hudson, CO 80642, US		

Registered Agent	
Name	RYAN PAUL SPECHT
Street address	12500 Cavanaugh Rd, Hudson, CO 80642, US
Mailing address	12500 Cavanaugh Rd, Hudson, CO 80642, US

I confirm that I am authorized to make changes.

[Confirm](#)

[Back](#)

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PRAIRIE PASS PRELIMINARY CIVIL PLAN SET

SHEET INDEX

G-001 - COVER SHEET

CIVIL
C-001 - GENERAL NOTES
C-100 - EXISTING CONDITIONS PLAN
C-200 - EROSION AND SEDIMENT CONTROL PLAN
C-201 - EROSION AND SEDIMENT CONTROL DETAILS
C-202 - EROSION AND SEDIMENT CONTROL DETAILS
C-300 - GRADING AND DRAINAGE PLAN
C-400 - OVERALL SITE PLAN
C-401 - CIVIL SITE PLAN
C-500 - CIVIL DETAILS

ELECTRICAL
E-100 - SITE PHOTOMETRIC PLAN

VICINITY MAP



PROJECT INFORMATION

ZONING: AGRICULTURAL
ACREAGE OF BESS FACILITY: 13.65 ACRES
ACREAGE OF DISTURBANCE: 23.62 ACRES

APPLICANT INFORMATION

APPLICANT: PRAIRIE PASS, LLC
CONTACT: GAGE FULLER
GAGE.FULLER@JUPITERPOWER.IO

PRELIMINARY
NOT FOR
CONSTRUCTION

DUDEK

Jupiter
POWER

PRAIRIE PASS BESS
DRAINAGE STUDY

REV	DATE	DESCRIPTION
0	06/18/2026	ISSUE FOR PERMIT

PROJ. NO. 253044
DRAWN LFE
CHECKED BLW
DATE 06/18/2026

© COFFMAN ENGINEERS INC.

SHEET TITLE:

COVER SHEET

SHEET NO:

G-001

P:\DEN25\JOBS\253044_PRAIRIE PASS BESS DRAINAGE STUDY\01 DWG\SC253044 - GENERAL NOTES.DWG NOTES: KLOUDSI, TALEEN, LAST SAVED: April 2, 2026; PLOT DATE: 6/17/26

GENERAL NOTES

1. WORK AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS AND STANDARDS OF THE AUTHORITIES HAVING JURISDICTION. IF STANDARDS ARE NOT PROVIDED BY THE AUTHORITIES HAVING JURISDICTION, WORK AND MATERIALS SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS PROMULGATED BY THE COLORADO STATE DEPARTMENT OF TRANSPORTATION (CDOT).
2. THE CONTRACTOR SHALL CALL THE UNDERGROUND SERVICE ALERT ONE-CALL NUMBER 811 TWO BUSINESS DAYS PRIOR TO EXCAVATION.
3. INFORMATION ON EXISTING CONDITIONS SHOWN ON THESE PLANS WAS OBTAINED FROM A SURVEY NOT PERFORMED BY COFFMAN ENGINEERS. NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND REQUIRED ELEVATIONS AT THE SUBJECT SITE. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR EXCEPTIONS ENCOUNTERED PRIOR TO PROCEEDING. ANY COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL HAVE A COMPLETE SET OF APPROVED PLANS ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. THE DRAWINGS INDICATE LOCATIONS, DIMENSIONS, REFERENCES, AND TYPICAL DETAILS OF CONSTRUCTION. THE DRAWINGS DO NOT INDICATE EVERY CONDITION. WORK NOT FULLY DETAILED SHALL BE OF CONSTRUCTION SIMILAR TO PARTS THAT ARE FULLY DETAILED.
6. THE CONTRACTOR SHALL OBTAIN THE APPROPRIATE APPROVALS AND PERMITS FROM THE AUTHORITIES HAVING JURISDICTION PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL COORDINATE WITH THE AUTHORITIES HAVING JURISDICTION TO CONFIRM INSPECTION, TESTING, AND CERTIFICATION REQUIREMENTS.
7. EXISTING PROPERTY CORNERS AND SURVEY MONUMENTS SHALL BE PROTECTED DURING CONSTRUCTION. ANY DAMAGED OR OBLITERATED CORNERS OR MONUMENTS SHALL BE RE-ESTABLISHED BY A PROFESSIONAL SURVEYOR AT THE CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS. COORDINATE REQUIREMENTS WITH THE AUTHORITIES HAVING JURISDICTION.
9. SAFETY STANDARDS AND REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND COMPLIED WITH AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
10. THE CONTRACTOR SHALL HAVE THE APPROPRIATE LICENSES TO PERFORM THE SPECIFIED WORK IN CONFORMANCE WITH THE AUTHORITIES HAVING JURISDICTION.
11. RECORD DRAWINGS IDENTIFYING AND ACCURATELY LOCATING SUBSURFACE UTILITIES AND IMPROVEMENTS AND NOTING AS-CONSTRUCTED CONDITIONS SHALL BE PROVIDED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.

EROSION & SEDIMENT CONTROL NOTES

1. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL (ESC) PROBLEMS:
 - a) CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES (BMPS);
 - b) INSTALL TEMPORARY ESC BMPS, CONSTRUCTING SEDIMENT TRAPPING BMPS AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
 - c) CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
 - d) STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
 - e) CLEAR, GRUB AND GRADE SUBJECT SITE;
 - f) TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPS, SUBJECT SITE IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
 - g) CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (SUCH AS INLETS, PONDS, UNDERGROUND INJECTION CONTROL (UIC) FACILITIES, ETC.);
 - h) PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPS;
 - i) INSTALL PERMANENT ESC CONTROLS, WHEN APPLICABLE; AND,
 - j) REMOVE TEMPORARY ESC CONTROLS WHEN:
 - i. PERMANENT ESC CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
 - ii. ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION OR SEDIMENTATION PROBLEMS HAVE CEASED; AND,
 - iii. VEGETATION HAS BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED ESC PLAN ON FILE WITH THE LOCAL JURISDICTION.
2. INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
3. IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
4. IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
5. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.

6. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
7. INSPECT SEDIMENT CONTROL BMPS WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
8. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA. DO NOT USE WATER WHEN IT MAY DAMAGE ADJACENT CONSTRUCTION OR CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS, SUCH AS ICE, FLOODING, AND POLLUTION.
9. STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
10. PROTECT INLETS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.
11. KEEP ROADS ADJACENT TO INLETS CLEAN.
12. INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.
13. CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
14. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
15. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NONINERT WASTES PRESENT ON SITE FROM VANDALISM, USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.
16. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
17. CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
18. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPS. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACED BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
19. REMOVE TEMPORARY ESC BMPS WITHIN 30 DAYS AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.
20. PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES, ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY, INCLUDING OBTAINING THE APPROPRIATE PERMITS AND APPROVALS.
21. EROSION CONTROL MEASURES IN ADDITION TO THOSE INDICATED AS PART OF THIS PLAN MAY BE REQUIRED DUE TO UNFORESEEN CONDITIONS, IF THE MEASURES DO NOT FUNCTION AS INTENDED, OR IF THE AUTHORITIES HAVING JURISDICTION DETERMINE INDICATED MEASURES ARE INADEQUATE.
22. FILTER FENCE SHALL BE USED TO AID IN CONTAINING ANY SEDIMENT ON THE SITE DURING CONSTRUCTION. STABILIZED CONSTRUCTION ENTRANCES SHALL BE USED AT POINTS OF INGRESS AND EGRESS FOR CONSTRUCTION VEHICLES. STORM DRAIN INLET PROTECTION SHALL BE USED ON ALL STORM DRAIN STRUCTURES, INCLUDING CATCH BASINS AND DRYWELLS. THE CONTRACTOR SHALL KEEP THE AREAS ADJACENT TO THE SITE INCLUDING ROADWAYS AND PARKING LOTS FREE FROM DEBRIS. REFER TO THE EROSION AND SEDIMENT CONTROL MEASURE DETAILS FOR ADDITIONAL INFORMATION.
23. PROVIDE A DESIGNATED, POSTED CONCRETE WASHOUT AREA. THE CONCRETE WASHOUT SHALL NOT BE ALLOWED TO DRAIN OFF THE SITE OR INTO ANY EXISTING OR FUTURE STORM DRAINAGE FACILITIES. HARDENED CONCRETE WASHOUT SHALL BE BROKEN UP AND REMOVED FROM THE SITE.
24. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORMWATER DISCHARGES.

DEMOLITION NOTES

1. MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING ADJACENT OCCUPIED OR OPERATING FACILITIES UNLESS AUTHORIZED IN WRITING BY OWNER AND AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO OWNER AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE DEMOLITION OPERATIONS AND ANY REQUIRED UTILITY RELOCATIONS WITH THE OWNER AND APPROPRIATE UTILITY PURVEYOR, INCLUDING REQUIREMENTS AND SCHEDULING.
3. COORDINATE EXTENT OF DEMOLITION WITH PROPOSED IMPROVEMENTS. CONTRACTOR SHALL REVIEW THE PROJECT LIMITS TO DETERMINE THE QUANTITY AND TYPE OF DEMOLITION WASTE MATERIAL AND DEBRIS TO BE INCLUDED IN THEIR BID. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING, AND RELOCATING IF NECESSARY, ANY ITEMS NOT OTHERWISE NOTED THAT CONFLICT WITH THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICTING ITEMS NOT SHOWN ON THE PLANS THAT MUST BE REMOVED OR RELOCATED. FAILURE TO NOTIFY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF COST RESPONSIBILITY FOR REMOVING REQUIRED ITEMS.
4. COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE BEGINNING DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
5. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB; IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER AND OWNER.
6. CONDUCT DEMOLITION ACTIVITIES AND DEBRIS REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, WALKWAYS, AND OTHER ADJACENT FACILITIES.
7. REMOVE OBSTRUCTIONS, TREES, SHRUBS, GRASS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION. REFER TO LANDSCAPE PLANS FOR TREE PROTECTION AND TREE REMOVAL PROCEDURES TO PRESERVE HEALTH OF ADJACENT TREES.
8. AREAS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE CONSTRUCTED OR RESTORED TO ORIGINAL CONDITIONS OR BETTER, TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING CONDITIONS PRIOR TO CONSTRUCTION ACTIVITIES AND ANY DAMAGE THAT MAY OCCUR.
9. REMOVE DEMOLITION WASTE MATERIALS AND DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

EARTHWORK & GRADING NOTES

1. SITE PREPARATION, GRADING, EXCAVATION AND FILL REQUIREMENTS BELOW THE PROPOSED IMPROVEMENTS, EMBANKMENTS, AND UTILITY TRENCHING SHALL BE COMPLETED IN CONFORMANCE WITH CDOT STANDARD SPECIFICATIONS AND THE GEOTECHNICAL ENGINEERING EVALUATION FOR THE SUBJECT SITE.
2. EXAMINE EXPOSED SUBGRADES AND BASE SURFACES FOR COMPLIANCE WITH REQUIREMENTS FOR DIMENSIONAL, GRADING, AND ELEVATION TOLERANCES. PREVENT SURFACE WATER AND GROUNDWATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES AND BASE SURFACES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. PROTECT SUBGRADES AND BASE SURFACES FROM SOFTENING, UNDERMINING, WASHOUT, DAMAGE BY RAIN OR WATER ACCUMULATION, AND AGAINST FREEZING TEMPERATURES AND FROST.
3. SPOT ELEVATIONS ARE FOR FINISH GRADE UNLESS OTHERWISE NOTED.
4. UNLESS ELEVATIONS AND/OR CONTOURS ARE OTHERWISE SHOWN, NEW FINISH GRADE SURFACES SHALL BE PLACED TO ALLOW FOR POSITIVE DRAINAGE TO RUNOFF COLLECTION DEVICES OR FACILITIES. MAINTAIN POSITIVE DRAINAGE AWAY FROM STRUCTURES. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
5. GROUNDWATER OR UNANTICIPATED SUBSURFACE CONDITIONS SHALL BE REPORTED TO THE GEOTECHNICAL ENGINEER FOR ASSESSMENT AND RECOMMENDATIONS.
6. COMPACTION EFFORTS AND MASS GRADING SHALL BE MONITORED AND TESTED BY AN EXPERIENCED SOILS TECHNICIAN, UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER.

PRELIMINARY
NOT FOR
CONSTRUCTION

DUDEK

Jupiter
POWER

PRAIRIE PASS BESS
DRAINAGE STUDY

0	06/18/2026	ISSUE FOR PERMIT
REV	DATE	DESCRIPTION

PROJ. NO. 253044
DRAWN LFE
CHECKED BLW
DATE 06/18/2026

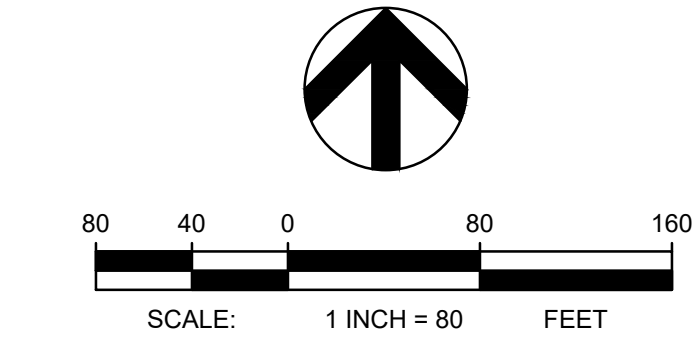
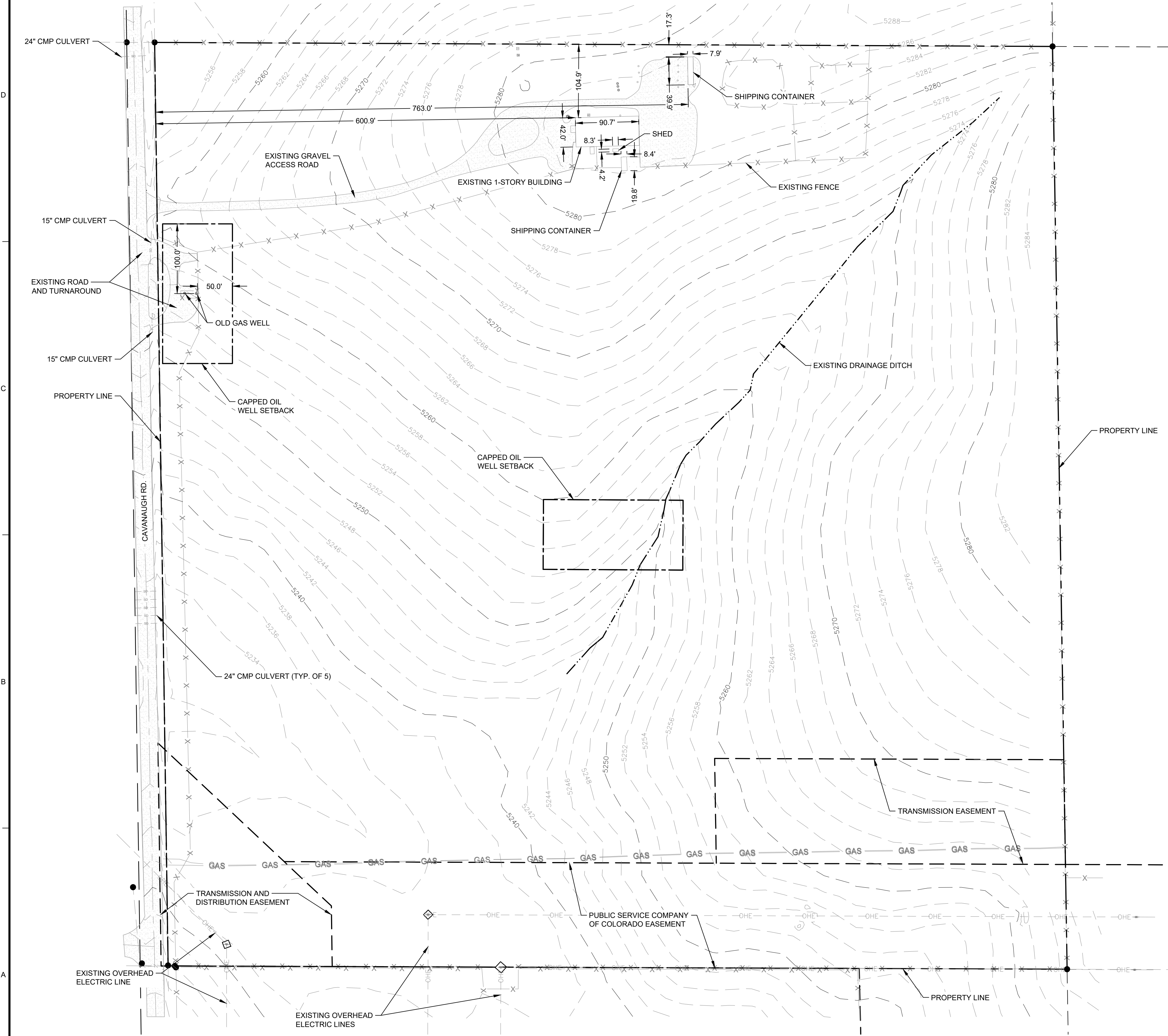
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SHEET TITLE:

GENERAL NOTES

SHEET NO:

C-001



LEGEND	
	EXISTING GRAVEL
	PROPERTY LINE
	EXISTING FENCE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING OVERHEAD ELECTRICAL LINE
	EXISTING STORM DRAIN
	EXISTING DRAINAGE DITCH
	EXISTING EASEMENT
	OIL WELL SETBACK
	EXISTING GAS LINE

NOTES

1. EXISTING CONDITIONS ARE BASED ON TOPO SURVEY PROVIDED BY OTHERS ON 11/14/2025.

PRELIMINARY
NOT FOR
CONSTRUCTION

DUDEK

Jupiter
POWER

PRAIRIE PASS BESS
DRAINAGE STUDY

REV	DATE	DESCRIPTION
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PROJ. NO. 253044
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DATE 06/18/2026

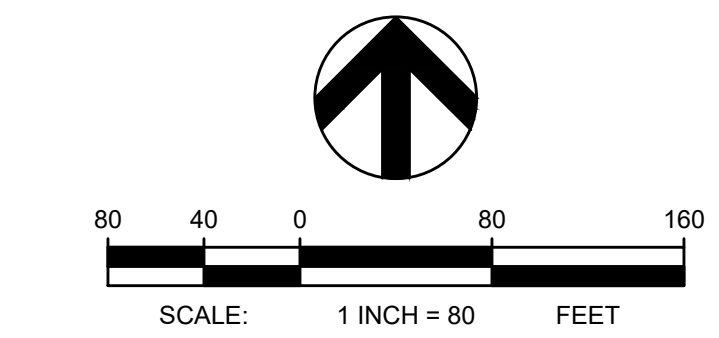
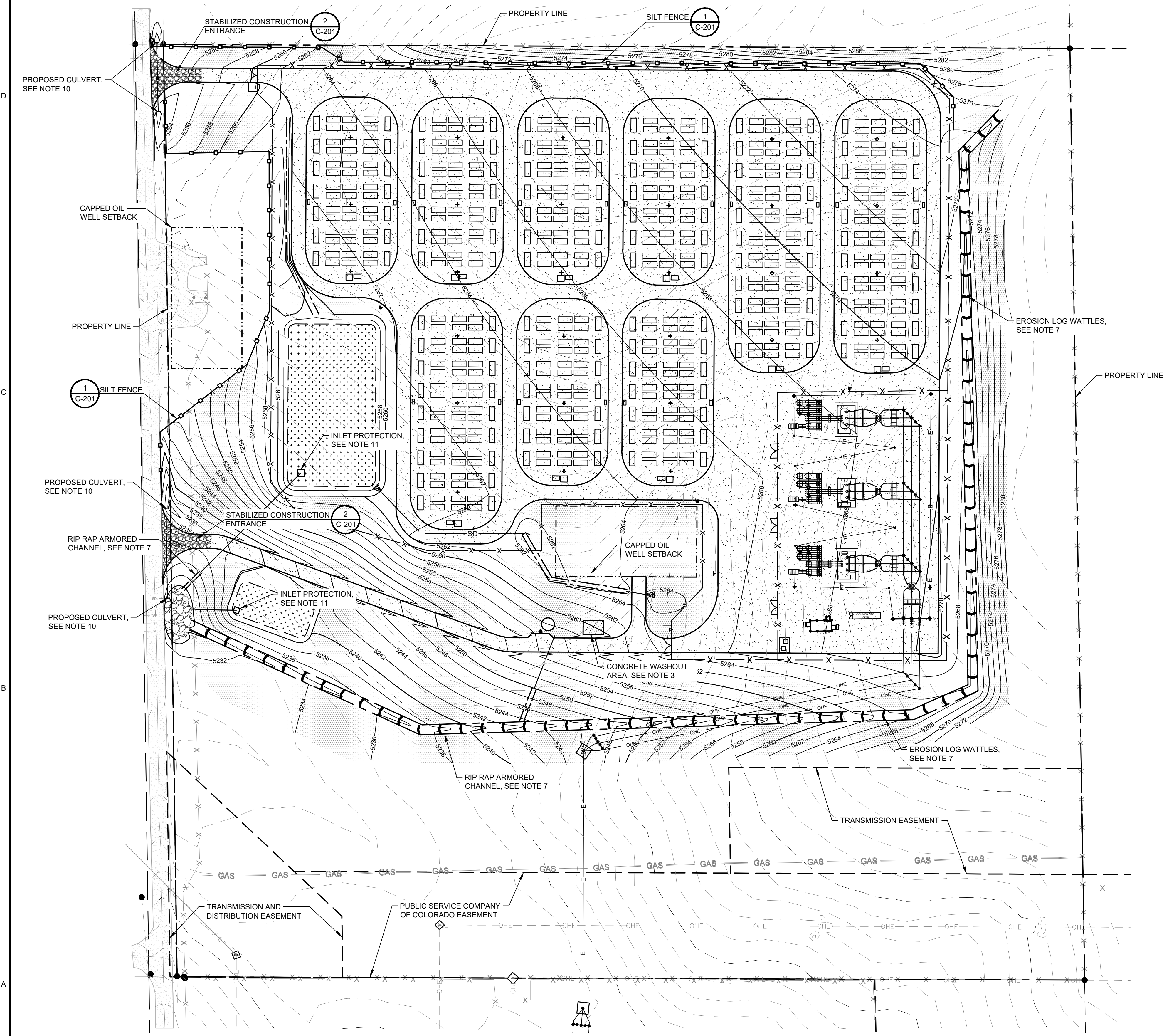
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SHEET TITLE:

