

## Staff Report Addendum

**Date:** January 2, 2026

**To:** Douglas County Planning Commission

**From:** Eric Pavlinek, Principal Planner  
Jeanette Bare, AICP, Planning Manager  
Steven E. Koster, AICP, Assistant Director of Planning Services

**Subject:** **Hier Exemption, 1<sup>st</sup> Amendment, Parcel A2 – Lift Station and Force Main – Location and Extent – Supplemental Information**

**Project File:** LE2025-026

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**Planning Commission Hearing:** **January 5, 2026 @ 6:00 p.m.**

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The Location and Extent (L & E) application for the Town of Castle Rock to construct a new sewer lift station and force main near downtown Sedalia went out on referral and comments were provided to the applicant on December 30, 2025. The applicant has provided a response to referral responses.

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**Referral Agency Response Report****Page 1 of 7****Project Name:** Hier Exemption, 1st Amendment, Parcel A2**Project File #:** LE2025-026**Date Sent:** 12/15/2025**Date Due:** 12/29/2025

Agency	Date Received	Agency Response	Response Resolution
Addressing Analyst	12/16/2025	<b>Verbatim Response:</b> The proposed address is: 4282 DOULGAS AVENUE. This address is not to be used for any purpose other than for plan review until after this project is approved. Proposed addresses are subject to changes as necessary for 911 dispatch and life safety purposes.  Addresses are recorded by Douglas County following all necessary approvals. Contact DCAddressing@douglas.co.us or 303.660.7411 with questions.	Comments provided to applicant.
AT&T Long Distance - ROW	12/17/2025	<b>Summary of Response:</b> AT&T reviewed the request and there should be no conflicts with AT&T Long Lines.	No action required.
Building Services	12/22/2025	<b>Verbatim Response:</b> Permit is required for structure(s). Please visit Douglas County's web site for requirements and contact 303-660-7497 if you have any questions.	Comments provided to applicant.
CDPHE - Water Quality Control Division	12/18/2025	<b>Summary of Response:</b> CDPHE Air Pollution Control Division provided comments related to APEN and Regulation No. 3, odor, land development, and VOC and Hazardous Air Pollutants Analysis for small wastewater projects.	Comments provided to applicant.
CenturyLink		No Response Received.	
Chatfield Watershed Authority		No Response Received.	
Colorado Department of Transportation CDOT- Region # 1	12/15/2025	<b>Summary of Response:</b> CDOT has no objection to the request. Any work that will take place in the State Highway will require a permit.	Comments provided to applicant.
Comcast		No Response Received.	

**Project Name:** Hier Exemption, 1st Amendment, Parcel A2**Project File #:** LE2025-026**Date Sent:** 12/15/2025**Date Due:** 12/29/2025

CORE Electric Cooperative	12/29/2025	<p><b>Verbatim Response:</b></p> <p>CORE Electric Cooperative has completed its review of the above-referenced referral response packet. Our evaluation considered the potential impacts of the proposed project on existing CORE facilities, utility easements, electric loading, and service requirements. Based on this review, we provide the following comments and determinations:</p> <p><b>Approval</b> CORE Electric Cooperative approves the Location and Extent as submitted, contingent upon the applicant's compliance with all clearance, access, and safety requirements detailed below.</p> <p><b>Existing CORE Facilities</b> CORE maintains existing underground and overhead electric facilities located on the subject property. These facilities and their associated utility easements will remain in place unless the applicant formally requests modifications in accordance with CORE's current line extension policies. CORE Electric Cooperative also owns and operates an existing 115 kV transmission line and associated overhead electric facilities on the property. These facilities and their easements will be maintained. All proposed structures, grading, and landscaping must preserve the required clearances and allow CORE adequate access for ongoing operation and maintenance activities. If any grading is proposed that may affect clearances or accessibility to the 115 kV transmission line, the applicant must submit a detailed grading profile to CORE for review.</p> <p><b>Clearance Requirements</b></p>	Comments provided to applicant.
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**Project Name:** Hier Exemption, 1st Amendment, Parcel A2**Project File #:** LE2025-026**Date Sent:** 12/15/2025**Date Due:** 12/29/2025