EXISTING
CONDITIONS
PLAN

SHEET NO:

C-100



LEGEND	
	EXISTING GRAVEL
	PROPOSED GRAVEL
	DETENTION POND
	SLOPE STABILIZATION, SEE NOTE 8
	PROPERTY LINE
	EXISTING FENCE
	PROPOSED FENCE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING OVERHEAD ELECTRIC LINE
	PROPOSED OVERHEAD ELECTRIC LINE
	PROPOSED ELECTRIC LINE
	EXISTING GAS LINE
	EASEMENT
	DITCH FLOW LINE
	SILT FENCE
	RIP RAP ARMORED CHANNEL
	OIL WELL SETBACK

- NOTES
1. REFER TO SHEET C-001 FOR GENERAL NOTES.
 2. REFER TO SHEET C-201 FOR EROSION AND SEDIMENT CONTROL DETAILS.
 3. INSTALL DEDICATED CONCRETE WASHOUT AREA AT MAIN ENTRANCE TO BESS YARD. SEE DETAIL 2, SHEET C-201 FOR MORE INFORMATION.
 4. ELECTRICAL LAYOUT RELATED TO BATTERY ENCLOSURES AND ALL RELATED EQUIPMENT, ROADWAY WIDTHS AND ACCESS ROUTES, AND SITE LAYOUT DESIGNED BY OTHERS.
 5. FIRE PROTECTION DESIGN AND CODE COMPLIANCE BY OTHERS.
 6. SUBSTATION AND HV DESIGN BY OTHERS.
 7. INSTALL TEMPORARY EROSION LOGS PER DETAIL 5, SHEET C-202 IN OFFSITE CONVEYANCE CHANNEL DURING CONSTRUCTION ACTIVITIES. ONCE CONSTRUCTION HAS BEEN COMPLETED AND SITE SLOPES HAVE BEEN STABILIZED, CONTRACTOR TO INSTALL RIP RAP ARMORING AS SHOWN ON SHEET C-300.
 8. STABILIZE ALL REGRADED SLOPES WITH EROSION CONTROL BLANKETS PER THE MILE HIGH FLOOD DISTRICT "EROSION CONTROL BLANKET CONSTRUCTION GUIDANCE CHECKLIST."
 9. SITE DISTURBANCE ANTICIPATED TO EXCEED 1-ACRE. FINAL DESIGN TO INCORPORATE A STORMWATER MANAGEMENT PLAN (SWMP) FOR MANAGEMENT OF CONSTRUCTION STORMWATER TO SUPPORT APPLICATION OF A CDPHE COR400000 CONSTRUCTION STORMWATER DISCHARGE PERMIT.
 10. PROTECT CULVERT INLET AND OUTLET PER DETAIL 3, SHEET C-201.
 11. POND OUTFALL CATCH BASIN STRUCTURE TO BE PROTECTED BY EROSION LOG AS SHOWN ON DETAIL 3, SHEET C-201, AS WELL AS INLET PROTECTION DEVICE (INLET INSERT) PER DETAIL 4, SHEET C-201.

1 EROSION AND SEDIMENT CONTROL PLAN
C-200 SCALE: 1"=80'

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CONSTRUCTION

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PRAIRIE PASS BESS
DRAINAGE STUDY

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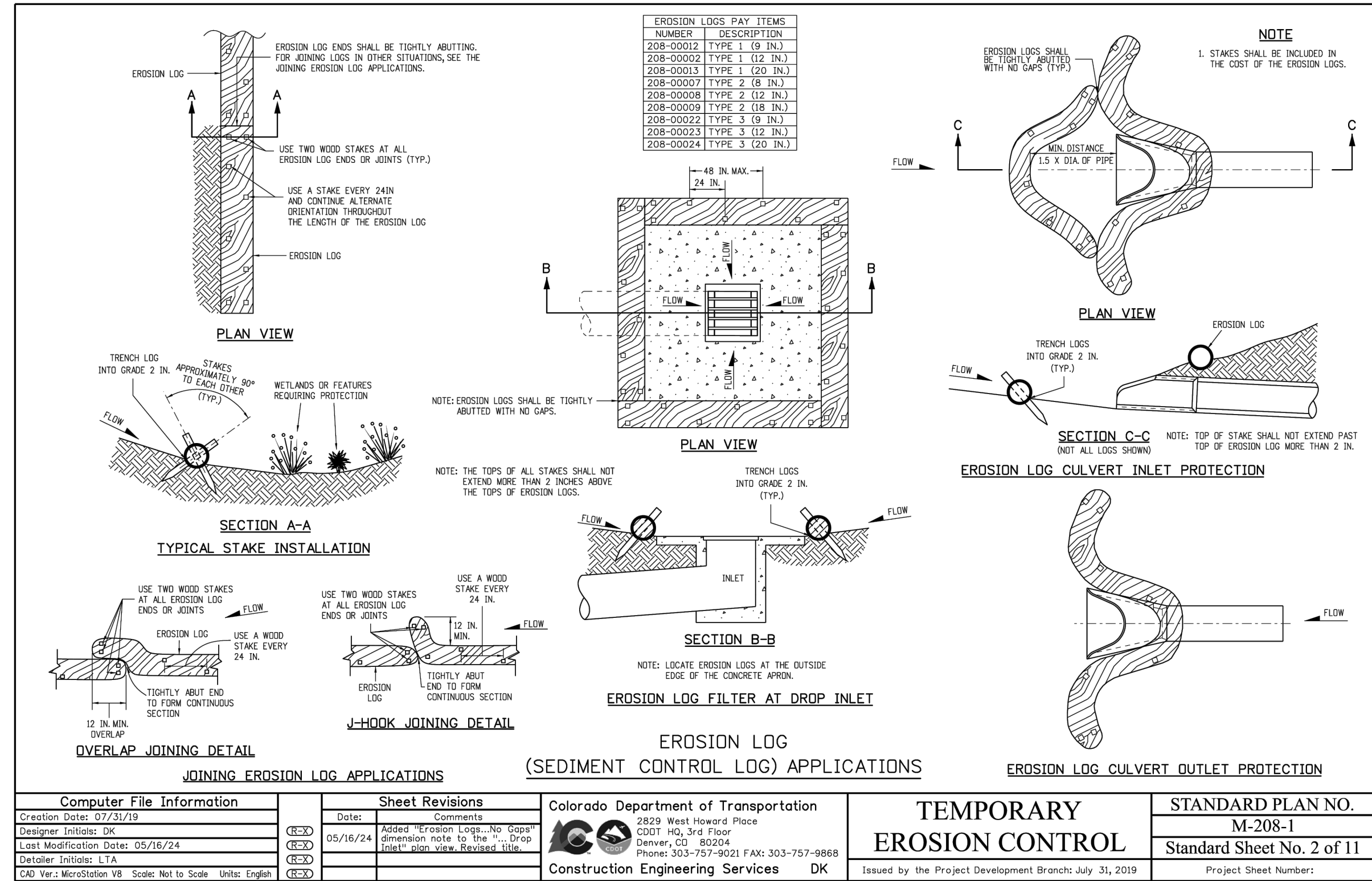
EROSION AND
SEDIMENT
CONTROL PLAN

SHEET NO:

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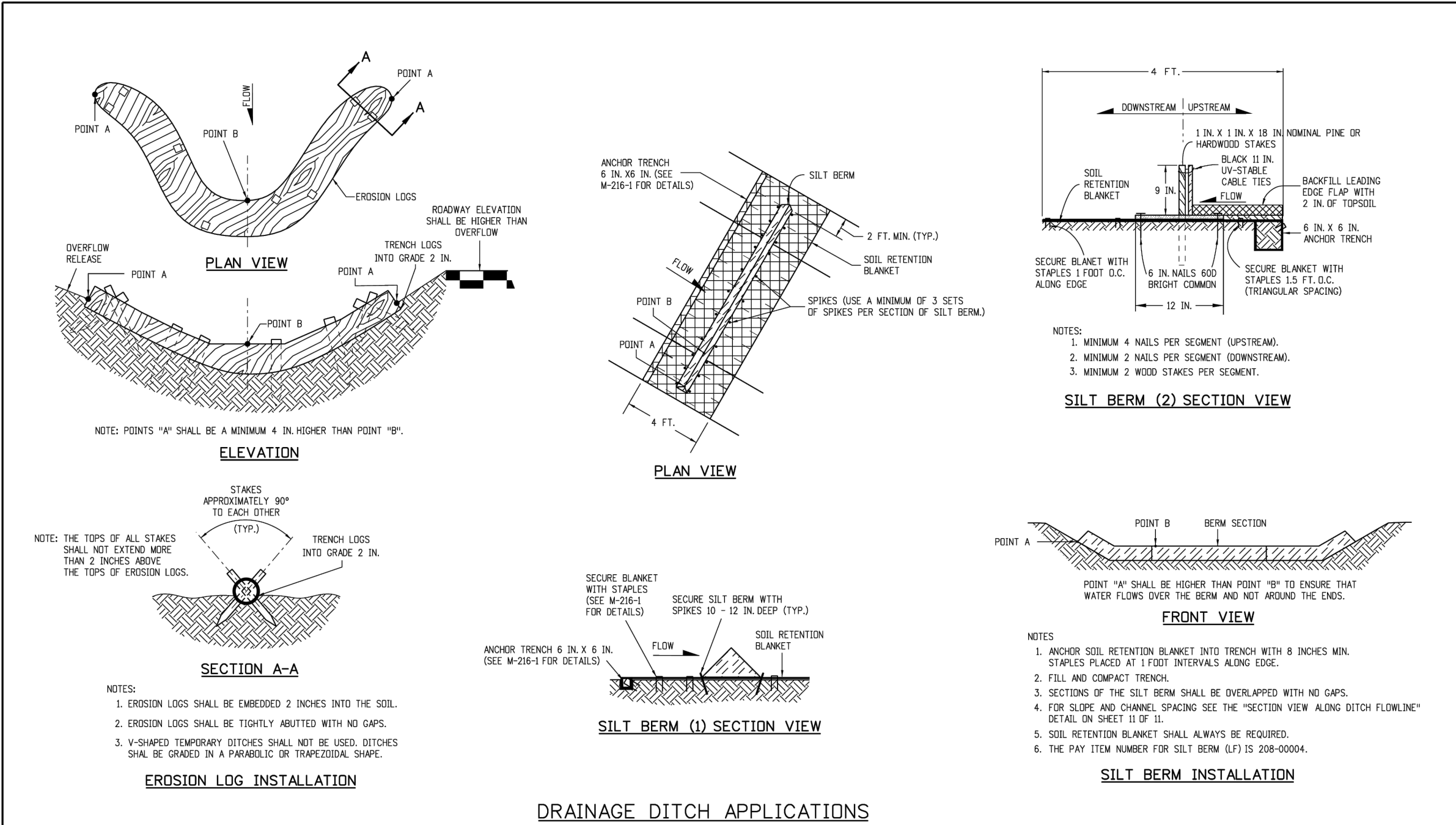
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Creation Date: 07/31/19		Date:	Comments		EROSION CONTROL		M-208-1		
Designer Initials: DK	(ECX)						Standard Sheet No. 6 of 11		
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Detailer Initials: LTA	(ECX)								
CAD Ver: MicroStation V8 Scale: Not to Scale Units: English		(ECX)				Issued by the Project Development Branch: July 31, 2019		Project Sheet Number:	

5

C-202

DRAINAGE DITCH EROSION CONTROL

SCALE: NTS

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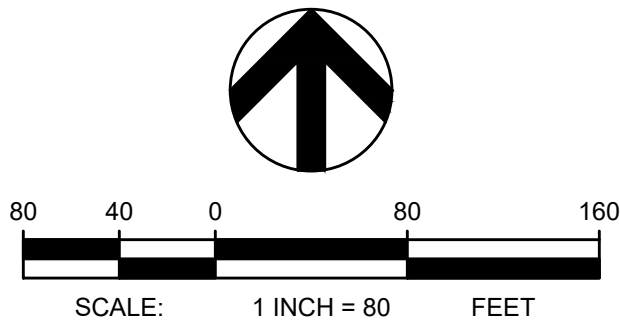
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SHEET TITLE:

EROSION AND
SEDIMENT
CONTROL
DETAILS

SHEET NO:

C-202



LEGEND

	EXISTING GRAVEL
	PROPOSED GRAVEL
	PROPERTY LINE
	EXISTING FENCE
	PROPOSED FENCE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING OVERHEAD ELECTRICAL LINE
	PROPOSED OVERHEAD ELECTRICAL LINE
	PROPOSED ELECTRIC LINE
	EXISTING STORM DRAIN
	PROPOSED STORM DRAIN
	EXISTING GAS LINE
	OIL WELL SETBACK
	DITCH FLOW LINE
	EXISTING EASEMENT
	RIP RAP ARMORING

ABBREVIATIONS

ME	MATCH EXISTING
TC	TOP OF CURB
TP	TOP OF PAVEMENT
EL	ELEVATION
CMP	CORRUGATED METAL PIPE
IE	INVERT ELEVATION
SD	STORM DRAIN
MH	MANHOLE
R	RIM ELEVATION
CB	CATCH BASIN

EARTHWORK QUANTITIES

CUT: 163,140 CY
FILL: 116,492 CY
NET CUT: 46,648 CY
ASSUMPTIONS:
1. VOLUME DISPLACED SOIL TO RECOMPACTED SOIL IS 1:1 RATIO.
2. 6" TOP SOIL STRIPPED AND DISPOSED OF OFFSITE OVER GRADING EXTENTS.
3. 5" GRAVEL SECTION PER GEOTECHNICAL RECOMMENDATIONS.
4. 24" REMOVAL AND RECOMPACTION UNDER GRAVEL SECTION PER GEOTECHNICAL RECOMMENDATIONS.

NOTES

- REFER TO SHEET CC-001 FOR GENERAL NOTES.
- CONTOURS SHOWN ARE 2 FOOT CONTOUR LINES UNLESS OTHERWISE NOTED.
- ELECTRICAL LAYOUT COMPLETED BY OTHERS.
- FIRE PROTECTION DESIGN AND CODE COMPLIANCE BY OTHERS.
- SUBSTATION AND HV DESIGN BY OTHERS.
- GRADING DESIGN ASSUMES FOUNDATIONS WILL BE DEEP FOUNDATION (PILES) ELEVATED ABOVE GRADE, ALLOWING FOR RUNOFF TO PASS UNDER BATTERY UNITS. IF MAT FOUNDATIONS ARE SELECTED AS FOUNDATION SYSTEM, A NEW GRADING CONCEPT WILL BE NEEDED TO SHOW RUNOFF DIRECTED AWAY FROM FOUNDATIONS.
- INSTALL RIP RAP ARMORING IN PROPOSED CONVEYANCE DITCH. FINAL DESIGN OF RIP RAP WIDTH, DEPTH, AND ROCK SIZE BY ENGINEER OF RECORD.
- RIP RAP ARMORED OUTFALL AREA UPSTREAM OF EXISTING CULVERT CROSSING AT CAVANAUGH ROADWAY. EXCAVATE EXISTING UPSTREAM INVERT OF HALF BURIED ROADWAY CULVERTS AND PROVIDE GENTLY SLOPED RIP RAP OUTFALL AREA TO DISIPATE ENERGY OF ONSITE AND OFFSITE RUNOFF SOURCES PRIOR TO DISCHARGE TO EXISTING ROADWAY CULVERT SYSTEM.

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SHEET TITLE:

GRADING AND
DRAINAGE PLAN

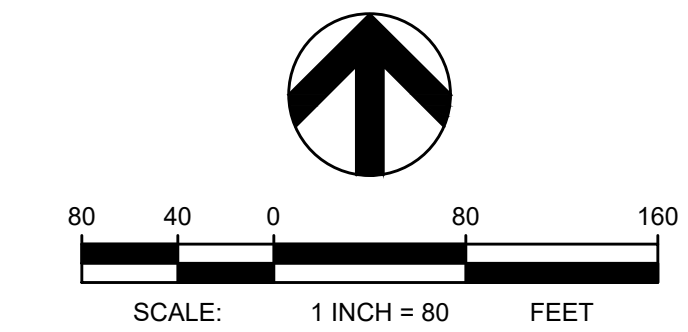
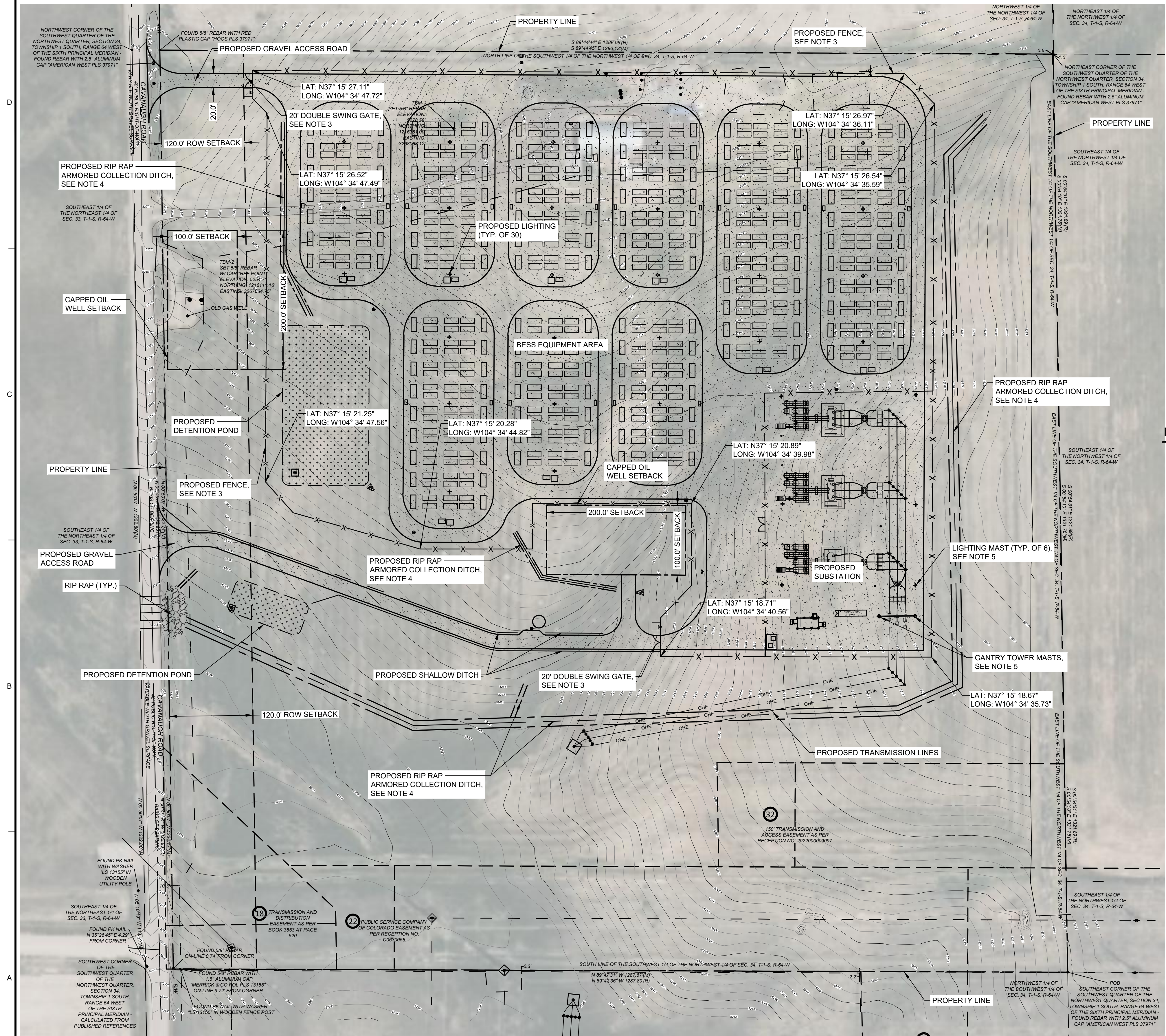
SHEET NO:

C-300



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1 GRADING AND DRAINAGE PLAN
C-300 SCALE: 1"=80'



LEGEND

	EXISTING GRAVEL
	PROPOSED GRAVEL
	PROPOSED POND
	PROPERTY LINE
	EXISTING FENCE
	PROPOSED FENCE
	EXISTING OVERHEAD ELECTRICAL LINE
	PROPOSED OVERHEAD ELECTRICAL LINE
	OIL WELL SETBACK
	DITCH FLOW LINE
	EXISTING EASEMENT
	RIP RAP ARMORING

NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES.
2. SEE GRADING AND DRAINAGE PLAN, SHEET C-300 FOR MORE INFORMATION ON SLOPING AND STORMWATER IMPROVEMENTS.
3. FENCING TO BE 7-FOOT CHAIN LINK FENCE. INSTALL FENCING PER DETAIL 1, SHEET C-500. INSTALL 20' DOUBLE SWING GATE PER DETAIL 2, SHEET C-500.
4. INSTALL RIP RAP ARMORING IN PROPOSED CONVEYANCE DITCH. FINAL DESIGN OF RIP RAP WIDTH, DEPTH, AND ROCK SIZE BY ENGINEER OF RECORD.
5. LIGHTNING MASTS AND GANTRY TOWER MASTS WILL NOT EXCEED 85' IN HEIGHT.

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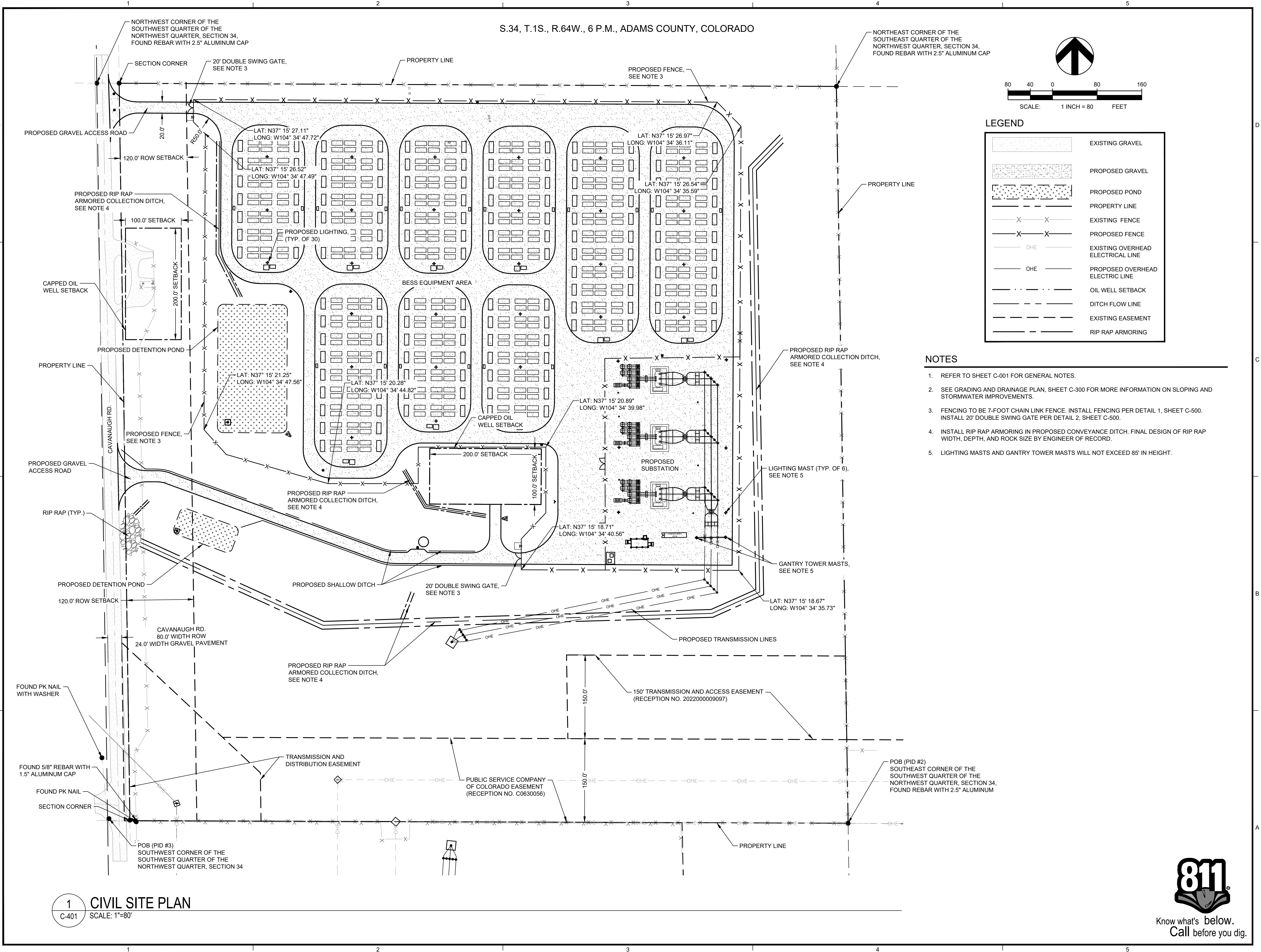
OVERALL SITE
PLAN

SHEET NO:

C-400



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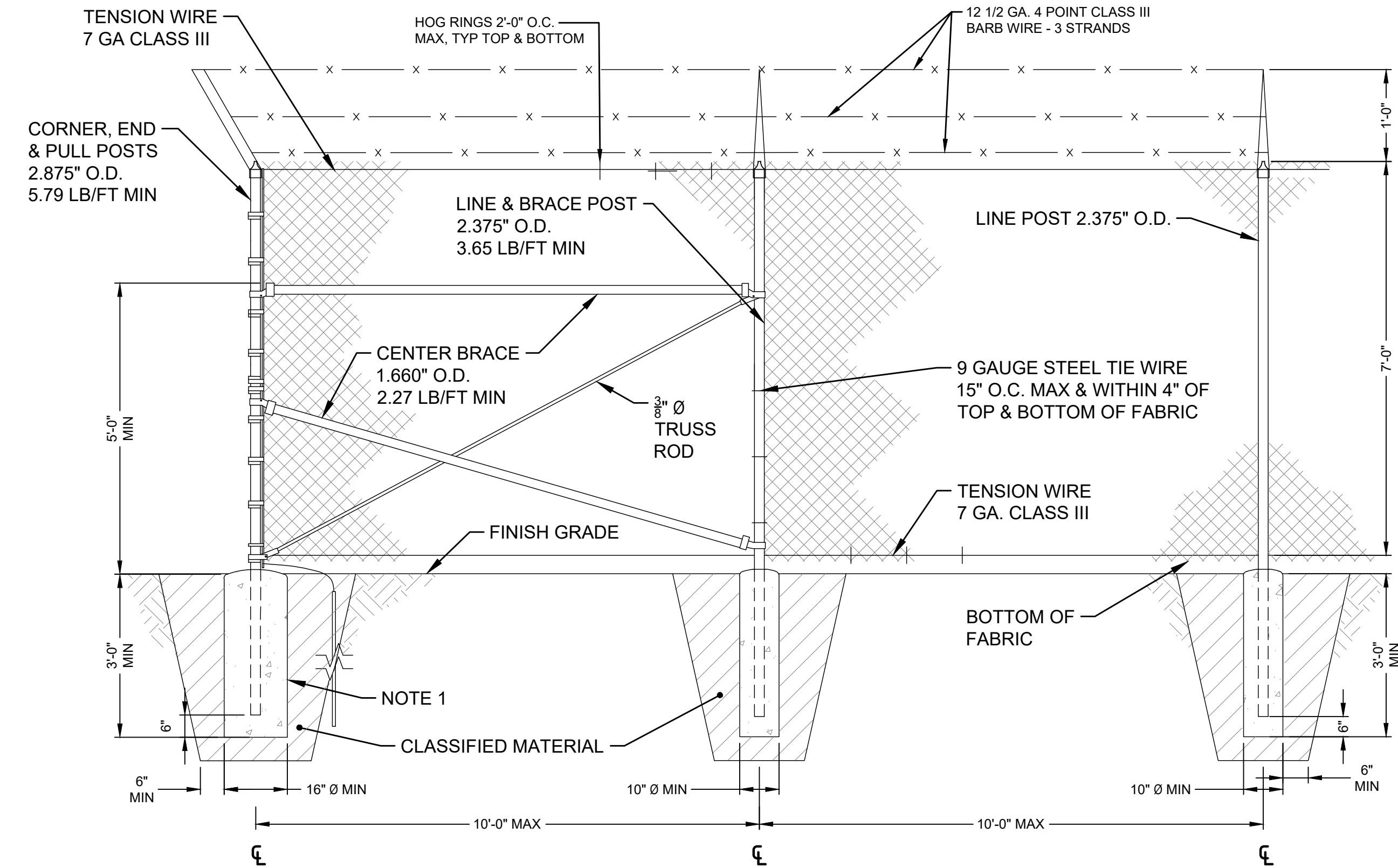
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CIVIL SITE PLAN

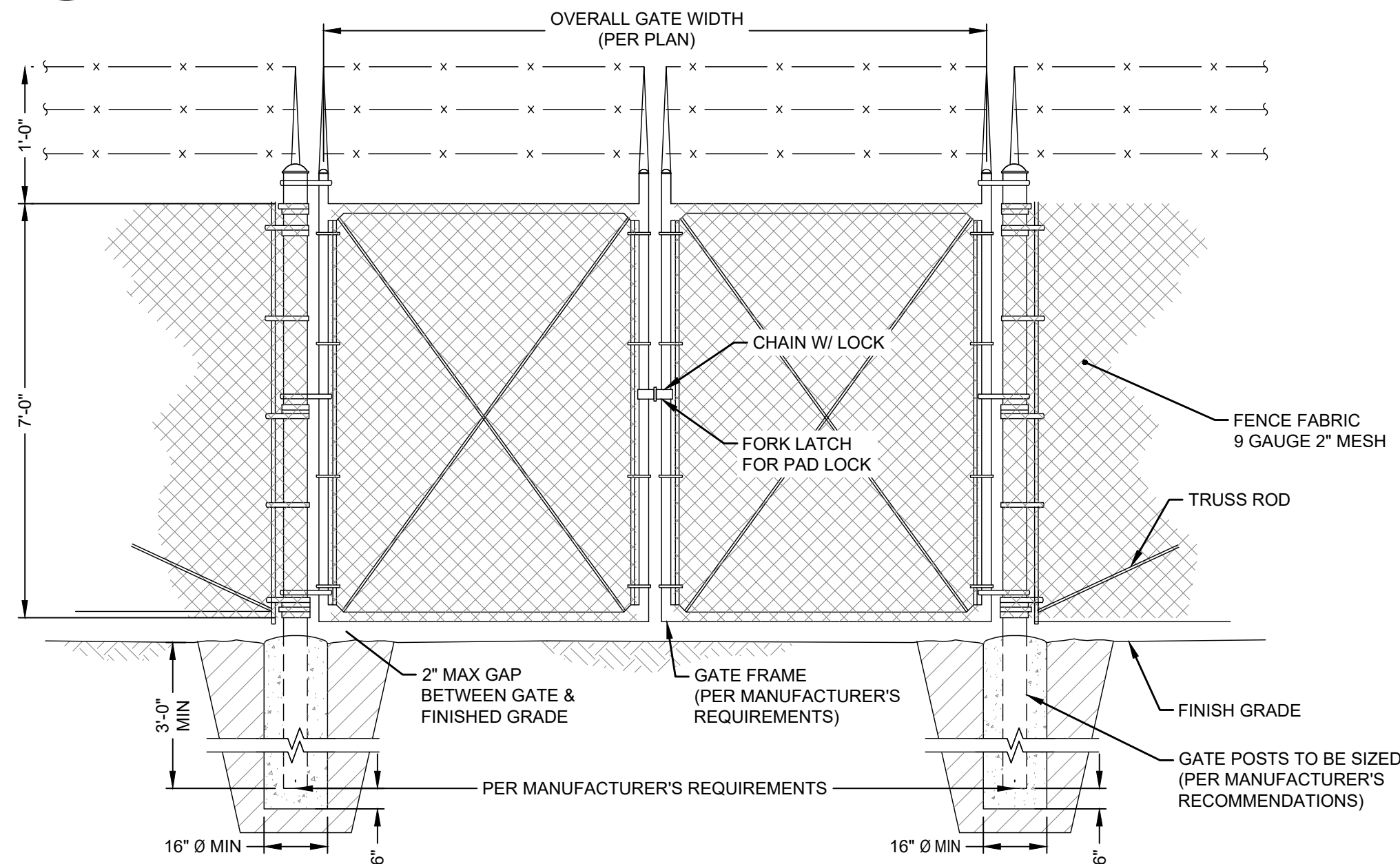
SHEET NO:

C-401

811
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1 CHAIN LINK FENCE DETAIL
C-500 SCALE: NTS



NOTE:

1. KNOX BOX TO BE PROVIDED AT GATE ENTRIES FOR FIRE DEPARTMENT ACCESS.

2 DOUBLE SWING GATE
C-500 SCALE: NTS

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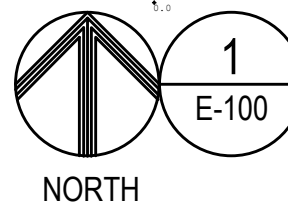
SHEET TITLE:

CIVIL DETAILS

SHEET NO:

C-500

P:\DEN25\JOB5253044_PRAIRIE PASS BESS DRAINAGE STUDY\00 DWG\SEE-101 - SITE PHOTOMETRIC PLAN.DWG SITE PHOTOMETRIC PLAN - KOUJISI, TALEEN: LAST SAVED: June 12, 2026 - PLOT DATE: 6/7/26



SITE PHOTOMETRIC PLAN

SCALE: 1"=50'

AREA	ILLUMINANCE (fc)					
	AVERAGE	MAXIMUM	MINIMUM	AVG/MIN	MAX/MIN	MAX/AVG
BESS AREA	2.87	7.50	1.20	2.39	6.25	2.61
BESS AREA_1	3.05	7.80	1.30	2.35	6.00	2.56
BESS AREA_2	3.06	7.70	1.40	2.19	5.50	2.52
BESS AREA_3	3.07	8.00	1.40	2.19	5.71	2.61
BESS AREA_4	3.00	7.60	1.30	2.31	5.85	2.53
BESS AREA_5	2.80	7.80	1.00	2.80	7.80	2.79
BESS AREA_6	2.63	7.70	0.90	2.92	8.56	2.93
BESS AREA_7	3.18	7.80	1.70	1.87	4.59	2.45
BESS AREA_8	3.12	7.40	1.50	2.06	4.93	2.37
DRIVEWAYS	1.28	5.10	0.10	12.80	51.00	3.98
EAST PROPERTY LINE	0.00	0.00	0.00	-	-	-
NORTH PROPERTY LINE	0.07	0.10	0.00	-	-	1.43
SOUTH PROPERTY LINE	0.00	0.00	0.00	-	-	-
WEST PROPERTY LINE	0.00	0.00	0.00	-	-	-

GENERAL NOTES

1. SITE LUMINARIES ARE ANALYZED AT A HEIGHT OF 25 FEET FROM GRADE.
2. PHOTOMETRIC VALUES FOR THE BESS AREAS, DRIVEWAYS, AND 20' BEYOND PROPERTY LINES ARE CALCULATED AT GROUND LEVEL.
3. THE RESULTS OF THIS PHOTOMETRIC STUDY REPRESENT AN ANTICIPATED PREDICTION OF LIGHTING SYSTEM PERFORMANCE AND MAY VARY FROM STUDY RESULTS AND ARE SUBJECT TO MEANS AND METHODS BEYOND THE CONTROL OF COFFMAN ENGINEERS.
4. LUMINAIRE LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. FINAL LOCATIONS SHALL BE DETERMINED BY FINAL DESIGN ENGINEER WHEN STAMPED/SIGNED ISSUED FOR CONSTRUCTION DRAWINGS ARE DEVELOPED.
5. THE PRELIMINARY LIGHTING DESIGN AND PHOTOMETRIC CALCULATIONS SHOW THAT DESIGN IS IN COMPLIANCE WITH ADAMS COUNTY DEVELOPMENT STANDARDS, WHICH ALLOW UP TO 0.1 FOOT-CANDLES 20' BEYOND THE PROPERTY LINE.

DRIVEWAYS (TYPICAL)

PROPERTY BOUNDARY (TYPICAL)

BESS AREA

BESS AREA_1

BESS AREA_2

BESS AREA_3

BESS AREA_4

BESS AREA_5

BESS AREA_7

BESS AREA_8

BESS AREA_6

SUBSTATION
N.I.C.

Luminaire Summary

Luminaire Schedule Symbol	Qty	Label	Arrangement	LLF	Description	Tag	Luminaire Lumens	Luminaire Watts	Mounting Height
	1	DSX1 LED P6 50K 80CRI T4M EGS_1	3 @ 90 Degrees	0.700	DSX1 LED P6 50K 80CRI T4M EGS	S2	15891	165.25	25
	29	DSX1 LED P6 50K 80CRI T4M EGS	4 @ 90 Degrees	0.700	DSX1 LED P6 50K 80CRI T4M EGS	S1	15891	165.25	25

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SHEET TITLE:

SITE
PHOTOMETRIC
PLAN

SHEET NO:

E-100

0 25 50 100 150
1"=50'-0"



Prairie Pass BESS

Preliminary Drainage Report

COFFMAN PROJECT NO. 253044

April 03, 2026

**Prairie Pass Battery Energy Storage
PRELIMINARY DRAINAGE REPORT**

Coffman Project Number: 253044

PREPARED BY:

**COFFMAN ENGINEERS, INC.
11080 Circle Point Road, Suite 220
Westminster, CO 80020**

**Tim Carey
Taleen Koudsi
Brady Wiegand, P.E.
Kyle Cheesbrough, P.E.**

(720) 805-1955

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ATTACHMENTS

- A – Vicinity Map
- B – Supporting Figures
- C – Drainage Basin Maps
- D – Preliminary Hydrology Calculations
- E – Preliminary Ditch Calculations
- F – Preliminary Pipe Calculations
- G – Preliminary Culvert Calculations

PROJECT DESCRIPTION

Coffman Engineers was retained by Dudek to develop a preliminary drainage analysis for a new project in Adams County, Colorado. This report documents our team's findings for this preliminary study along with recommendations for the engineer of record to consider during final design.

The proposed Battery Energy Storage System (BESS) project is in Adams County, Colorado on a parcel approximately 39 acres in size. The required site development to support this project includes BESS and associated equipment, a project substation, a gravel access road, grading and drainage, as well as erosion and sediment control measures. The proposed project would develop a relatively flat site area with gravel surfacing to support the BESS equipment and two detention ponds sized per Adams County Stormwater requirements to the southwest.

The existing site consists of native grass used for agricultural purposes and a drainage ditch that conveys storm runoff from the northeast to the southwest where it outfalls to five existing culverts. The existing site includes structures and access roads located in the northern quarter of the parcel as well as two capped oil well setbacks to the northwest and the south. The parcel is north of the existing power generation infrastructure near the intersection of County Road 27 (Cavanaugh Rd.) and East 124th Ave. Hudson, Colorado. To the west of the site is an existing roadside ditch which services County Road 27 (Cavanaugh Rd.). Just south of the southern site entrance, there are five existing 24-inch culverts, and just north of the northern site entrance there is a single 24-inch culvert which manages the existing site's runoff and conveys it to the west. The existing grades range from 1 to 10% and slope from the northeast corner of the site to the southwest corner to existing roadside and onsite drainage ditches. An existing drainage easement maintained by the Mile High Flood District cuts through the southwest corner of the site. It is anticipated that runoff from the proposed site improvements will ultimately flow to this easement, maintaining existing drainage patterns.

The location of this project is Section 34, Township 1 South, Range 64 West, 6th Prime Meridian, Adams County, Colorado. See Attachment A for Vicinity Map.

PRE-DEVELOPMENT INFORMATION

The existing project site consists of native grass used for agricultural purposes and a drainage ditch bisecting the site from the northeast to the southwest. There are existing structures and gravel access roads to the north of the site and two existing capped oil wells are located to the east and south.

Pre-Development Basin A

This basin consists of native grass, a portion of the drainage ditch, a capped oil well, and the existing gravel access road and structures. Runoff from this basin splits and sheet flows southwest to the existing roadside ditch and southeast to the existing drainage ditch that cuts through the middle of the site. Runoff ultimately outfalls to the existing five southern culverts for conveyance. See Attachments A and D, for Pre-Development Basin Map and Pre-Development Hydrology Calculations.