	<p>The applicant must maintain a minimum 20-foot clearance from CORE's existing 115 kV transmission line during all construction activities. The proposed temporary construction easement may require modification to ensure compliance with this minimum clearance requirement and all applicable OSHA regulations governing work near high-voltage transmission lines.</p> <p><b>Safety Requirements</b> The applicant and all contractors working on or near CORE Electric Cooperative facilities must comply with the following safety requirements:</p> <p><b>Compliance With OSHA Regulations</b> All work near CORE's electric facilities must comply with OSHA regulations pertaining to minimum approach distances, equipment operation, and safe-work practices around energized high-voltage lines.</p> <p><b>Qualified Personnel</b> Only trained and qualified personnel may perform work in proximity to CORE facilities. Contractors must ensure all workers are trained in electrical hazard awareness and proper safety protocols.</p> <p><b>Pre-Construction Coordination</b> Prior to beginning any work near CORE infrastructure, the applicant must coordinate with CORE to review planned activities, verify clearance compliance, and address any site-specific safety considerations.</p> <p><b>Protection of CORE Facilities</b></p> <p>Construction equipment, staging areas, materials, and temporary structures must not encroach upon CORE's required clearances. Any work that may impact CORE infrastructure including excavation,</p>	
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**Referral Agency Response Report****Page 4 of 7****Project Name:** Hier Exemption, 1st Amendment, Parcel A2**Project File #:** LE2025-026**Date Sent:** 12/15/2025**Date Due:** 12/29/2025

Agency	Date Received	Agency Response	Response Resolution
		grading, or operation of tall equipment—must be coordinated with CORE in advance. Emergency Access  Access to CORE's transmission line and associated facilities must remain unobstructed at all times to ensure safe entry for maintenance or emergency response.  If you have any questions or need further coordination regarding this project, please contact me	
Dominion Water and Sanitation District		No Response Received.	
Douglas County Conservation District	12/24/2025	Please see attached letter.	Comments provided to applicant.
Douglas County Health Department	12/26/2025	Please see attached letter.	Comments provided to applicant.
Douglas County Parks and Trails	12/24/2025	<b>Verbatim Response:</b> Parks has no concerns with this project.	No action required.
Douglas County School District RE 1		No Response Received.	
Douglas Land Conservancy		No Response Received.	
Elk Ridge Estates HOA		No Response Received.	
Engineering Services	12/19/2025	<b>Summary of Response:</b> Engineering provided comments related to the permits and approval required for the project. Please also show the limits of the 100-yr floodplain on the L & E exhibit.	Comments provided to applicant.  All required permits and approvals will be obtained prior to project commencement.  The applicant updated the L & E exhibit to show the limits of the floodplain.
Hockaday Heights HOA		No Response Received.	
Indian Creek Ranch Improvement Association		No Response Received.	
Mile High Flood District		No Response Received.	
Office of Emergency Management	12/18/2025	<b>Verbatim Response:</b> No Comment.	No action required.

**Project Name:** Hier Exemption, 1st Amendment, Parcel A2**Project File #:** LE2025-026**Date Sent:** 12/15/2025**Date Due:** 12/29/2025

Open Space and Natural Resources	12/29/2025	<b>Verbatim Response:</b> <p>Thank you for providing the opportunity to comment on this location and extent. If there is potential to work with the property owner and the town to obtain a surface easement over the sewer line for a trail connection between the Town of Castle Rock and the Sedalia area, we would be interested in seeing how that would align with the overall plum creek trail that Douglas County Parks, Trails, and Building Grounds is planning.</p> <p>We did not see it mentioned in the environmental section of the L &amp; E report, but the Riparian Conservation Zone (RCZ) runs through this project area. Earthwork and impacts to vegetation within the RCZ constitute a 'take' of the Preble's meadow jumping mouse (PMJM), a species listed as threatened under the Endangered Species Act (ESA). The Town should plan to cover impacts and provide revegetation/mitigation under the Douglas County Regional Habitat Conservation Plan (HCP), as Castle Rock is a party to this HCP.</p> <p>Plum Creek is also an important wildlife corridor; it is identified as a Tier 1 wildlife resource in the County's Comprehensive Master Plan. The corridor is home to hundreds of indigenous species. Minimizing the duration of activity and the impacts to habitat will help reduce negative impacts to the wildlife that use the corridor. Swift revegetation is also helpful in minimizing the duration of impacts.</p> <p>It is likely that a Clean Water Act 404 permit will be required for this work. A state dredge and fill permit may also be required. Early consultation with Army Corps of Engineers and</p>	Comments provided to applicant.
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Project Name: Hier Exemption, 1st Amendment, Parcel A2