Pre-Development Basin B

This basin consists of native grass in the northwest corner and southwest region of the site, as well as a single 24-inch corrugated metal pipe (CMP) culvert to the north and five 24-inch CMP culverts to the south. Runoff from the northwest portion of the basin sheet flows west toward the existing roadside ditch along Cavanaugh Road, entering the single 24-inch CMP culvert to be conveyed west. Runoff from the southwest portion sheet flows west to the existing five 24-inch CMP culverts. See Attachments A and D, for Pre-Development Basin Map and Pre-Development Hydrology Calculations.

Pre-Development Basin C

This basin consists of native grass and a portion of the drainage ditch. Runoff from this basin splits and flows west to an existing roadside ditch and southeast to the existing drainage ditch which outfalls to the existing five southern culverts. See Attachments A and D, for the Pre-Development Basin Map.

Pre-Development Basin D

This basin consists of native grass and a portion of the existing drainage ditch that bisects the site. Runoff from this basin splits and flows southwest and southeast toward the existing drainage ditch which outfalls to the existing five southern culverts. See Attachments A and D, for Pre-Development Basin Map and Pre-Development Hydrology Calculations.

	Impervious Area (Acre)			Pervious Area (Acre)	Percent Impervious	Total Area (Acres)	Total Runoff 100-Yr (cfs)
	Asphalt	Roofs	Gravel	Grass			
Basin A	0	0.09	0.71	15.93	3%	16.73	72.29
Basin C	0	0	0	2.06	0%	2.06	8.90
Basin D	0	0	0	4.40	0%	4.40	19.01

Pre-Development Culverts

There are six existing 24-inch CMP culverts which horizontally cross Cavanaugh Road (one at north crossing, five at south crossing) and provide stormwater conveyance for the proposed project location and off-site contributing areas. The culverts are assumed to receive stormwater runoff from the eastern half of Cavanaugh Road to the intersection at East 128th Avenue, the project site as well as the property to the north, see attachments for Basin Maps. These contributing areas were used to determine the total 10-year pre-development runoff as 43.58 cfs entering these culverts, see attachments D Dfor Hydrology Calculations.

The single 24-inch CMP northern culvert is assumed to convey runoff generated from off-site areas and Basin B. The five southern 24-inch CMP culverts are assumed to collect storm runoff from the off-site areas and Basins A, B, C, and D, see Hydrology Calculations. The existing culverts were found to have a total capacity to convey 175.14 cfs of runoff.

PRE-DEVELOPMENT CULVERT RUNOFF SUMMARY TABLE

	Impervious Area (Acre)			Pervious Area (Acre)	Percent Impervious	Total Area (Acres)	Total Runoff 10-Yr (cfs)
	Asphalt	Roofs	Gravel	Grass			
Basin A	0	0.09	0.71	15.93	3%	16.73	11.92
Basin C	0	0	0	2.06	0%	2.06	1.47
Basin D	0	0	0	4.40	0%	4.40	3.13
Off-Site	0	0	0.75	37.24	1%	37.99	27.06
Total						61.18	43.58

PRE-DEVELOPMENT CULVERT SUMMARY TABLE

	Length (ft)	Grade (ft/ft)	Existing Culvert Capacity (cfs)
24-Inch CMP – North	34.94	0.006	19.26
24-Inch CMP – South 1	30.15	0.021	36.03
24-Inch CMP – South 2	29.78	0.017	32.41
24-Inch CMP – South 3	30.55	0.016	31.45
24-Inch CMP – South 4	30.57	0.017	32.41
24-Inch CMP – South 5	31.15	0.009	23.58
Total Capacity			175.14

METHODOLOGY

Stormwater management should be provided in conformance with the Adams County Stormwater Drainage Design and Stormwater Quality Control Regulations and the Mile High Flood District (MHFD) standards when required. A combination of hydrographic methods is recommended to determine the storage volume and flow control requirements – each with a 100-year return frequency.

The Rational Method is recommended to determine the peak flow rate using intensities, runoff coefficients, and percent impervious values provided by Adam's County and the MHFD. The hydrologic soil group (HSG) for the site were classified as soil group C per the National Resource Conservation Service (NRCS), see attachments for supporting figures. The required detention volume was estimated as the 100-year storm event plus 50% of the total Water Quality Capture Volume (WQCV) and 1 foot of additional free board. Onsite drainage systems and detention ponds should consider the minor (5-year) storm event to ensure proper design while minimizing damage and maintenance. The Bowstring Method was then utilized to determine if the proposed detention pond volume would be adequate given an outflow rate more conservative than the pre-development peak flowrate and the maximum allowable release rate provided by Adam's County.

The existing drainage ditch manages off-site runoff from a larger contributing area and is recommended to be re-routed along the east perimeter of the project site to reduce risk of impacting the proposed BESS equipment and to maintain existing flow patterns. The proposed ditch re-route will match back into the existing drainage ditch before out-falling to the existing five southern culverts, maintaining existing drainage patterns. Runoff generated by the proposed development will not contribute to the proposed re-routed ditch, maintaining separate storm systems for the on-site and off-site hydrology.

POST-DEVELOPMENT BASIN INFORMATION

It is recommended that stormwater runoff from the post-development project be managed by two proposed on-site detention ponds, see Attachments for Post-Development Basin Maps.

Post-Development Basin A

This basin consists of most of the site improvements including the proposed access road aside from the entrances, the BESS facility, substation, a capped oil well, and the proposed northern detention pond. An existing capped oil well and its associated 50-foot by 100-foot setback are located within this basin. Filling above the southern capped oil well setback is recommended and considered acceptable, as no cut or permanent improvements are proposed over the setback area. Runoff from this basin is recommended to sheet flow southwest to a proposed northern or southern roadside ditch that is sized in accordance with Adams County requirements to convey the 10-year peak flowrate. The proposed northern roadside ditch is recommended to follow the perimeter of the site and convey water south to outfall to the northern detention pond for storage. The proposed southern roadside ditch is proposed to follow the perimeter of the existing capped oil well and is intended to convey water north to a proposed underground 18" storm culvert to be piped to the proposed detention pond. The proposed ditches are intended to convey stormwater to the northern detention pond to be managed on-site. The pond is expected to be 3.5 feet deep providing the required storage for the impervious areas and compliance with the authorities having jurisdiction (AHJ). The pond is recommended to be served by a 12" outfall pipe that discharges to the existing five southern culverts, which conveys runoff west, mimicking existing drainage patterns. The capacity of the 12" outfall should be less than the maximum allowable release rate as defined by Adams County and should be less than the pre-development peak flowrate for the design storm event. Therefore, the 12" outfall could act as an orifice throttling back the design storm event and filling the pond. Armored rip rap is recommended to be installed at the outfall for the proposed 12" pipe to minimize erosion. See Attachment D for calculations supporting these recommendations.

Post-Development Basin B

This basin consists of the proposed northern and southern access road driveways and adjacent re-graded areas. Due to the existing topography, the proposed access roads are intended to slope steeply upward to tie into the proposed gravel pad. As a result, runoff from both of the access roads and the adjacent re-graded areas is expected to drain back toward the existing roadside ditch along Cavanaugh Road. The access roads contribute only a minor amount of impervious area, and the adjacent re-graded area do not introduce any impervious surface, so neither is expected to generate a meaningful increase in runoff beyond existing conditions. Therefore, this additional flow should be considered negligible and within the capacity of the existing roadside swales. No hydrology calculations are provided for these basins; however, it is recommended that the EOR further evaluate these drainage contributions to confirm adequate capacity of the existing roadside ditch.

Post-Development Basin C

This basin consists of the proposed southern access road, two proposed roadside ditches, and a southern detention pond. Stormwater generated in this basin is recommended to sheet flow south into a northern or southern roadside ditch to be conveyed west to outfall into the proposed southern detention pond. The proposed northern roadside ditch is recommended to be split into two, the eastern portion is intended to convey water west to outfall into the proposed south entrance culvert for conveyance. The western portion of the roadside ditch is recommended to be piped directly to a proposed 6" pipe to discharge into the re-routed drainage ditch, this ditch collects a minimal amount of runoff from existing native grasses that the increased runoff to the drainage ditch is negligible. The pond is recommended to be 1.75' deep, providing the required storage and maintaining compliance with the AHJ. The pond is recommended to be served by an 8" outfall pipe that discharges to the existing five 24-inch CMP culverts, mimicking existing drainage patterns. The capacity of the 8" outfall should be equal to the maximum allowable release rate as defined by Adam's County and should be less than the pre-development peak flowrate for the design storm event. Therefore, the 8" outfall could act as an orifice throttling back the design storm event and filling the pond. Armored rip rap is recommended be installed at the outfall for the proposed 8" pipe to minimize erosion. See Attachment D for calculations supporting these recommendations.

Post-Development Basin D

This basin consists of the proposed rerouted drainage ditch and adjacent re-graded areas. Runoff generated in this basin should flow south along the rerouted drainage ditch, around the BESS improvements, to tie back into the existing drainage ditch to maintain pre-development drainage conditions. It is recommended that the EOR further evaluate offsite drainage contributions to this basin to ensure adequate conveyance capacity of the proposed channel. See the Post-Development Basin Map in Attachment C for the proposed drainage ditch routing and connection to the existing ditch.

POST-DEVELOPMENT BASIN SUMMARY TABLE

	Impervious Area (Acre)	Pervious Area (Acre)	Percent Impervious	Total Area (Acres)	Total 100-yr Runoff (cfs)	Required Storage Volume ¹ (cf)	Provided Storage Volume ² (cf)	Outfall Rates (cfs)
Basin A	13.97	2.76	63%	16.73	107.70	87,589	117,962	9.51 ³
Basin C	0.43	1.63	13%	2.06	9.45	2,118	11,503	2.06 ³
Basin D	0.00	4.40	0%	4.40	19.01	N/A	N/A	N/A

1. Required storage is determined as the 100-year volume plus 50% of the WQCV.
2. Provided storage is determined as the 100-year volume plus 50% of the WQCV plus 1-foot of additional freeboard as required.
3. Pond outfall rates determined via maximum allowable flow rate for provided pipe outfall.

Post-Development Culverts

The existing 24-inch CMP culverts along Cavanaugh Road provide conveyance for the proposed project location and off-site contributing areas. The existing off-site contributing areas are intended to remain the same throughout development; therefore, no additional runoff will be generated from these areas maintaining existing drainage patterns. The proposed project improvements are intended to increase the generated runoff from the site but will be conveyed through series of proposed roadside ditches and two detention ponds for storage. The discharge rates for both proposed detention ponds are intended to outfall at a rate lower than the maximum allowable release rate as determined by acreage and soil group. These contributing areas were used to determine the total 10-year post-development runoff as 41.76 cfs entering these culverts, see attachment D for Hydrology Calculations.

POST-DEVELOPMENT CULVERT RUNOFF SUMMARY TABLE

	Impervious Area (Acre)			Pervious Area (Acre)	Total Area (Acres)	Total Runoff 10-Yr (cfs)	Proposed Discharge Rate (cfs)
	Asphalt	Roofs	Gravel	Grass			
Basin A	0	0.09	0.71	15.93	16.73	45.28	9.51
Basin C	0	0	0	2.06	2.06	2.35	2.06
Basin D	0	0	0	4.40	4.40	3.13	3.13
Off-Site	0	0	0.75	37.24	37.99	27.06	27.06
Total					61.18	77.82	41.76

RESULTS

Hydrology Calculations

The following table summarizes the results of the preliminary basin hydrology calculations. Runoff generated is calculated using the Rational Method. The required detention volume is determined as the runoff generated from the 100-year, 24-hour storm event, 50% of the Water Quality Capture Volume (WQCV), and an additional 1 foot of freeboard. See Hydrology Calculations in Attachments.

ON-SITE STORAGE AND FLOW CONTROL REQUIREMENT SUMMARY TABLE

Basin	Pre-Development Generated 100-yr Storm (cfs)	Post- Development Generated 100-yr Storm (cfs)	Required Storage Volume ¹ (cf)	Provided Total Volume ² (cf)	Proposed Discharge Rate (cfs)
Basin A	72.29	107.70	87,859	117,962	9.51 ⁴
Basin C	8.90	9.45	2,118 ³	11,503	2.06 ⁴

1. Required storage is determined as the 100-year volume plus 50% of the WQCV.
2. Provided storage is determined as the 100-year volume plus 50% of the WQCV plus 1-foot of additional freeboard as required.
3. Bowstring Method produced a larger required storage volume than the 100-year volume for the South Basin.
4. Pond outfall rates determined via maximum allowable flow rate for provided pipe outfall.

The total projects improvements are expected to increase the required storage for the site by a total of 89,977 cf for the 100-year design storm event which is intended to be stored within the proposed northern and southern detention ponds. The proposed storage improvements are recommended to provide 129,465 cf of total storage, which is adequate for this development and meets compliance with Adam's County stormwater manual.

Basin D Re-Routed Drainage Ditch

The proposed Basin D re-routed drainage ditch is conservatively sized in accordance with Adams County requirements to convey the 100-year peak flowrate rather than the 10-year peak flowrate. The existing drainage ditch manages off-site runoff from a larger contributing area, and it is recommended to be re-routed along the eastern perimeter of the project site. Further evaluation of offsite drainage contributions is recommended by the EOR and compiling computer models such as HEC HMS for the off-site analysis may be required. The drainage ditch is recommended to capture runoff generated from Basin D and off-site hydrology and convey that runoff southwest to outfall at the existing ditch and existing culverts. The proposed re-routed drainage ditch has the calculated capacity of 164.41 cfs per Manning's Equation, which is greater than the 100-year pre-development peak flow rate of 155.52 cfs required to be maintained. See the Attachment D and E for Hydrology Calculations and Roadside Ditch Capacity Calculations.

POST-DEVELOPMENT BASIN DITCH SUMMARY TABLE

	Post-Development 100-yr Runoff (cfs)	Proposed Roadside Ditch Capacity (cfs)
Basin D Re-Routed Drainage Ditch	155.52 ¹	164.41

1. 100-Year Runoff is determined as the 100-year peak flowrate from the existing off-site contributing areas, see Basin Maps and Ditch Calculations.

Pipe Calculations

The Basin A and Basin C detention ponds are recommended to have a 12" and 8" outfall pipe, respectively. The two outfall pipes for the detention ponds were sized using Manning's Equation with contributing flow calculations determined by the Rational Method. The outfall pipes were sized to flow no more than 100-year, 24-hour maximum allowable release rate and the Pre-Development Peak Flowrate. The pipes are recommended to throttle runoff into the proposed northern and southern detention ponds, allowing stormwater to be stored before discharging to the existing culverts at a rate not exceeding the pre-development flow rate. See Pipe Calculations in Attachment F.

POST-DEVELOPMENT OUTFALL PIPE OUTFALL RATE

	Pre-Development 100-yr Runoff (cfs)	Post-Development 100-yr Runoff (cfs)	Maximum Allowable Release Rate (cfs)	Proposed Outfall Rate (cfs)
Basin A	60.97	93.33	16.73 ¹	9.51
Basin C	13.66	14.49	2.06 ¹	2.06

1. Maximum allowable release rates determined via MHFD Table 9.16

Roadside Ditch Culverts

The proposed northern and southern access entrances are intended to cross the existing roadside ditch along Cavanaugh Road. A single 24-inch culvert is proposed at each crossing to maintain conveyance and preserve pre-development drainage patterns. The maximum capacity of each culvert was determined using Manning's Equation. Further evaluation of offsite drainage contributions is recommended by the EOR and to compile computer models such as HEC HMS for the off-site analysis. See the Culvert Calculations in the Attachment G for more information.

POST- DEVELOPMENT CULVERT DISCHARGE RATE

Culvert	Required 10-yr Runoff ¹ (cfs)	Maximum Discharge Rate (cfs)
North Culvert	27.06	30.26
South Culvert	27.06	39.38

1. Required runoff is determined as the 10-year peak flowrate from the existing off-site contributing areas, see Basin Maps and Culvert Calculations.

The existing six 24-inch CMP culverts should have the capacity to handle the 10-year post-development runoff from the proposed site improvements as the existing culverts have a combined capacity of 175.14 cfs. The 10-year post-development peak flowrate is determined to be 41.76 cfs which is lower than the pre-development peak flowrate of 43.58 cfs that the existing culverts were maintaining.

CULVERT CONTRIBUTING RUNOFF SUMMARY

Total Pre-Development 10-Year Peak Flowrate (cfs)	Total Post-Development 10-Year Peak Flowrate (cfs)
43.58	41.76

Rip Rap Armoring

Larger diameter angular rock, or rip rap armoring, is recommended to be installed at all of the following locations:

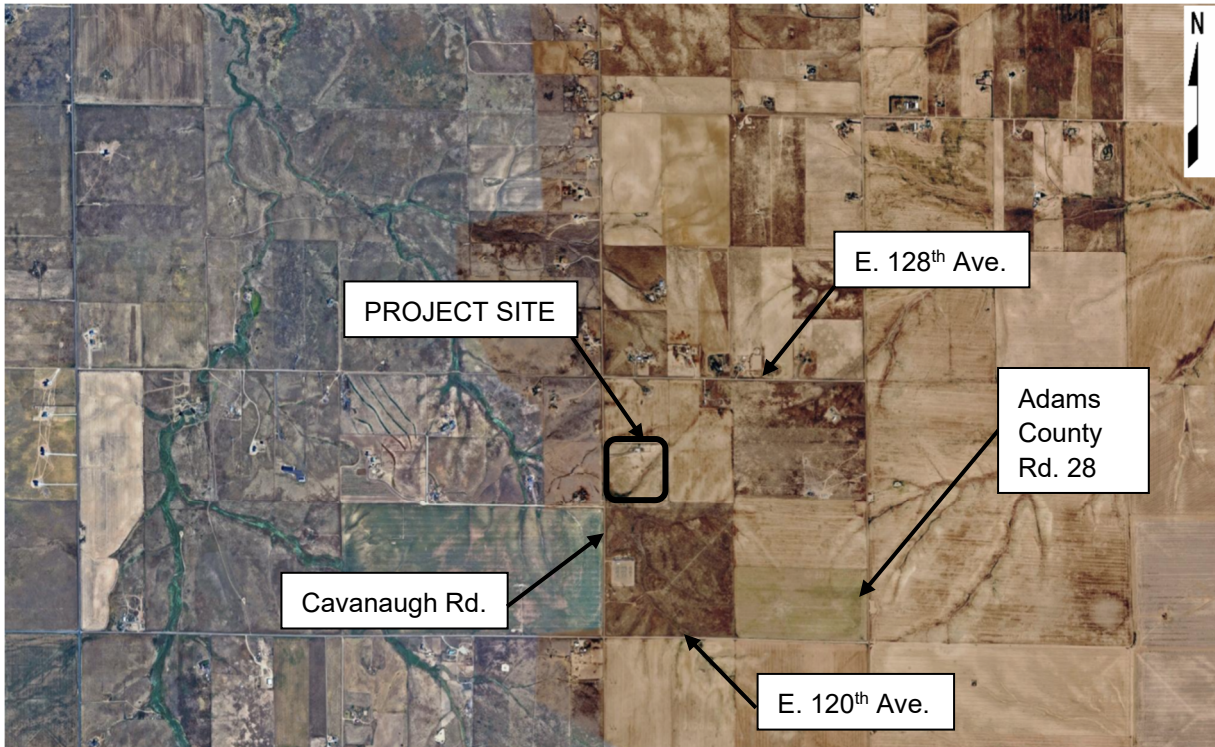
- Base of major conveyance channels
- Outfalls of pipes
- Inlets to new/existing culverts

Installing rip rap armoring at all of the locations listed will help to dissipate additional energy in the runoff generated by the proposed site improvements and will help limit erosion of the proposed stormwater management system. It is recommended that a large flat rip rap area be installed upstream of all proposed/existing culverts to help reduce velocities and settle sediment in the runoff prior to reaching the culvert. Final depth, width, and rock sizing to be determined by the engineer of record.

CONCLUSIONS

The above-described system of stormwater control provides the necessary systems to manage runoff for the proposed BESS project, if built per this report's recommendations. The proposed detention ponds would have sufficient storage volume and flow control requirements for a 100-year return frequency based on the calculations and assumptions in this report. Based on the inputs, available data, and required design methodology, if the recommendations of this manual are followed and the proper construction erosion and sediment control measures employed, impacts are not anticipated for the existing culverts or surrounding properties, adjacent site features as well as the nearby Mile High Flood District Easement. See Attachments for additional information.

ATTACHMENT A: VICINITY MAP



ATTACHMENT B: SUPPORTING FIGURES



POINT PRECIPITATION FREQUENCY (PF) ESTIMATES WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION NOAA Atlas 14, Volume 8, Version 2

PF tabular

PF graphical

Supplementary information

 Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.237 (0.189-0.298)	0.290 (0.231-0.365)	0.388 (0.309-0.491)	0.481 (0.380-0.610)	0.624 (0.483-0.837)	0.747 (0.561-1.01)	0.882 (0.638-1.22)	1.03 (0.713-1.45)	1.24 (0.826-1.80)	1.42 (0.911-2.06)
10-min	0.347 (0.277-0.437)	0.425 (0.339-0.535)	0.569 (0.452-0.718)	0.704 (0.556-0.893)	0.914 (0.707-1.22)	1.09 (0.822-1.48)	1.29 (0.935-1.78)	1.51 (1.04-2.13)	1.82 (1.21-2.63)	2.07 (1.33-3.01)
15-min	0.423 (0.338-0.532)	0.518 (0.413-0.652)	0.693 (0.551-0.876)	0.859 (0.678-1.09)	1.12 (0.863-1.49)	1.34 (1.00-1.80)	1.57 (1.14-2.17)	1.84 (1.27-2.60)	2.22 (1.47-3.21)	2.53 (1.63-3.67)
30-min	0.572 (0.457-0.721)	0.696 (0.555-0.878)	0.928 (0.738-1.17)	1.15 (0.906-1.46)	1.49 (1.15-2.00)	1.78 (1.34-2.41)	2.11 (1.53-2.91)	2.46 (1.71-3.48)	2.98 (1.98-4.31)	3.40 (2.19-4.94)
60-min	0.703 (0.561-0.885)	0.851 (0.679-1.07)	1.13 (0.899-1.43)	1.40 (1.11-1.78)	1.82 (1.42-2.45)	2.19 (1.65-2.96)	2.60 (1.88-3.59)	3.04 (2.11-4.31)	3.69 (2.46-5.35)	4.23 (2.72-6.14)
2-hr	0.834 (0.670-1.04)	1.01 (0.808-1.26)	1.34 (1.07-1.67)	1.65 (1.32-2.08)	2.16 (1.69-2.88)	2.60 (1.97-3.49)	3.08 (2.26-4.23)	3.62 (2.54-5.08)	4.41 (2.96-6.33)	5.06 (3.28-7.27)
3-hr	0.908 (0.734-1.13)	1.09 (0.880-1.36)	1.44 (1.16-1.80)	1.78 (1.42-2.23)	2.33 (1.83-3.09)	2.80 (2.14-3.74)	3.33 (2.45-4.54)	3.91 (2.76-5.46)	4.77 (3.22-6.80)	5.47 (3.57-7.82)
6-hr	1.08 (0.876-1.33)	1.28 (1.04-1.58)	1.67 (1.35-2.06)	2.04 (1.64-2.53)	2.64 (2.09-3.47)	3.16 (2.43-4.18)	3.74 (2.77-5.04)	4.38 (3.11-6.04)	5.31 (3.62-7.50)	6.08 (4.01-8.61)
12-hr	1.31 (1.08-1.60)	1.54 (1.26-1.88)	1.97 (1.61-2.42)	2.38 (1.93-2.92)	3.01 (2.40-3.90)	3.56 (2.75-4.64)	4.16 (3.10-5.54)	4.82 (3.45-6.57)	5.78 (3.97-8.06)	6.56 (4.36-9.18)
24-hr	1.56 (1.29-1.89)	1.85 (1.52-2.24)	2.36 (1.94-2.86)	2.81 (2.30-3.43)	3.49 (2.78-4.44)	4.06 (3.15-5.21)	4.66 (3.50-6.12)	5.31 (3.82-7.14)	6.23 (4.31-8.57)	6.96 (4.67-9.65)
2-day	1.79 (1.49-2.15)	2.15 (1.79-2.58)	2.76 (2.29-3.32)	3.28 (2.70-3.97)	4.02 (3.21-5.02)	4.61 (3.59-5.82)	5.22 (3.93-6.73)	5.84 (4.22-7.72)	6.70 (4.66-9.07)	7.36 (4.99-10.1)
3-day	1.96 (1.63-2.33)	2.32 (1.94-2.78)	2.94 (2.45-3.52)	3.47 (2.87-4.17)	4.22 (3.38-5.24)	4.82 (3.77-6.04)	5.43 (4.11-6.96)	6.06 (4.40-7.96)	6.92 (4.84-9.32)	7.59 (5.17-10.3)
4-day	2.09 (1.75-2.48)	2.46 (2.06-2.92)	3.07 (2.56-3.66)	3.60 (2.99-4.31)	4.36 (3.50-5.38)	4.95 (3.89-6.20)	5.57 (4.23-7.12)	6.21 (4.53-8.13)	7.09 (4.98-9.51)	7.77 (5.32-10.5)
7-day	2.38 (2.01-2.81)	2.77 (2.34-3.27)	3.42 (2.87-4.05)	3.98 (3.32-4.73)	4.76 (3.85-5.83)	5.38 (4.25-6.66)	6.00 (4.59-7.60)	6.66 (4.89-8.63)	7.54 (5.34-10.0)	8.22 (5.67-11.1)
10-day	2.64 (2.23-3.10)	3.06 (2.58-3.59)	3.75 (3.16-4.42)	4.33 (3.63-5.12)	5.14 (4.17-6.26)	5.78 (4.58-7.11)	6.42 (4.93-8.07)	7.08 (5.22-9.12)	7.96 (5.66-10.5)	8.64 (5.99-11.6)
20-day	3.38 (2.89-3.94)	3.88 (3.30-4.52)	4.68 (3.98-5.47)	5.35 (4.52-6.27)	6.25 (5.11-7.51)	6.95 (5.66-8.45)	7.64 (6.19-9.49)	8.34 (6.70-10.6)	9.25 (7.63-11.1)	9.94 (8.66-11.3)

NOAA Atlas 14

TABLE 6-2. RECOMMENDED IMPERVIOUSNESS BY LAND USE

LAND USE/DENSITY	IMPERVIOUSNESS
Residential	
Single-family Housing (SFH) – Rural (0 – 3 du/ac)	35%
SFH – Low & Medium-density (3 – 5 du/ac)	55%
SFH – High-density (5 – 20 du/ac)	65%
Manufactured Housing (>= 10 du/ac)	65%
Multi-family Housing (MFH) – Medium-density (5 – 20 du/ac)	65%
MFH – High-density MFH (>20 du/ac)	70%
Commercial	
Commercial – Low-density	65%
Commercial – Medium- to High-density	80%
Commercial – Urban Core	90%
Industrial/Institutional	
Schools	55%
Office/institutional	65%
Industrial Areas	75%
Solar Fields, Gravel Cover ^{1,2}	60%
Solar Fields, Grass Cover ^{1,2}	45%
Parks and Open Space	
Open Space, Undisturbed Native Grasses	5%
Community Parks	25%
Neighborhood Parks	15%
Golf Courses	30%
Cemeteries	25%

Note: Recommended imperviousness values shown in the table are the minimum imperviousness values for a specific land use. It is the engineer's responsibility to select imperviousness values that appropriately reflect the actual density of the proposed development.

¹ Use these values at the master planning scale or when the specific layout of panels is not known. Use values from the surface type (Table 6-3) at the site planning and design stage when panel width, panel spacing, and panel orientation relative to contours are known.

² Assumes 1:1 ratio of panels to aisles. See MHFD's technical memorandum regarding *Determination of Solar Panel Field Runoff Coefficients and Imperviousness Values* for additional information on procedures to reflect other impervious areas such as roads and pads that may be part of a solar field and layouts with wider inter-panel spacing.

TABLE 6-3. RECOMMENDED IMPERVIOUSNESS BY SURFACE TYPES

SURFACE TYPES		IMPERVIOUSNESS
Roadways and Paved Streets		95%
Concrete Driveways and Walks		95%
Roofs		95%
Gravel	No Traffic (Pedestrian Use)	40%
	Low-traffic Areas (Maintenance Paths and Substations)	60%
	High-traffic Areas (Roadways and Parking)	80%
Disturbed Soil (Including Lawns, Managed/Active Turf, Landscaped Areas with Water-Wise Vegetation, and Uncompacted Gravel/Mulch Planting Beds)		20%
Undisturbed or Decomacted Soil (Native Grasses and Open Space Areas)		5%
Artificial Turfs ¹	Landscape Applications (without Subgrade Drainage Layer)	25% – 45%
	Sport Fields (with Underdrain Pipe System)	60% – 80%
Water Surfaces (Lakes/Reservoirs/Irrigation Ponds)		100%
Solar Fields ²	Grass Cover (Varies with Panel Orientation Relative to Ground Contours)	10% – 45%
	Gravel Cover (Varies with Panel Orientation Relative to Ground Contours)	50% – 75%
Historic Flow Analysis, Greenbelts, Agricultural		5%
Newly Graded Areas		65%
Stormwater Control Measures ³	Retention Ponds & Constructed Wetland Ponds	100%
	Rooftop Systems – Blue Roofs	95%
	Rooftop Systems – Green Roofs (extensive)	65%
	Rooftop Systems – Green Roofs (intensive)	50%
	Permeable Pavement – CGP/PGP/RGP	55%
	Permeable Pavement – PICP	45%
	Extended Detention Basins	25%
	Receiving Pervious Areas (incl. Grass Buffers & Grass Swales)	20%
	Bioretention & Sand Filters	10%

¹ Consult with the manufacturer to get a recommended value.

² Assumes 1:1 ratio of panels to aisles. See MHFD's technical memorandum regarding *Determination of Solar Panel Field Runoff Coefficients and Imperviousness Values* for additional information on procedures for determining percent imperviousness based on panel width, panel spacing, and panel orientation relative to ground contours and how to reflect other impervious areas such as roads and pads that may be part of a solar field and layouts with wider inter-panel spacing.

³ See MHFD's technical memorandum regarding *Evaluation of Percent Imperviousness for Stormwater Control Measures* for background information.

Report — Map Unit Description

Adams County Area, Parts of Adams and Denver Counties, Colorado

WuE—Wiley-Adena-Renohill complex, 3 to 20 percent slopes

Map Unit Setting

National map unit symbol: 34xk
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Wiley and similar soils: 40 percent
Adena and similar soils: 30 percent
Renohill and similar soils: 15 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wiley

Setting

Landform: Hills
Landform position (three-dimensional): Base slope, side slope, nose slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

H1 - 0 to 3 inches: loam
H2 - 3 to 13 inches: clay loam
H3 - 13 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 9 to 20 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 high (0.20 to 0.60 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 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Description of Adena

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 22 inches: silty clay loam
H3 - 22 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 5 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Report — Map Unit Description

Adams County Area, Parts of Adams and Denver Counties, Colorado

AcC—Adena-Colby association, gently sloping

Map Unit Setting

National map unit symbol: 34vg
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Adena and similar soils: 40 percent
Colby and similar soils: 30 percent
Minor components: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adena

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 22 inches: silty clay loam
H3 - 22 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 5 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 (0.20 to 0.60 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 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Description of Colby

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 5 inches: loam
H2 - 5 to 56 inches: loam
H3 - 56 to 60 inches: sandy clay loam

Properties and qualities

Slope: 3 to 5 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 (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches

TABLE 6-8. RUNOFF COEFFICIENTS, C, NRCS HSG C/D

TOTAL OR EFFECTIVE % IMPERVIOUS	NRCS HSG C/D						
	WQE & 2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
2%	0.01	0.05	0.15	0.33	0.40	0.49	0.59
5%	0.03	0.08	0.17	0.35	0.42	0.50	0.60
10%	0.06	0.12	0.21	0.38	0.44	0.52	0.62
15%	0.10	0.16	0.24	0.40	0.47	0.55	0.64
20%	0.14	0.20	0.28	0.43	0.49	0.57	0.65
25%	0.18	0.24	0.32	0.46	0.52	0.59	0.67
30%	0.22	0.28	0.35	0.49	0.54	0.61	0.68
35%	0.26	0.32	0.39	0.52	0.57	0.63	0.70
40%	0.30	0.36	0.43	0.54	0.59	0.65	0.71
45%	0.34	0.40	0.46	0.57	0.62	0.67	0.73
50%	0.38	0.44	0.50	0.60	0.64	0.69	0.75
55%	0.43	0.48	0.54	0.63	0.66	0.71	0.76
60%	0.47	0.52	0.57	0.66	0.69	0.73	0.78
65%	0.51	0.56	0.61	0.68	0.71	0.75	0.79
70%	0.56	0.61	0.65	0.71	0.74	0.77	0.81
75%	0.60	0.65	0.68	0.74	0.76	0.79	0.82
80%	0.65	0.69	0.72	0.77	0.79	0.81	0.84
85%	0.69	0.73	0.76	0.80	0.81	0.83	0.86
90%	0.74	0.77	0.79	0.82	0.84	0.85	0.87
95%	0.79	0.81	0.83	0.85	0.86	0.87	0.89
100%	0.84	0.86	0.87	0.88	0.89	0.89	0.90

9-01-11-01-01

VOLUME ESTIMATES (EMPIRICAL FORMULA METHOD)

The volume available for detention storage for tributary catchments of 90 acres or less shall be based on the following empirical equations that follow. For larger catchments a CUHP hydrograph shall be generated and hydrologic routing shall be used for site detention. The maximum release rates for detention design provided in Table 9.16 shall not be exceeded.

$$V=KA$$

Equation 9.5

For the 100-year:

$$K_{100} = \frac{(1.78I - 0.002I^2 - 3.56)}{910}$$

Equation 9.6

For the 5-year:

$$K_5 = \frac{(0.77I - 2.26)}{1000}$$

Equation 9.7

In which,

- V = Required volume for the 100- or 5-year storm, acre-feet
- A = Tributary catchment area, acres
- I = Developed basin imperviousness, percent (%)

Adams County requires the WQCV be added to the 5-year detention volume. Adams County also requires that 50% of the WQCV be added to the calculated 100-year Volume.

An additional one (1)-foot of depth must be added to the overall volume to accommodate for freeboard. Administrative relief for exemptions or reductions in freeboard requirements may be granted by the County on a case by case basis as supported by sufficient technical justification. These empirical equations were developed as part of the MHFD hydrology research program and were based on a computer modeling study and represent average conditions. It is believed these equations provide consistent and effective approaches to sizing onsite detention facilities. For basins larger than 90 acres, the CUHP computer model may be used to more accurately represent site conditions.

3.0 Calculation of the WQCV

The WQCV is calculated as a function of imperviousness and BMP type using Equation 3-1 and Table 3-2, and as shown in Figure 3-1:

$$WQCV = a(0.91I^3 - 1.19I^2 + 0.78I) \quad \text{Equation 3-1}$$

Where:

WQCV = Water Quality Capture Volume (watershed-inches)

a = Coefficient corresponding to BMP type and based on WQCV design drain time (Table 3-2)

I = Imperviousness (percent expressed as a decimal) Note: At a planning level, the watershed imperviousness can be estimated based on the zoned density. When finalizing design, calculate imperviousness based on the site plan.

Table 3-2. Drain Time Coefficients for WQCV Calculations

Drain Time (hours)	Coefficient, a
12 hours (filtration BMPs and retention ponds)	0.8
24 hours (constructed wetland ponds)	0.9
40 hours (extended detention)	1.0
No attenuation (e.g., grass buffer or swale)	1.0

Figure 3-2, which illustrates the relationship between imperviousness and WQCV for various drain times, is appropriate for use in Colorado's high plains near the foothills. For areas beyond this region, use WQ-COSM (UWRI 2013) and local rainfall data to determine precipitation depth for WQCV event.

After calculating WQCV in watershed-inches, convert this to a volume using Equation 3-2. Note that the area in this equation is the entirety of the area tributary to the control measure. This is regardless of the volume treated upstream.

$$V = \frac{WQCV}{12} A \quad \text{Equation 3-2}$$

Where:

V = required storage volume (acre-feet)

A = watershed tributary area upstream (acres)

WQCV = Water Quality Capture Volume (watershed-inches)

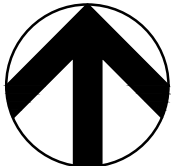
9-01-11-02 MAXIMUM ALLOWABLE RELEASE RATE

The maximum allowable release rates for the corresponding storm events (5 and 100-year) are as presented in Table 9.16.

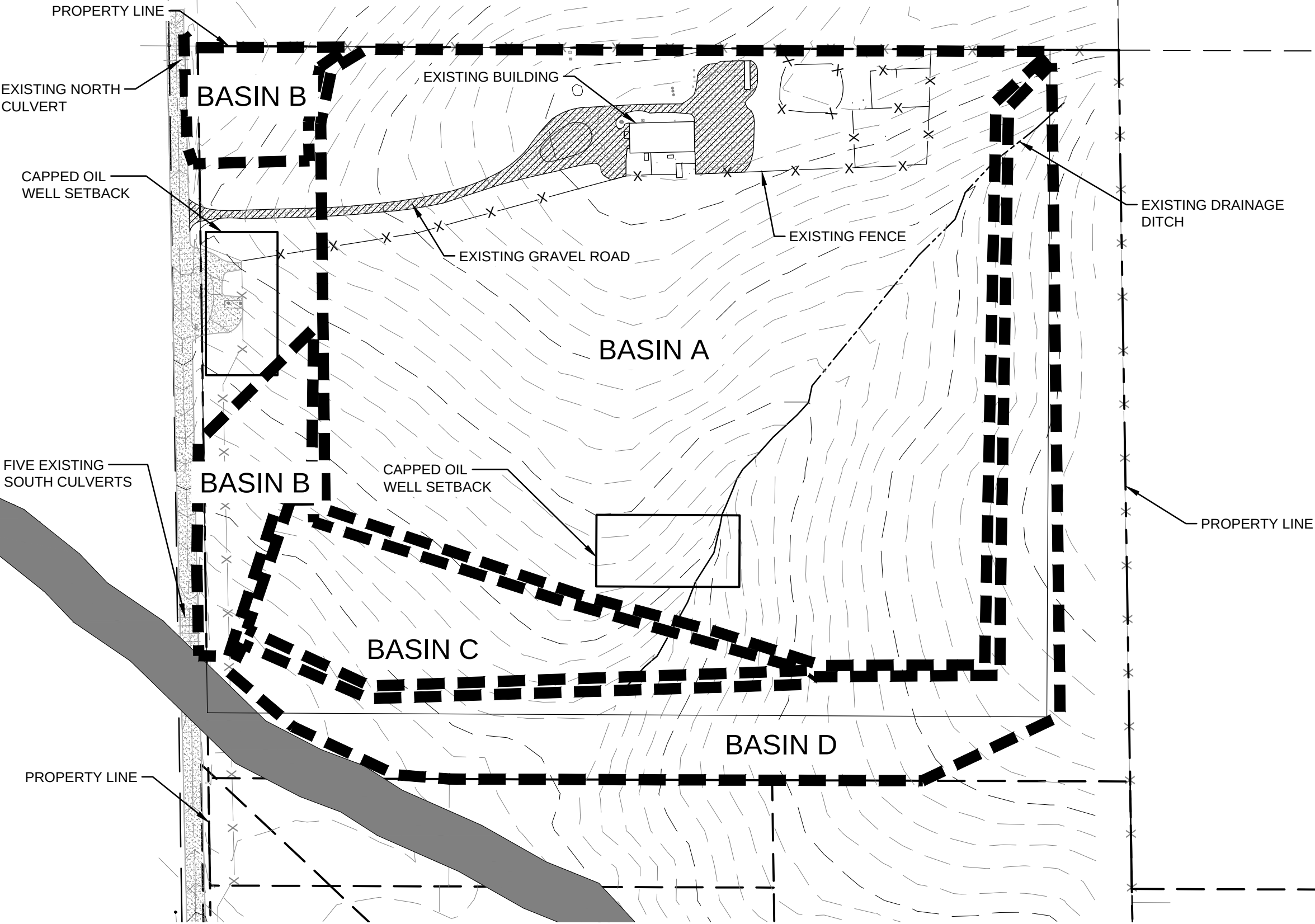
Table 9.16—Allowable Release Rates (CFS/Acre)

Control Frequency	Dominant Soil Group		
	A	B	C & D
5-year	0.07	0.13	0.17
100-year	0.50	0.85	1.00

ATTACHMENT C: BASIN MAPS

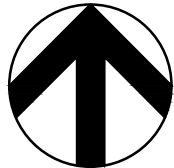


SCALE: 1"=150'