Project File #: LE2025-026

Date Sent: 12/15/2025

Date Due: 12/29/2025

Agency	Date Received	Agency Response	Response Resolution
		Colorado Department of Health and Environment may help streamline permitting and the project timeline. Although unlikely for this type of permit, if any fill or structure is proposed within the 100-year floodplain, a Letter of Map Revision may be required by the Federal Emergency Management Agency. None of these permits or coordination were mentioned in the environmental section of the L & E Report but are worth considering to avoid inadvertent legal violations and project delays.	
Plum Creek Water Reclamation Authority	12/23/2025	<p><b>Verbatim Response:</b>            Thank you for the review and please keep us updated if this permit adds new documents or if there are other permits that open associated with this project.</p> <p>Patou Griggs            Industrial Pretreatment Manager            303-688-1991</p>	Comments provided to applicant.
Ranch at Coyote Ridge HOA		No Response Received.	
Sedalia Property Owners Coalition		No Response Received.	
Sedalia Water & Sanitation District	12/15/2025	<p><b>Verbatim Response:</b>            SWSD is aware of this project and working with applicant on water use/location of water taps. Inclusion into the SWSD and associated fees will be required. Applicant shall facilitate meetings with SWSD to begin that process.</p>	Comments provided to applicant.
Sheriff's Office		No Response Received.	
Sheriff's Office E911		No Response Received.	
Town of Castle Rock	12/29/2025	<p><b>Verbatim Response:</b>            No Comment.</p>	No action required.
West Douglas County FD	12/15/2025	<p><b>Verbatim Response:</b>            We have carefully reviewed this proposal and have no concerns.</p>	No action required.
Wildfire Mitigation		No Response Received.	

**Referral Agency Response Report****Page 7 of 7****Project Name:** Hier Exemption, 1st Amendment, Parcel A2**Project File #:** LE2025-026**Date Sent:** 12/15/2025**Date Due:** 12/29/2025

Agency	Date Received	Agency Response	Response Resolution
Xcel Energy-Right of Way & Permits	12/16/2025	<b>Summary of Response:</b> Xcel Energy does not have conflicts with the request.	Comments provided to applicant.

## Eric Pavlinek

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**From:** annb cwc64.com <annb@cwc64.com>  
**Sent:** Wednesday, December 17, 2025 1:06 PM  
**To:** Eric Pavlinek  
**Cc:** VOHS, LENNY (lv2121@att.com); LANA SCARLETT-ROWELL (ls1762@att.com); duanew cwc64.com; jt cwc64.com  
**Subject:** Douglas Ave Sedalia, Colorado Douglas County eReferral #LE2025-026  
**Attachments:** Douglas Ave Sedalia, Colorado.jpg

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hi Eric,

This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near Douglas Ave Sedalia, Colorado. The Earth map shows the project area in red and the buried AT&T Long Line/Core Fiber Optics in yellow. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Line facilities.

Please feel free to contact us with any questions or concerns.

Ann Barnowski  
Clearwater Consulting Group Inc  
120 9th Avenue South  
Suite 140  
Nampa, ID 83651  
AnnB@cwc64.com

The attached google earth maps are intended to show approximate locations of the buried AT&T long line fiber optic cable. The maps are provided for informational purposes only. In no way should the maps be used for anything other than general guidelines as to where the fiber is or is not and any other use of these maps is strictly prohibited.

-----Original Message-----

From: epavlinek@douglas.co.us <epavlinek@douglas.co.us>  
Sent: Monday, December 15, 2025 7:34 AM  
To: annb cwc64.com <annb@cwc64.com>  
Subject: Douglas County eReferral (LE2025-026) Is Ready For Review

There is an eReferral for your review. Please use the following link to log on to your account:  
<https://apps.douglas.co.us/planning/projects/Login.aspx>

Project Number: LE2025-026

Project Title: Hier Exemption, 1st Amendment, Parcel A2 - Location and Extent

Project Summary: The applicant, Town of Castle Rock, requests approval of a Location and Extent (L & E) to construct a sewer lift station on property within Sedalia and construction of approximately 5 to 6 miles of force main to enable Sedalia's transition from individual septic systems to a centralized collection and treatment system.

This referral will close on Monday, December 29, 2025.

If you have any questions, please contact me.