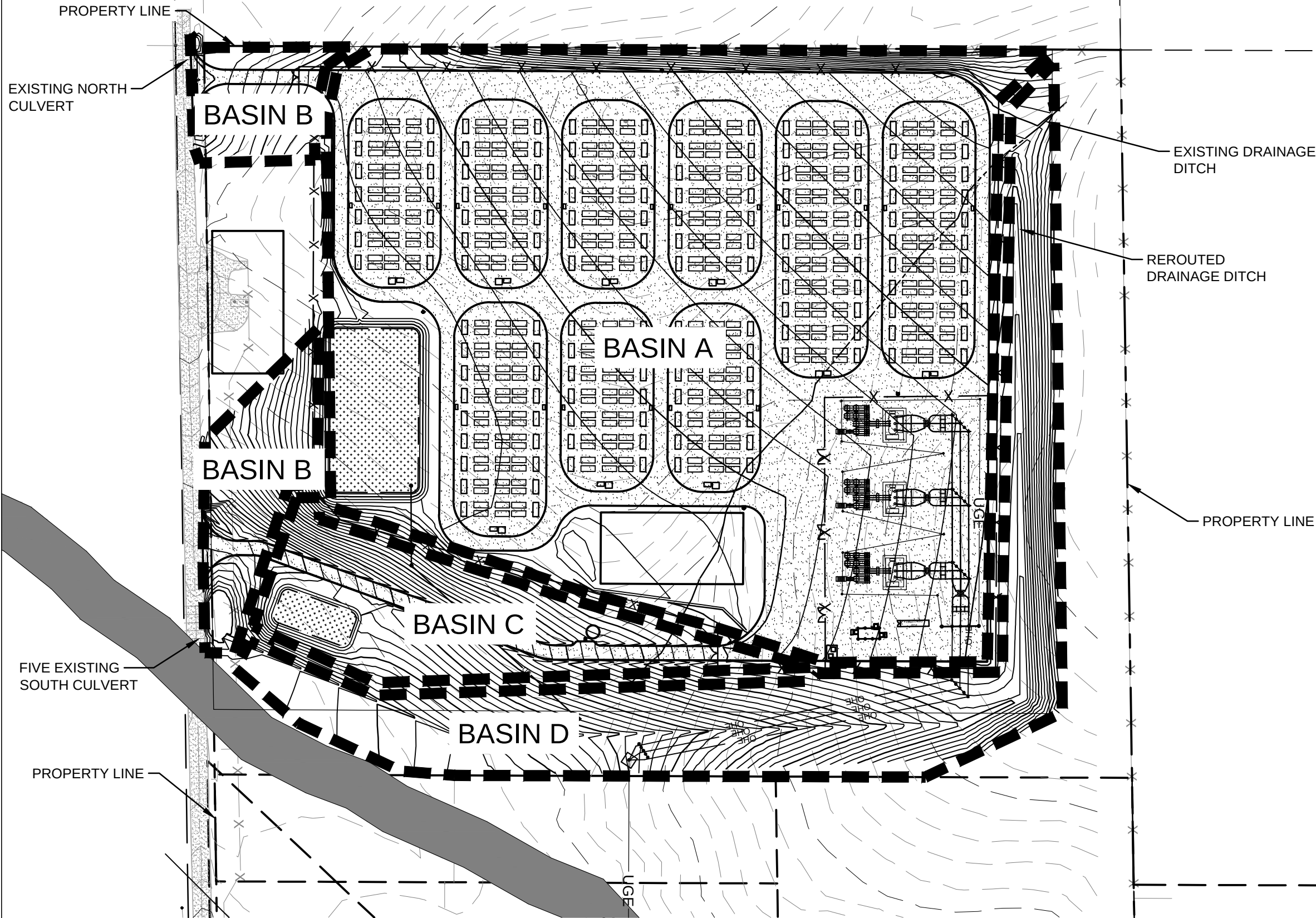


PRE-DEVELOPMENT BASIN MAP

 COFFMAN ENGINEERS 11080 Circle Point Rd. Ste 220 Westminster, CO 80020 ph 720.805.1955 www.coffman.com	project - PRAIRIE PASS DRAINAGE STUDY	by - TCK	
	location - ADAMS COUNTY, COLORADO	date - 03/27/26	
	client - DUDEK	checked - BLW	
		date - 03/27/26	



SCALE: 1"=150'

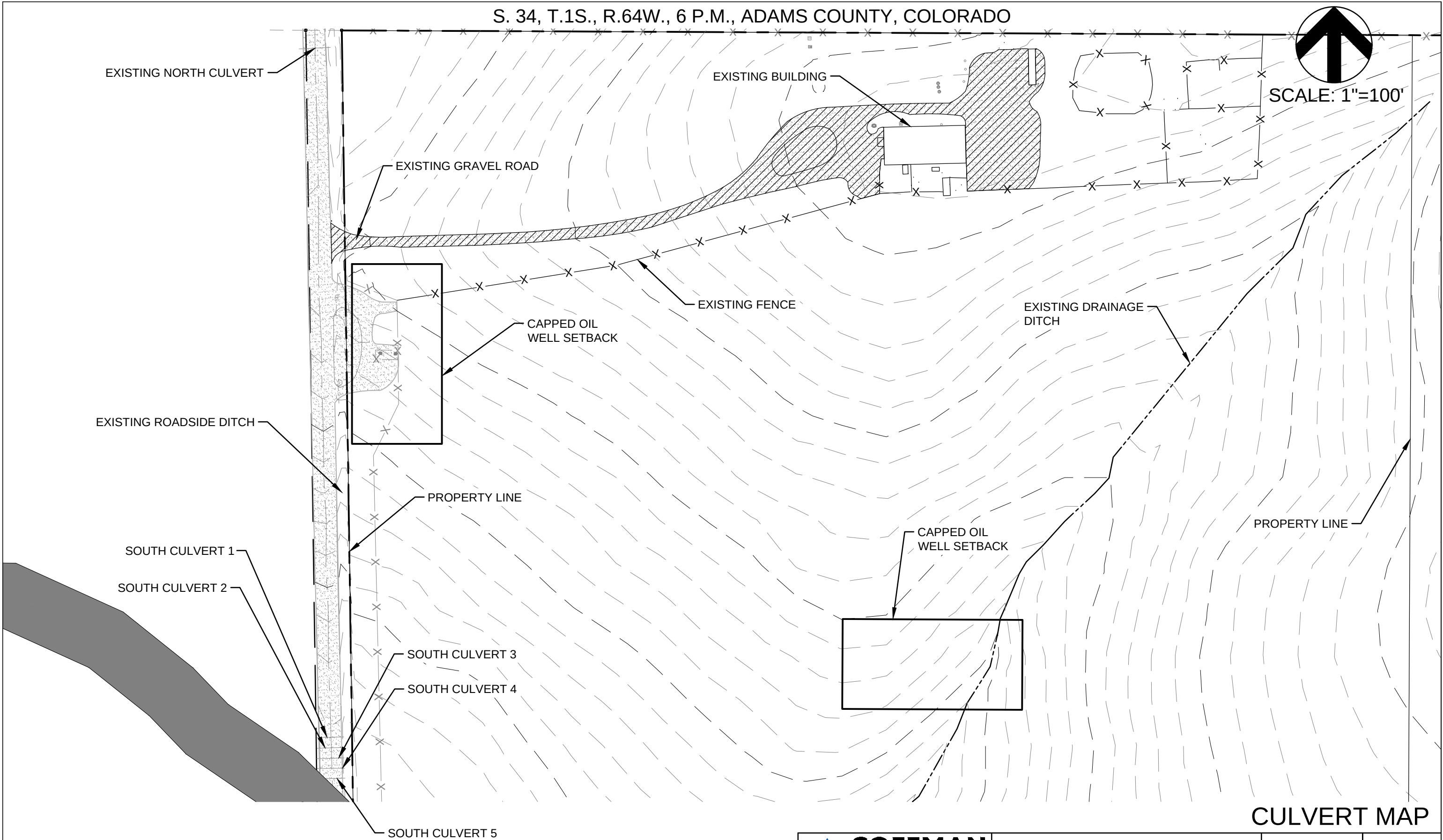


POST-DEVELOPMENT BASIN MAP

 COFFMAN ENGINEERS 11080 Circle Point Rd. Ste 220 Westminster, CO 80020 ph 720.805.1955 www.coffman.com	project - PRAIRIE PASS DRAINAGE STUDY	by - TCK	
	location - ADAMS COUNTY, COLORADO	date - 03/27/26	
	client - DUDEK	checked - BLW	
		date - 03/27/26	



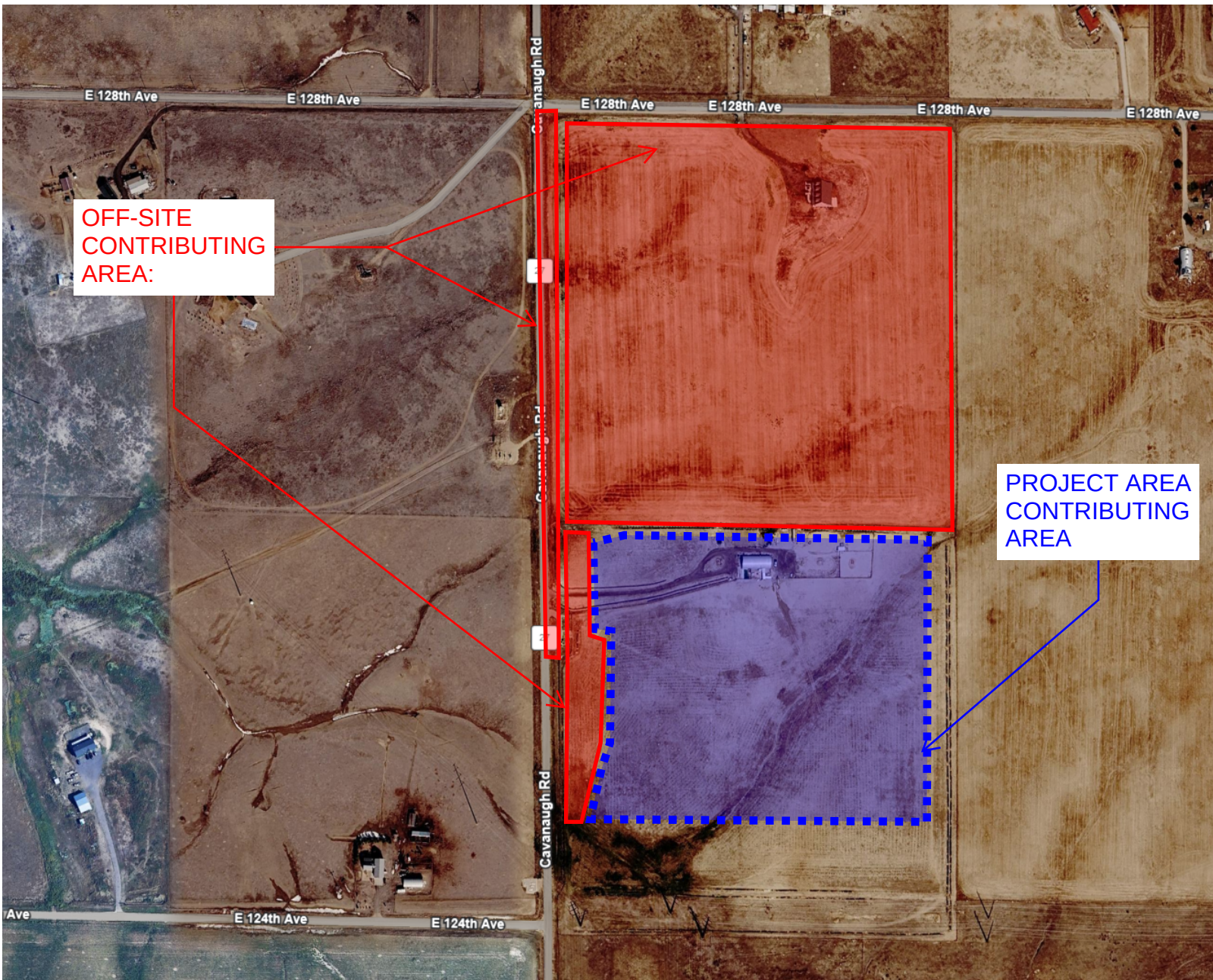
SCALE: 1"=100'



CULVERT MAP

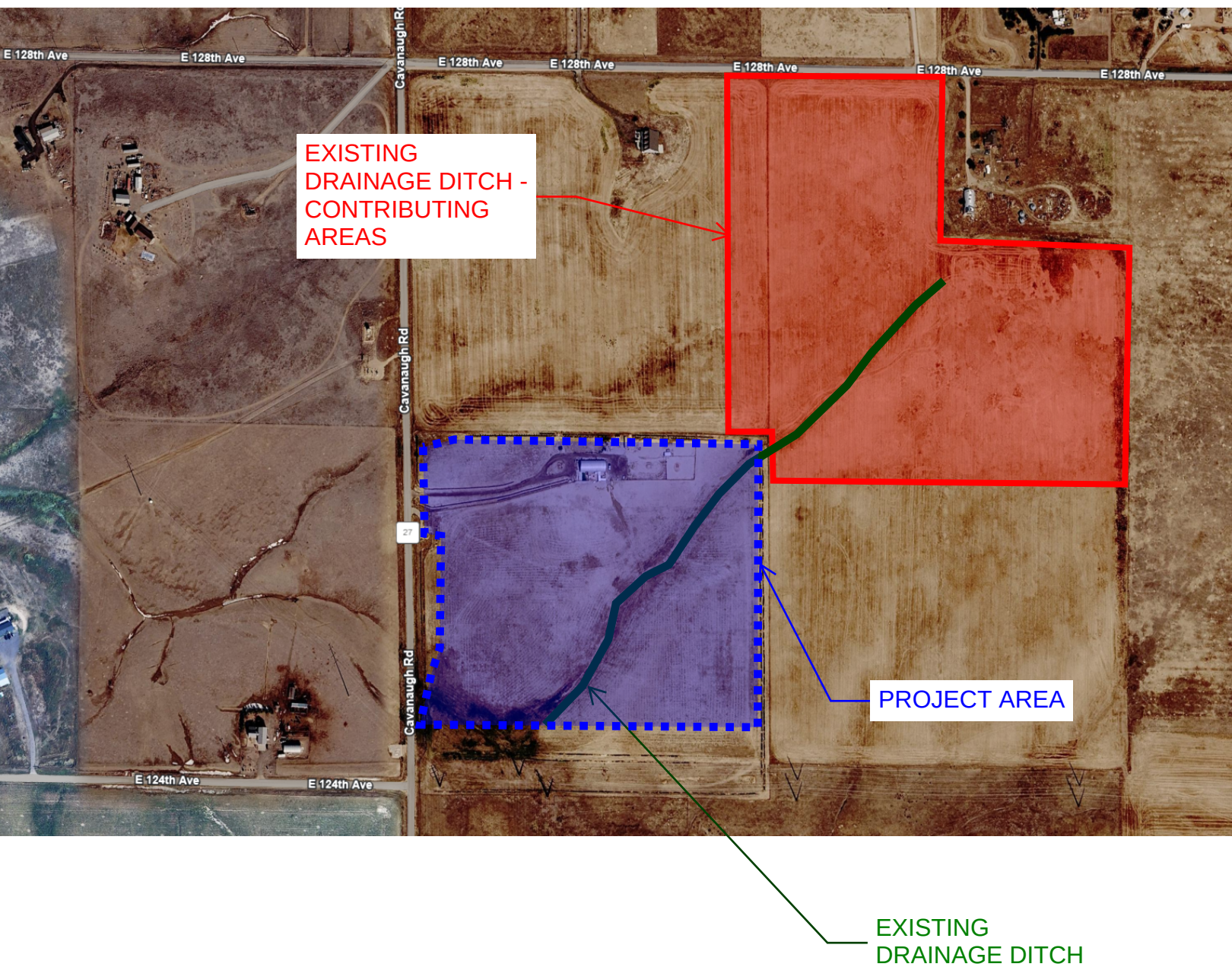
 COFFMAN ENGINEERS 11080 Circle Point Rd. Ste 220 Westminster, CO 80020 ph 720.805.1955 www.coffman.com	project - PRAIRIE PASS DRAINAGE STUDY	by - TCK	
	location - ADAMS COUNTY, COLORADO	date - 04/01/26	
	client - DUDEK	checked - BLW	
		date - 04/01/26	

EXISTING ROADSIDE DITCH AND CULVERT BASIN MAP:



BASIN B'S IMPERVIOUSNESS WAS CONSIDERED NEGLIGIBLE AND SO THE AREA WAS EVALUATED IN PRE-DEVELOPMENT OFF-SITE CONDITIONS FOR THE EXISTING ROADSIDE CUVLERTS.

EXISTING DRAINAGE DITCH BASIN MAP:



ATTACHMENT D: PRELIMINARY HYDROLOGY CALCULATIONS

100 Year Design Storm

11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

CONTRIBUTING AREAS

Site	16.73 Acres		728758.8 s.f.		
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	
Asphalt	0	0	95	0.00	Percent Impervious (%) 0.03
Sidewalks	0	0	95	0.00	
Roofs	0.09	0	95	8.55	
Gravel	0.71	0	60	42.60	
Native Grass	0	15.93	5	79.65	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	HSG - C (MHFD) Table 6-8
	<u>Impervious A</u>	<u>Pervious A</u>		<u>Percent Impervious</u>	<u>C</u>
	0.800	15.93		3.06	0.49

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	72.29

STORM WATER MANAGEMENT CALCULATIONS -

100 Year Design Storm

PROJECT: Prairie Pas
DATE: 4/1/26
BY: TCK



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Post-Development Basin A

CONTRIBUTING AREAS

Site	16.73 Acres	728758.8 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.63
Sidewalks	0	0	95	0.00	
Industrial	13.97	0	75	1047.75	
Gravel	0	0	60	0.00	
Retention Pond	0	0.66	100	66.00	
Native Grass	0	2.10	5	10.50	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	
	Impervious A	Pervious A		Percent Impervious	HSG - C (MHFD) Table 6-8
	13.97	2.76		62.63	C
					0.73

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 * P_1 / (10 + T_c)^{0.86}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	107.70

POND CALCULATIONS

Adam's County 9-01-11-01-01

Required Storage Volume	87589	cf
100-Year Storm Event + 50% WQCV (Eq. 9.5)	87589	cf
K ₁₀₀ (Eq. 9.6)	0.11	
5-Year Storm Event + 100% WQCV (Eq. 9.5)	48392	cf
K ₅ (Eq. 9.7)	0.05	
WQCV (Eq. 3-1 MHFD)	0.25	Watershed-Inches
WQCV (Eq. 3-2 MHFD)	14896	cf

Provided Treatment Volume:

Swale Number	Bottom Elevation Area (sf)	Depth to Treatment Elevation (ft)	Treatment Elevation Area (sf)	Depth to Top Elevation (ft)	Top Elevation Area (sf)	Treatment Volume (cf)	Storage Volume (cf)
1	28552.00	0.00	0	3.5	38855.00	0.00	117962.25
2	0.00	0.00	0	0.0	0.00	0	0
3	0	0.00	0	0.0	0.00	0	0
						0.00	117962.25

Adequate Storage Volume

*includes 1 foot of freeboard (Adam's County requirement)

*2.5 deep pond can store the 100-year volume.

*3.5 deep pond can store the 100-year volume + 1' of freeboard.

STORM WATER MANAGEMENT CALCULATIONS -**100 Year Design Storm**

PROJECT: *Prairie Pas*
DATE: *4/1/2026*
BY: *TCK*



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: **Post-Development Basin A**

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Time of Conc. (min) 5.00
Area (Acres) 16.73
Composite "C" 0.730
Volume Provided 117962
Outflow (cfs)
12" Culvert 9.51
Area * C" Factor 12.21

#1 Time Inc. (min.)	#2 Time Inc. (sec.) (#1*60)	#3 Intensity (in./hr.)	#4 Q dev. (cfs) (A*C*#3)	#5 V in (cu. ft.)	#6 V out (cu. ft.) (Outf.*#2)	#7 Storage (cu. ft.) (#5-#6)
5.00	300.00	8.82	107.70	43297	2853.00	40444
5	300	8.82	107.70	43297	2853.00	40444
10	600	7.03	85.91	60307	5706.00	54601
15	900	5.90	72.09	72231	8559.00	63672
20	1200	5.11	62.46	81326	11412.00	69914
25	1500	4.53	55.33	88647	14265.00	74382
30	1800	4.08	49.82	94761	17118.00	77643
35	2100	3.72	45.42	100007	19971.00	80036
40	2400	3.42	41.81	104601	22824.00	81777
45	2700	3.18	38.79	108688	25677.00	83011
50	3000	2.97	36.23	112370	28530.00	83840
55	3300	2.79	34.02	115723	31383.00	84340
60	3600	2.63	32.09	118803	34236.00	84567
65	3900	2.49	30.40	121651	37089.00	84562
70	4200	2.37	28.89	124302	39942.00	84360
75	4500	2.26	27.55	126783	42795.00	83988
80	4800	2.16	26.34	129115	45648.00	83467
85	5100	2.07	25.24	131316	48501.00	82815
90	5400	1.99	24.25	133401	51354.00	82047
95	5700	1.91	23.33	135382	54207.00	81175
100	6000	1.84	22.50	137270	57060.00	80210

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Maximum storage required by Bowstring = 84567 cf
Storage Provided = 117962 cf
Storage Volume: Adequate

BASIN: Pre-Development Basin A

CONTRIBUTING AREAS

Site	16.73 Acres	728758.8 s.f.			
	Impervious	Pervious			
	(Ac.)	(Ac.)	CN	(A*CN)	
Asphalt	0	0	95	0.00	Percent Impervious (%)
Sidewalks	0	0	95	0.00	
Roofs	0.09	0	95	8.55	0.03
Gravel	0.71	0	60	42.60	
Native Grass	0	15.93	5	79.65	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	
	Impervious A	Pervious A		Percent Impervious	C
	0.800	15.93		3.06	0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	11.92

PROJECT: Prairie Pas

DATE: 4/1/26

BY: TCK



11080 Circle Point Rd #220

Westminster, CO 80020

(720) 805-1955

BASIN: Post-Development Basin A

CONTRIBUTING AREAS

Site	16.73 Acres		728758.8 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)	
Asphalt	0	0	95	0.00	0.63	
Sidewalks	0	0	95	0.00		
Industrial	13.97	0	75	1047.75		
Gravel	0	0	60	0.00		
Retention Pond	0	0.66	100	66.00		
Native Grass	0	2.10	5	10.50	HSG - C (MHFD) Table 6-8	
Unimproved	0	0	5	0.00		
Other	0	0	5	0.00		
	Impervious A	Pervious A	Percent Impervious		C	
	13.97	2.76	62.63		0.57	

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	28.5*P ₁ /((10+Tc) ^{1.86})	Q =CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	45.28

BASIN: Pre-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres		89733.6 s.f.	
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	2.06	5	10.30
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	HSG - C (MHFD) Table 6-8 C
	0.000	2.06	0.00	0.49

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q =CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	8.90

STORM WATER MANAGEMENT CALCULATIONS -

100 Year Design Storm

PROJECT: Prairie Pass
DATE: 3/24/26
BY: TCK



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Post-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres	89733.6 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.13
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.43	0	60	25.80	
Retention Pond	0	0.13	100	13.00	
Native Grass	0	1.50	5	7.50	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	
	Impervious A	Pervious A		Percent Impervious	HSG - C (MHFD) Table 6-8 C
	0.43	1.63		12.52	0.52

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 * P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	9.45

SWALE CALCULATIONS

Adam's County 9-01-11-01-01

Required Storage Volume 2118 cf

100-Year Storm Event + 50% WQCV (Eq. 9.5)	2118	cf
K ₁₀₀ (Eq. 9.6)	0.02	
5-Year Storm Event + 100% WQCV (Eq. 9.5)	1267	cf
K ₅ (Eq. 9.7)	0.01	
WQCV (Eq. 3-1 MHFD)	0.08	Watershed-Inches
WQCV (Eq. 3-2 MHFD)	604	cf

Provided Treatment Volume:

Swale Number	Bottom Elevation Area (sf)	Depth to Treatment Elevation (ft)	Treatment Elevation Area (sf)	Depth to Top Elevation (ft)	Top Elevation Area (sf)	Treatment Volume (cf)	Storage Volume (cf)
1	5430.464	0.00	0	1.75	7715.84	0.00	11503.01
2	0.00	0.00	0	0.00	0.00	0	0
3	0	0.00	0	0.00	0.00	0	0
						0.00	11503.01

Adequate Storage Volume

*includes 1 foot of freeboard (Adam's County requirement)

*0.75 deep pond can store the 100-year volume.

*1.75 deep pond can store the 100-year volume + 1' of freeboard.

STORM WATER MANAGEMENT CALCULATIONS -**100 Year Design Storm**

PROJECT: **Prairie Pass**
DATE: **3/24/2026**
BY: **TCK**



COFFMAN
ENGINEERS

11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Post-Development Basin C

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Time of Conc. (min) 5.00
Area (Acres) 2.06
Composite "C" 0.520
Volume Provided 11503
Outflow (cfs) 2.06
Area * C" Factor 1.07

#1 Time Inc. (min.)	#2 Time Inc. (sec.) (#1*60)	#3 Intensity (in./hr.)	#4 Q dev. (cfs) (A*C*#3)	#5 V in (cu. ft.)	#6 V out (cu. ft.) (Outf.*#2)	#7 Storage (cu. ft.) (#5-#6)
5.00	300.00	8.82	9.45	3798	618.00	3180
5	300	8.82	9.45	3798	618.00	3180
10	600	7.03	7.53	5290	1236.00	4054
15	900	5.90	6.32	6335	1854.00	4481
20	1200	5.11	5.48	7133	2472.00	4661
25	1500	4.53	4.85	7775	3090.00	4685
30	1800	4.08	4.37	8312	3708.00	4604
35	2100	3.72	3.98	8772	4326.00	4446
40	2400	3.42	3.67	9175	4944.00	4231
45	2700	3.18	3.40	9533	5562.00	3971
50	3000	2.97	3.18	9856	6180.00	3676
55	3300	2.79	2.98	10150	6798.00	3352
60	3600	2.63	2.81	10420	7416.00	3004
65	3900	2.49	2.67	10670	8034.00	2636
70	4200	2.37	2.53	10903	8652.00	2251
75	4500	2.26	2.42	11120	9270.00	1850
80	4800	2.16	2.31	11325	9888.00	1437
85	5100	2.07	2.21	11518	10506.00	1012
90	5400	1.99	2.13	11701	11124.00	577
95	5700	1.91	2.05	11874	11742.00	132
100	6000	1.84	1.97	12040	12360.00	-320

BOWSTRING METHOD - REQUIRED STORAGE VOLUME

Maximum storage required by Bowstring = 4685 cf
Storage Provided = 11503 cf
Storage Volume: Adequate

BASIN: Pre-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres		89733.6 s.f.	
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	2.06	5	10.30
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	2.06	0.00	0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	1.47

STORM WATER MANAGEMENT CALCULATIONS -

10 Year Design Storm

PROJECT: Prairie Pass

DATE: 4/1/26

BY: TCK



11080 Circle Point Rd #220

Westminster, CO 80020

(720) 805-1955

BASIN: Post-Development Basin C

CONTRIBUTING AREAS

Site	2.06 Acres	89733.6 s.f.			
	Impervious	Pervious			
	(Ac.)	(Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.13
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.43	0	60	25.80	
Retention Pond	0	0.13	100	13.00	
Native Grass	0	1.50	5	7.50	
Unimproved	0	0	5	0.00	HSG - C
Other	0	0	5	0.00	(MHFD) Table 6-8
	Impervious A	Pervious A		Percent Impervious	C
	0.43	1.63		12.52	0.24

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	2.35

BASIN: Pre-Development Basin D

CONTRIBUTING AREAS

Site	4.40 Acres	191664 s.f.		
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	4.40	0.00	0.49

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q =CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	19.01

100 Year Design Storm



COFFMAN
ENGINEERS

CONTRIBUTING AREAS

Site	4.40 Acres	191664 s.f.		
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Industrial	0	0	75	0.00
Gravel	0.00	0	80	0.00
Retention Pond	0	0.000	100	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A		Percent Impervious C
	0.000	4.400		0
				0.49

Time of Conc. (min)	5.00
P ₁ (NOAA Atlas 14)	2.60 Inches
1-hour point rainfall depth	

$$\text{Intensity @ Tc (ln/hr)} = 28.5 \cdot P1 / (10 + Tc)^{.786}$$

Equation 5-1 (MHFD)
8.82

Q peak (cfs)
Q = CIA
Equation 9.4 - Adams County

BASIN:Pre-Development Basin D

CONTRIBUTING AREAS

Site	4.40 Acres	191664 s.f.		
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	4.40	0.00	0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q =CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	3.13

BASIN: Post-Development Basin D

CONTRIBUTING AREAS

Site	4.40 Acres	191664 s.f.		
	Impervious	Pervious		
	(Ac.)	(Ac.)	CN	(A*CN)
Asphalt	0	0	95	0.00
Sidewalks	0	0	95	0.00
Roofs	0	0	95	0.00
Gravel	0	0	60	0.00
Native Grass	0	4.40	5	22.00
Unimproved	0	0	5	0.00
Other	0	0	5	0.00
	Impervious A	Pervious A	Percent Impervious	C
	0.000	4.40	0.00	0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 \cdot P_1 / (10 + T_c)^{.786}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	3.13

STORM WATER MANAGEMENT CALCULATIONS -

10 Year Design Storm

PROJECT:	Prairie Pass		11080 Circle Point Rd #220
DATE:	4/2/26		Westminster, CO 80020
BY:	TCK		(720) 805-1955

BASIN: Cavanugh Road Ditch Analysis - Off-Site

CONTRIBUTING AREAS

Site	37.99 Acres	1654844.4 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.01
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.75	0	60	45.00	
Retention Pond	0	0.000	100	0.00	
Native Grass	0	37.24	5	186.20	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	HSG - C (MHFD) Table 6-8
Impervious A		Pervious A	Percent Impervious		C
0.75		37.24	1.18		0.15

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	1.40 Inches	$28.5 * P_1^{0.78}$	Q = CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		4.75	27.06

PROJECT: Prairie Pass

DATE: 4/1/26

BY: TCK



11080 Circle Point Rd #220
Westminster, CO 80020
(720) 805-1955

BASIN: Off-Site Analysis Re-Routed Drainage Ditch

CONTRIBUTING AREAS

Site	35.99 Acres	1567724.4 s.f.			
	Impervious (Ac.)	Pervious (Ac.)	CN	(A*CN)	Percent Impervious (%)
Asphalt	0	0	95	0.00	0.00
Sidewalks	0	0	95	0.00	
Industrial	0	0	75	0.00	
Gravel	0.00	0	60	0.00	
Retention Pond	0	0.000	100	0.00	
Native Grass	0	35.99	5	179.95	
Unimproved	0	0	5	0.00	
Other	0	0	5	0.00	
	Impervious A	Pervious A		Percent Impervious	
	0	35.99		0.00	
					C
					0.49

RATIONAL METHOD

Time of Conc. (min)	5.00	Intensity @ Tc (In/hr)	Q peak (cfs)
P ₁ (NOAA Atlas 14)	2.60 Inches	28.5*P ^{1/(10+Tc)} ^{8b}	Q =CIA
1-hour point rainfall depth		Equation 5-1 (MHFD)	Equation 9.4 - Adams County
		8.82	155.52

ATTACHMENT E: PRELIMINARY DITCH CALCULATIONS

POST-DEVELOPMENT RE-ROUTED DRAINAGE DITCH CAPACITY

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.032
Channel Slope	0.025 ft/ft
Normal Depth	27.0 in
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Results	
Discharge	164.41 cfs
Flow Area	19.7 ft ²
Wetted Perimeter	16.2 ft
Hydraulic Radius	14.6 in
Top Width	15.50 ft
Critical Depth	30.4 in
Critical Slope	0.014 ft/ft
Velocity	8.35 ft/s
Velocity Head	1.08 ft
Specific Energy	3.33 ft
Froude Number	1.306
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	27.0 in
Critical Depth	30.4 in
Channel Slope	0.025 ft/ft
Critical Slope	0.014 ft/ft

ATTACHMENT F: PRELIMINARY PIPE CALCULATIONS

8" South Detention Pond Outfall Pipe

Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.057 ft/ft
Normal Depth	4.8 in
Diameter	8.0 in
Results	
Discharge	2.06 cfs
Flow Area	0.2 ft ²
Wetted Perimeter	1.2 ft
Hydraulic Radius	2.2 in
Top Width	0.65 ft
Critical Depth	7.6 in
Percent Full	59.4 %
Critical Slope	0.021 ft/ft
Velocity	9.54 ft/s
Velocity Head	1.42 ft
Specific Energy	1.81 ft
Froude Number	2.930
Maximum Discharge	3.35 cfs
Discharge Full	3.12 cfs
Slope Full	0.025 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	59.4 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.8 in
Critical Depth	7.6 in
Channel Slope	0.057 ft/ft
Critical Slope	0.021 ft/ft

12" North Detention Pond Outfall Pipe

Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.096 ft/ft
Normal Depth	8.1 in
Diameter	12.0 in
Results	
Discharge	9.51 cfs
Flow Area	0.6 ft ²
Wetted Perimeter	1.9 ft
Hydraulic Radius	3.5 in
Top Width	0.94 ft
Critical Depth	11.9 in
Percent Full	67.3 %
Critical Slope	0.056 ft/ft
Velocity	16.90 ft/s
Velocity Head	4.44 ft
Specific Energy	5.11 ft
Froude Number	3.848
Maximum Discharge	12.87 cfs
Discharge Full	11.96 cfs
Slope Full	0.061 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	67.3 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.1 in
Critical Depth	11.9 in
Channel Slope	0.096 ft/ft
Critical Slope	0.056 ft/ft

ATTACHMENT G: PRELIMINARY CULVERT CALCULATIONS

24" Culvert - Northern Access Road

Project Description

Friction Method	Manning
	Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.012
Channel Slope	0.016 ft/ft
Normal Depth	19.0 in
Diameter	24.0 in

Results

Discharge	30.26 cfs
Flow Area	2.7 ft ²
Wetted Perimeter	4.4 ft
Hydraulic Radius	7.3 in
Top Width	1.62 ft
Critical Depth	22.4 in
Percent Full	79.2 %
Critical Slope	0.013 ft/ft
Velocity	11.35 ft/s
Velocity Head	2.00 ft
Specific Energy	3.58 ft
Froude Number	1.561
Maximum Discharge	33.66 cfs
Discharge Full	31.29 cfs
Slope Full	0.015 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	Dry
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	79.2 %
Downstream Velocity	∞ ft/s
Upstream Velocity	∞ ft/s
Normal Depth	19.0 in
Critical Depth	22.4 in
Channel Slope	0.016 ft/ft
Critical Slope	0.013 ft/ft

24" Culvert - Southern Access Road

Project Description	
Friction Method	Manning
Solve For	Formula Discharge
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.028 ft/ft
Normal Depth	19.0 in
Diameter	24.0 in
Results	
Discharge	39.38 cfs
Flow Area	2.7 ft ²
Wetted Perimeter	4.4 ft
Hydraulic Radius	7.3 in
Top Width	1.62 ft
Critical Depth	23.4 in
Percent Full	79.2 %
Critical Slope	0.023 ft/ft
Velocity	14.76 ft/s
Velocity Head	3.39 ft
Specific Energy	4.97 ft
Froude Number	2.031
Maximum Discharge	43.80 cfs
Discharge Full	40.71 cfs
Slope Full	0.026 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	Dry
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	79.2 %
Downstream Velocity	∞ ft/s
Upstream Velocity	∞ ft/s
Normal Depth	19.0 in
Critical Depth	23.4 in
Channel Slope	0.028 ft/ft
Critical Slope	0.023 ft/ft



LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lscdenver@lscctrans.com

April 16, 2026

Ms. Elysa Briens
Dudek
605 Third Street
Encinitas, CA 92024

Re: Prairie Pass Battery
Energy Storage System
Adams County, CO
LSC #250200

Dear Ms. Briens:

In response to your request, LSC Transportation Consultants, Inc. has prepared this trip generation letter for the proposed Prairie Pass Battery Energy Storage System (BESS). The site is located south of E. 128th Avenue and east of Cavanaugh Road in Adams County, Colorado.

INTRODUCTION

The purpose of this letter is to estimate the trip generation potential for the currently proposed land use once it is operational.

LAND USE

The site is proposed to include a battery energy storage facility with minimal trips once in operation.

TRIP GENERATION

Table 1 shows the estimated average weekday daily and peak-hour trip generation potential for ongoing operations based on information provided by the applicant.

All vehicles are expected to be light trucks.

Table 1 also shows the estimated trip generation for the site based on the ITE *Trip Generation Manual* - the Utility use (LUC #170) is the closest use to the proposed BESS use.

CONCLUSIONS

1. The temporary traffic impact during construction will be considerably higher than once the site is in operation.

2. No turn lanes are recommended at the site access or at any area intersections because the impact will be temporary and the trips are expected to be spread out over time. A site-specific traffic control plan may be appropriate at the time of construction.

* * * * *

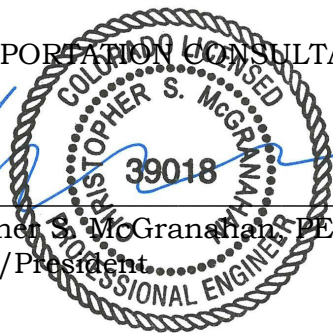
We trust this traffic impact analysis will assist you in gaining approval of the proposed Prairie Pass Battery Energy Storage System (BESS). Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By

Christopher S. McGranahan, PE
Principal/President



CSM/wc

4-16-25

Enclosure: Table 1

Table 1
ESTIMATED TRAFFIC GENERATION
Prairie Pass Battery Energy Storage System (BESS)
Adams County, CO
LSC #250200, April, 2026

Trip Generating Category	Quantity	Trip Generation Rates ^{(1) (2)}					Vehicle - Trips Generated				
		Average	AM Peak Hour		PM Peak Hour		Average	AM Peak Hour		PM Peak - Hour	
		Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
Daily Trip Generation Potential	1 BESS Site						4	1	0	0	1
Weekly Trip Generation Potential (Routine Operation)							2	1	0	0	1
Closest ITE Land Use Code to the Proposed BESS Use											
Utility ⁽²⁾	1 Employee	3.85	0.618	92.000	0.090	0.600	4	1	0	0	1

Notes:

(1) Source: Based on information provided by the Applicant because the proposed land use is not included in the ITE *Trip Generation Manual*.

(2) ITE Land Use Code #170 - Utility - based on one employee



ADAMS COUNTY
COLORADO

VARIANCE

**Community & Economic Development Department
Planning & Development**

4430 S. Adams County Pkwy., 1st Floor, Suite W2000B

Brighton, CO 80601-8218

Phone: 720.523.6800

Website: adcogov.org

A variance is a means whereby the literal terms of these standards and regulations need not be applied if there are practical difficulties or unnecessary hardships associated with the subject site. In granting a variance, the spirit of these standards and regulations shall be observed, public safety and welfare secured, and substantial justice done.

Please include this page with your submittal. Submittal instructions and more information about checklist items can be found on page 2.

- ☒ Development Application Form (pg. 3)
- ☒ Written Narrative
- ☒ Site Plan
- ☒ Proof of Ownership (warranty deed or title policy)
- ☒ Proof of Water and Sewer Services
- ☒ Legal Description
- ☒ Statement of Taxes Paid

Number of Variance Requests:

A variance may only be approved from the dimensional requirements, performance standards, and other special physical requirements contained in the Adams County development standards and regulations.

Type of Variance Request:	# of Requests:
Setback:	N/A
Height:	8
Lot Coverage:	N/A
Other:	N/A

Application Fees:	Amount:
Variance	\$500-residential \$700-non-residential <i>*\$100 per each additional request</i>

Guide to Development Application Submittal

This application shall be submitted electronically to epermitcenter@adcogov.org. If the submittal is too large to email as an attachment, the application may be sent as an unlocked Microsoft OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF, although you may provide multiple PDFs to ensure no file exceeds 100 MB. Once a complete application has been received, fees will be invoiced and payable online at www.permits.adcogov.org.

Written Narrative:

- A written explanation of the project including the existing and proposed zone district and proposed use of the property.

Scaled Site Plan:

- A site plan prepared to-scale showing at minimum: the request, any existing or proposed structures, existing and proposed setbacks of structures, any hardship, location of well, location of septic field, location of easements, surrounding rights-of-way, north arrow.
- Site plan may be hand-drawn.

Proof of Ownership (warranty deed or title policy):

- A deed may be found in the Office of the Clerk and Recorder; or
- A title commitment is prepared by a professional title company

Proof of Water and Sewer:

- Public utilities - A written statement from the appropriate water & sanitation district indicating that they will provide service to the property OR a copy of a current bill from the service provider.
- Private utilities - Well permit(s) information can be obtained from the Colorado State Division of Water Resources at (303) 866-3587. A written statement from Adams County Health Department indicating the viability of obtaining Onsite Wastewater Treatment Systems.

Legal Description:

- Geographical description used to locate and identify a property.

Statement of Taxes

- All taxes on the subject property must be paid in full. Please contact the Adams County Treasurer's Office.
- Or adcotax.com

Community & Economic
Development Department
www.adcogov.org



4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

DEVELOPMENT APPLICATION FORM

APPLICANT

Name(s): Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

OWNER

Name(s): Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

DESCRIPTION OF SITE

Address:

12500 Cavanaugh Rd

City, State, Zip:

Hudson, Colorado 80102

Area (acres or square feet):

36.06 acres

Tax Assessor Parcel Number

0156534200004

Existing Zoning:

A-3

Existing Land Use:

Agricultural

Proposed Land Use:

Battery Energy Storage Facility

Have you attended a Conceptual Review? YES ☒ NO ☐

If Yes, please list PRE#:

I hereby certify that I am making this application as owner of the above-described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name:

Andrew Bowman, President

Date:

6/17/2026

Owner's Printed Name

Name:

DocuSigned by:


7695AA5BDCBD44F...

Owner's Signature

WHAT IS A VARIANCE

and when may it be requested?

When a property owner cannot use their property in a way that meets the Adams County Development Standards & Regulations, a variance may be requested to allow the property owner to be exempt from one or more land use regulations.



A VARIANCE MAY BE REQUESTED FOR:

- ✓ Dimensional requirements
- ✓ Performance standards
- ✓ Other special physical requirements



A VARIANCE MAY NOT BE REQUESTED FOR:

- ✗ Change in use
- ✗ Change in zoning
- ✗ Amending a Planned Unit Development (PUD)
- ✗ Relief from airport overlays

How long does a VARIANCE LAST?

A variance runs with the land. If a variance is granted, a building permit must be obtained within one year.

1
YEAR

VARIANCE APPLICATION

Contact the E-Permit Center at
epermitcenter@adcogov.org or visit their website:

epermits.adcogov.org

For more information, please contact:
cedd-pod@adcogov.org | 720.523.6800

VARIANCE REQUESTS

in Adams County



STAY CONNECTED

4430 S. Adams County Pkwy., Brighton, CO 80601



/AdamsCountyGov



@AdamsCountyGov



Public Agencies



/AdamsCountyCo

Adcogov.org



ADAMS COUNTY
COLORADO

What are the criteria for APPROVAL?

A variance application is evaluated based upon the following criteria of approval (**Sec. 2-02-23-06**):

- 1 There is a physical hardship specific to the lot.
- 2 The property owner is being deprived of a right that's commonly enjoyed by other lots in the same zone district.
- 3 The variance doesn't give a special privilege to the applicant.
- 4 The property cannot be reasonably developed in conformity of the regulations.
- 5 The circumstances that cause the need for a variance are not self-imposed.
- 6 The proposal is harmonious with the neighborhood and compatible with the purpose of the regulations.
- 7 The public good and safety is not impaired.
- 8 The proposed use is allowed in the zone district and doesn't further a non-conforming use.

What is the variance REVIEW PROCESS?

APPLICATION SUBMITTAL

Application is submitted to the E-Permit Center. You can contact this office at epermitcenter@adcogov.org or visit their website at permits.adcogov.org.



FIRST REVIEW

35 calendar days for staff review and agency referral (school districts, fire districts, Colorado Department of Public Health & Environment etc.). Neighbors are also notified of the application at this time and are given the opportunity to make comments. At the end of this review period, a meeting is scheduled with the applicant to go over the review comments.

35 calendar days for the first review

EACH ADDITIONAL REVIEW

21 days. If a resubmittal is required, the application will undergo an additional round of review. This may happen several times depending on the quality of each submittal.

21 calendar days for each additional review

BOARD OF ADJUSTMENT (BOA) HEARING

BOA hearings are scheduled on the first and third Thursday of every month at 6 p.m. and are scheduled four weeks in advance. All review comments need to be resolved prior to scheduling the public hearing.

First & Third THURSDAY of every month BOA hearings are scheduled

BOA MAY VOTE TO...



Approve.

The variance is valid upon approval by the BOA.



Approve with conditions.

The BOA may attach special conditions to the variance to make sure no special privileges are being granted to the applicant.



Deny.

The variance process can take three months or longer, depending on the number of resubmittals and available Board of Adjustment hearing dates.

3
MONTHS+

If a building permit is not issued within one year of the variance approval or the use associated with the variance has not been established, the variance will expire. Extensions may be requested — see **Sec. 2-02-23-10**.

1
YEAR

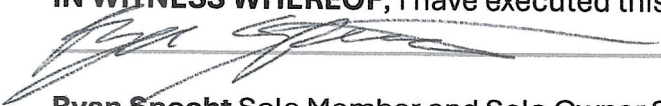
STATEMENT OF AUTHORITY

Soaring Heights LLC
STATE OF Colorado
COUNTY OF Adams

I, **Ryan Specht**, being the undersigned and duly sworn, do hereby certify and state under penalty of perjury as follows:

1. I am the **sole member and sole owner** of **Soaring Heights LLC** (the "Company"), a limited liability company duly organized and existing under the laws of the State of Colorado.
2. As the sole owner and member of the Company, I possess **full, unrestricted, and exclusive authority** to sign, execute, and deliver any and all documents, contracts, agreements, instruments, checks, promissory notes, deeds, mortgages, leases, and other writings on behalf of the Company, and to otherwise conduct, manage, and bind the Company in all business and legal matters without limitation.
3. No other person or entity has been granted, nor currently holds, any authority to bind the Company except through my express written direction. This authority arises from my position as sole member under the Company's operating agreement and the Colorado Limited Liability Company Act (C.R.S. § 7-80-101 et seq.).
4. This Statement of Authority is given to confirm and evidence my authority to third parties, including but not limited to financial institutions, governmental agencies, contractors, and other business associates.

IN WITNESS WHEREOF, I have executed this Statement of Authority on this 19th day of March, 2026.


Ryan Specht Sole Member and Sole Owner Soaring Heights LLC
19975 N Hwy 127 Garfield, AR 72732

ACKNOWLEDGMENT

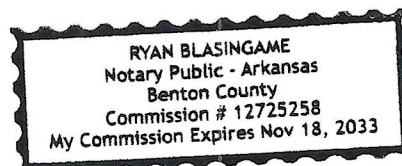
State of Arkansas County of Benton

On this 19 day of March, 2026, before me, the undersigned Notary Public, personally appeared Ryan Specht, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he executed the same for the purposes therein contained.

Notary Public

My Commission Expires: Nov 18 2033

(Seal)





Confirmation

Business Home

**Business
Information**

Business Search

**FAQs, Glossary and
Information**

Details			
Name	Soaring Heights LLC		
Status	Good Standing	Formation date	05/15/2012
ID number	20121246970	Form	Limited Liability Company
Periodic report month	May	Jurisdiction	Colorado
Principal office street address	12500 Cavanaugh Rd, Hudson, CO 80642, US		
Principal office mailing address	12500 Cavanaugh Rd, Hudson, CO 80642, US		

Registered Agent	
Name	RYAN PAUL SPECHT
Street address	12500 Cavanaugh Rd, Hudson, CO 80642, US
Mailing address	12500 Cavanaugh Rd, Hudson, CO 80642, US

I confirm that I am authorized to make changes.

Confirm

Back

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Community & Economic Development Department
4430 S. Adams County Pkwy.
1st Floor, Suite W2000B
Brighton, CO 80601
PHONE 720.523.6793
adamscountyco.gov

Property Owner Authorization Form

I/We, Ryan Specht, owner of Soaring Heights LLC, do hereby acknowledge my/our full awareness of the **Planning, Building, or Development** permit/land use applications for the reason(s) being presented on the application(s) to Adams County for the property that I/we own as follows:

Property Address: 12500 Cavanaugh Rd, Hudson, CO 80642

Assessor Parcel No.: 0156534200004

PROPERTY OWNER INFORMATION: (If more than one property owner, all property owners must be listed) (attach list)

Print Name: Soaring Heights LLC

Mailing Address: 19975 N Highway 127

Garfield

AR

72732

P.O. Box/Street Address

City/Town

State

Zip Code

Phone: 9703027426

E-mail: ryan@lazinvestments.com

APPLICANT INFORMATION:

Print Name: Praire Pass LLC

Mailing Address: 1108 Lavaca St, Suite 110-349

Austin

TX

78701

P.O. Box/Street Address

City/Town

State

Zip Code

Phone: 3392212932

E-mail: gage.fuller@jupiterpower.io

Relationship of Applicant to Property Owner (e.g. Buyer of Property/Developer/Engineer/Architect, etc.):
Applicant has a lease agreement for the owner's parcel.

OWNER CERTIFICATION AND NOTARIZATION (Form must be signed in presence of a Notary Public)

I/We hereby certify, under penalty of perjury and after carefully reading the entire contents of this document, that the information stated above is true and correct to the best of my/our knowledge.

[Signature]
Property Owner Signature

3/20/26
Date

Property Owner Signature

Date

State of Arkansas

County of Benton ss.

The above and foregoing instrument was subscribed and sworn to before me this 20th day of March, 2026.

IN WITNESS WHEREOF, I have hereto set my hand and official seal.

[Signature]
Notary Public

My commission expires: 2-1-2030



Variance Narrative – Height Exceedance

Battery Energy Storage System (BESS) Project – Adams County, Colorado

This narrative pertains to the Applicant's request for a variance from the 35-foot maximum height limit set forth in Adams County Development Standards and Regulations Section 3-10-06-05-01 for the A-3 zone district.

Prairie Pass LLC (Project) is proposing to construct and operate the Prairie Pass Energy Storage Project, a utility-scale battery energy storage system (BESS) and project substation in Adams County, Colorado. The Project would connect to the existing 230-kilovolt (kV) Xcel Energy Green Valley substation located directly adjacent to the project site to the south via a generation transmission line (gen-tie line). The Project is located within Adams County's A-3 zone district. The facility includes battery enclosures, transformers, and associated electrical and interconnection infrastructure necessary to support energy storage and delivery to the regional grid.

The Project would provide additional capacity to the electrical grid to assist with serving load during periods of peak demand by charging when demand is low and discharging when demand is high. Batteries are extremely fast acting capable of responding within fractions of a second to stabilize voltages and support a very high-quality and reliable electric grid. In addition to supporting reliability, these batteries also accommodate the future integration of intermittent renewable energy sources, such as wind and solar, and reduces the need to operate natural gas power plants to meet peak demand. This will assist the State of Colorado in meeting its greenhouse gas emissions reduction goals of 50% by 2030, and 100% by 2050, as required by Colorado's Greenhouse Gas Emission Reduction Measures bill (Senate Bill 23-016), signed into law on May 11, 2023. The Applicant conducted a conceptual review meeting with Adams County on 7/21/2025 (PRE2025-00052). The Applicant applied for two Conditional Use Permits (USE2026-00011 and USE2026-00012), one for the BESS and one for the project substation.

As part of this application, the Applicant has prepared and submitted a comprehensive height exhibit identifying the maximum height of all proposed structures and equipment across the site. This exhibit demonstrates that the vast majority of project components, including battery enclosures, transformers, and ancillary equipment, are designed to comply with the 35-foot maximum height requirement set forth in Adams County Development Standards and Regulations Section 3-10-06-05-01.

The only structures exceeding the 35-foot height limitation are lightning protection masts and transmission or interconnection line poles. Per email communication with the Adams County Community and Economic Development Department on June 9, 2026,

transmission lines can be considered “utility poles” and are thus exempt from the definition of “structures” in Adams County Development Standards and Regulations Section 11-02-597; therefore, the 35-foot maximum height requirement is not applicable to transmission lines. Accordingly, this variance request is narrowly tailored to lightning protection masts, which are essential to the safe and reliable operation of the facility and cannot feasibly be designed within the prescribed height limit. The project design will include both standalone lightning masts as well as masts affixed to the substation/transmission infrastructure. The preliminary locations of the lightning protection masts are depicted on the project Site Plan. As the project engineering design progresses, the quantity of these masts may decrease, and the locations may shift. However, if Applicant moves the mast locations, a minimum setback distance from non-participating property lines equal to the mast’s height shall be maintained.



Pictured: Standalone lightning protection mast (left) and lightning masts affixed to substation/transmission infrastructure (right)

The need for these taller structures arises from fundamental engineering, safety, and regulatory requirements that are inherent to utility-scale electrical infrastructure. Lightning protection systems must extend above the equipment they are designed to protect in order to function effectively and reduce the risk of lightning strikes damaging critical infrastructure. These requirements are not discretionary design choices, but rather are dictated by widely accepted engineering practices and safety codes. As a result, the Applicant faces a practical difficulty in adhering to the strict 35-foot height limitation while still designing a facility that meets applicable safety and operational standards.

Without the requested relief, the property cannot be reasonably developed in conformance with the regulations for its intended use. The BESS facility depends on properly designed

lightning protection systems to function safely and reliably. The requested variance therefore enables a reasonable use of the property that would otherwise be infeasible under a literal application of the height restriction.

The variance does not confer any special privilege upon the Applicant. Structures such as lightning masts commonly exceed standard zoning height limits and are routinely required components of utility and energy infrastructure projects. The requested heights reflect the minimum necessary to meet safety and performance standards and are consistent with similar facilities. The Applicant has made reasonable efforts to minimize height wherever possible, and no other project components exceed the allowable maximum.

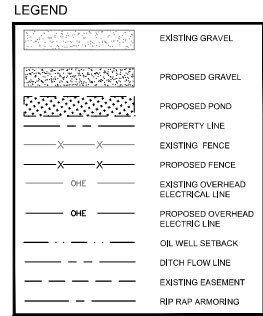
The need for the variance is not self-imposed but instead results from external technical and regulatory constraints, including established safety standards governing electrical infrastructure. These factors are inherent to the nature of the project and are not within the Applicant's control. Moreover, denying the variance would effectively deprive the property of a use that is otherwise compatible with the surrounding area and consistent with modern infrastructure development patterns.

The proposed structures will remain limited in number and footprint and are typical of rural and agricultural environments. Their presence will not materially alter the character of the surrounding area, and the project as a whole is designed to integrate into the existing landscape. In addition, the requested variance advances the public interest by supporting reliable energy infrastructure and enhancing system resiliency. Properly designed lightning protection is critical to ensuring safe operation and reducing risks associated with weather-related events.

In granting this variance, the spirit and intent of the Adams County Development Standards and Regulations will be upheld. The request is narrowly focused, supported by sound engineering justification, and necessary to secure public safety and enable reasonable use of the property. It does not impair the public good, nor does it introduce impacts that would be inconsistent with the surrounding area or County objectives.

For these reasons, the Applicant respectfully requests a variance from the 35-foot maximum height limit set forth in Adams County Development Standards and Regulations Section 3-10-06-05-01 for the A-3 zone district for the Project's lightning masts because they meet the applicable approval criteria.

Equipment Type	Maximum Height (feet)
Battery enclosures	11
PCS	11
Control enclosure	15
Main power transformer	34
Lighting poles	34
Transmission structures	Average 120
Lightning protection masts	85
Communication equipment	30
Other substation equipment	Less than 35
Fence	8

[illegible]

1. REFER TO SHEET C-001 FOR GENERAL NOTES.
2. SEE GRADING AND DRAINAGE PLAN, SHEET C-300 FOR MORE INFORMATION ON SLOPING AND STORMWATER IMPROVEMENTS.
3. FENCING TO BE 7-FOOT CHAIN LINK FENCE. INSTALL FENCING PER DETAIL 1, SHEET C-500. INSTALL 20' DOUBLE SWING GATE PER DETAIL 2, SHEET C-500.
4. INSTALL RIP RAP ARMORING IN PROPOSED CONVEYANCE DITCH. FINAL DESIGN OF RIP RAP WIDTH, DEPTH, AND ROCK SIZE BY ENGINEER OF RECORD.
5. LIGHTNING MASTS AND GANTRY TOWER MASTS WILL NOT EXCEED 85' IN HEIGHT.

PRAIRIE PASS BESS
DRAINAGE STUDY

PROJ. NO.	253044
DRAWN	LFE
CHECKED	BLW
DATE	06/18/2026

SHEET TITLE:

Know what's below.
Call before you dig.

C-400

QUIT CLAIM DEED

THIS DEED, make this 25th day of October, 2024, between the Leslie Hosmer, as designated Personal Representative of the Estate of Harold D. Hosmer, as stated in Case number 19PRO322, and LaDonna Stuckert, by her Attorney-in-Fact, Leslie Hosmer, of the First Part, and Soaring Heights LLC, a Colorado Limited Liability Company, whose legal address is P.O. Box 265, Brighton, Colorado 80601, of the County of Adams and State of Colorado, of the Second Part,

WITNESSETH, That the said party of the First Part, for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, to the said party of the First Part in hand paid by the said party of the Second Part, the receipt whereof is hereby confessed and acknowledged, has remised, released, sold, and **QUITCLAIMED** unto the said party of the Second Part, heirs, successors and assigns, forever, all the right title, interest, claim and demand which the said party of the First Part have in and to the following described lot or parcel of land situate, lying and being in the County of Adams and State of Colorado, to wit:

See attached Exhibit A

TO HAVE AND TO HOLD the same, together with all and singular the appurtenances and privileges thereunto belonging or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever, including, without limitation, in and to all of the oil, gas and other minerals in and under and that may be produced from such land, of the said party of the First Part, either in law or equity, to the only proper use, benefit and behoof of the said party of the Second Part, heirs and assigns forever.

IN WITNESS WHEREOF, the said parties of the First Part have hereunto set hand and seal the day and year first above written,

Estate of Harold D. Hosmer

Leslie Hosmer, Pers. Rep.

Leslie Hosmer, Personal
the Estate of

Representative of
Harold D. Hosmer

Leslie Hosmer, POA

Leslie Hosmer, as Attorney-in-Fact

for

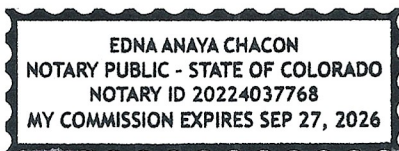
LaDonna Stuckert

STATE OF COLORADO)

County of Adams)

The foregoing instrument was acknowledged before me this 25th day of October, 2024, By Leslie Hosmer as designated Personal Representative

My Commission expires: SEP 27, 2026
WITNESS my hand and official seal



Edna Anaya
Notary Public

EXHIBIT A

A PORTION OF THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SECTION 34, TOWNSHIP 1 SOUTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS: CONSIDERING THE NORTH LINE OF THE NORTHWEST ¼ OF SAID SECTION 34 AS BEARING SOUTH 89 DEGREES 41 MINUTES 50 SECONDS EAST WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO: BEGINNING AT THE SOUTHEAST CORNER OF THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SAID SECTION 34; THENCE NORTH 89 DEGREES 47 MINUTES 36 SECONDS WEST, COINCIDENT WITH THE SOUTH LINE OF THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SAID SECTION 34, A DISTANCE OF 1287.80 FEET TO THE EAST RIGHT-OF-WAY LINE OF CAVANAUGH ROAD; THENCE NORTH 00 DEGREES 49 MINUTES 54 SECONDS WEST, COINCIDENT WITH SAID EAST RIGHT OF WAY LINE, A DISTANCE OF 1322.93 FEET TO THE NORTH LINE OF THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SAID SECTION 34; THENCE SOUTH 89 DEGREES 44 MINUTES 44 SECONDS EAST, COINCIDENT WITH THE NORTH LINE OF THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SAID SECTION 34, A DISTANCE OF 1286.05 FEET TO THE NORTHEAST CORNER OF THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SAID SECTION 34; THENCE SOUTH 00 DEGREES 54 MINUTES 31 SECONDS EAST, COINCIDENT WITH THE EAST LINE OF THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SAID SECTION

34, A DISTANCE OF 1321.89 FEET TO THE TRUE POINT OF BEGINNING,
DESCRIPTION PROVIDED BY CURTIS D. HOOS, P.L.S. 37071 APRIL 6, 2006
CONTAINING 39.060 ACRES MORE OR LESS.

Water Supply, Well Use, Sewer, Septic, and Utilities

- Prairie Pass Energy Storage (“the Project”) intends to use water delivered by truck to an on-site tank and will not require a well or water utility service for its water supply.
- The Project will use temporary, portable bathroom structures during construction and operations that will be privately serviced and will not require sewer service or septic installation.
- The Project will not be a gas utility service customer. Electric utility service will be arranged with the local service provider.

Property Legal Description

That certain real property comprised of approximately 39.06 acres located in Adams County, State of Colorado, bearing the tax identification number 156534200004, and more particularly described as follows:

SECT,TWN,RNG:34-1-64 DESC: PORT OF THE SW4 OF THE NW4 OF SEC 34 DESC AS CONSIDERING THE N LN OF THE NW4 OF SD SEC 34 AS BEARING S 89D 41M 50S E BEG AT THE SE COR OF THE SW4 OF THE NW4 OF SD SEC 34 TH N 89D 47M 36S W COINCIDENT WITH THE S LN OF THE SW4 OF





Statement Of Taxes Due

Account Number R0168645

Assessed To

Parcel 0156534200004

SOARING HEIGHTS LLC
19975 N HIGHWAY 127
GARFIELD, AR 72732-9688

Legal Description

SECT,TWN,RNG:34-1-64 DESC: PORT OF THE SW4 OF THE NW4 OF SEC 34 DESC AS CONSIDERING THE N LN OF THE NW4 OF SD SEC 34 AS BEARING S 89D 41M 50S E BEG AT THE SE COR OF THE SW4 OF THE NW4 OF SD SEC 34 TH N 89D 47M 36S W COINCIDENT WITH THE S LN OF THE SW4 OF THE NW4 OF SD SEC 34 A DIST OF 1287/80 FT TO ... Additional Legal on File

Situs Address

12500 CAVANAUGH RD

Year	Tax	Interest	Fees	Payments	Balance
Tax Charge					
2025	\$142.08	\$0.00	\$0.00	(\$142.08)	\$0.00
Total Tax Charge					\$0.00
Grand Total Due as of 04/06/2026					\$0.00

Tax Billed at 2025 Rates for Tax Area 242 - 242

Authority	Mill Levy	Amount	Values	Actual	Assessed
SD 27 BOND (Brighton)	20.0410000	\$26.87	AG DRY FARMING LAND	\$4,966	\$1,341
SD 27 GENERAL (Brighton)	36.2490000	\$48.61	Total	\$4,966	\$1,341
Taxes Billed 2025	56.2900000	\$75.48			

Tax Billed at 2025 Rates for Tax Area 242 - 242

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.7150000	\$4.98	AG DRY FARMING LAND	\$4,966	\$1,340
FIRE DISTRICT 6 - GREATER B	17.5040000	\$23.46	Total	\$4,966	\$1,340
GENERAL	23.3550000	\$31.30			
RETIREMENT	0.3140000	\$0.42			
ROAD/BRIDGE	1.3000000	\$1.74			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.34			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.13			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$1.21			
SOCIAL SERVICES	2.2530000	\$3.02			
Taxes Billed 2025	49.6980000	\$66.60			

Tax amounts are subject to change due to endorsement, advertising, or fees.
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee
4430 S Adams County Parkway, Suite W1000
Brighton, CO 80601
720-523-6160