Sincerely,

Eric Pavlinek

Planning Services  
100 Third Street  
Castle Rock, CO 80104  
303-660-7460 (main)





Dedicated to protecting and improving the health and environment of the people of Colorado

Eric Pavlinek  
Douglas County Planning Services  
100 Third Street Castle Rock, CO 80104

**VIA EMAIL**

RE: Douglas County eReferral (LE2025-026) Is Ready For Review

Dear Eric Pavlinek,

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 Sedalia lift station project as described in your correspondence dated December 15, 2025. 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.

**APEN and Regulation No. 3**

We note that projects similar to this proposal have included the use of engines and/or generators. In Colorado, most businesses that are or will be emitting air pollutants above certain levels are required to report those emissions to the Division by completing an Air Pollutant Emissions Notice (APEN). This is a two in one form for reporting air emissions and to obtain an air permit, if a permit will be required. While only businesses that exceed the AQCC reporting thresholds are required to report their emissions, all businesses - regardless of emission amount - must always comply with the Colorado AQCC regulations, found here <https://cdphe.colorado.gov/aqcc-regulations>. APEN and permit reporting thresholds are provided at

<https://cdphe.colorado.gov/apens-and-air-permits/pen-and-permit-threshold-table>.

A permit may not be required if it meets the following criteria:<sup>1</sup>

- Is a stationary internal combustion engine that is an emergency power generator that operates no more than 250 hrs/year; or
- Is a stationary internal combustion engine with uncontrolled actual emissions less than 5 tons per year for each individual criteria pollutant emitted; or
- Is a stationary internal combustion engine with manufacturer's site-rated horsepower of less than 50

For additional information on exemptions and permitting requirements, please visit <https://cdphe.colorado.gov/apens-and-air-permits/common-apen-or-air-permit-exemptions>.

<sup>1</sup> APEN or Permit Exemptions, CDPHE,

<https://cdphe.colorado.gov/apens-and-air-permits/common-apen-or-air-permit-exemptions>



## **VOC and Hazardous Air Pollutants (HAPS) Analysis for Small Wastewater Projects**

An Air Pollutant Emissions Notice (APEN) for VOC and HAPS may be required depending on the existing and new throughput of your facility. Municipal wastewater projects may use the following chart to estimate VOC and HAPs emissions in order to determine if they are required to submit an APEN under Regulation Number 3.

Pollutant	Emission Factor Lb/MM gallon	Reporting Threshold
VOC	3.49414	1 ton/year OR 2 ton/year
Hexamine	0.41207	250 lbs/year
Perchloroethylene	0.00890	
Benzene	0.22873	
Toluene	0.00267	
Total Xylene	0.00267	
Ammonia	19.0000	

## **Odor**

All businesses in Colorado are subject to AQCC Regulation Number 2 (Odor Emission) and a permit may be required for the installation of odor control equipment. Please refer to AQCC Number 2 for guidance on odor suppression actions. You may also view the complete regulatory language at <https://cdphe.colorado.gov/aqcc-regulations>.

## **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 regulation 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.

Control Options for Unpaved Roadways	
Watering	Use of chemical stabilizer
Paving	Controlling vehicle speed
Graveling	
Control Options for Mud and Dirt Carry-Out Onto Paved Surfaces	
Gravel entry ways	Washing vehicle wheels
Covering the load	Not overfilling trucks
Control Options for Disturbed Areas	
Watering	Application of a chemical stabilizer
Revegetation	Controlling vehicle speed
Compaction	Furrowing the soil
Wind Breaks	Minimizing the areas of disturbance
	Synthetic or Natural Cover for Slopes

Please refer to the website <https://cdphe.colorado.gov/apens-and-air-permits> for information on land use APENs and permit forms. Click on “Land Development” to access the



land development specific APEN form. Please contact KC Houlden, Construction Permits Unit Supervisor, at 303-691-4092, [kenneth.houlden@state.co.us](mailto:kenneth.houlden@state.co.us) if you have any specific questions about APENs and permit forms.

If you have any other questions or need additional information, please use the contact info listed above, or e-mail or call me directly. Thank you for contacting the Air Pollution Control Division about your project.

Sincerely,  
Brendan Cicione  
Air Quality and Transportation Planner  
General SIP Unit  
Air Pollution Control Division  
Colorado Department of Public Health and Environment  
303-691-4104 // [brendan.cicione@state.co.us](mailto:brendan.cicione@state.co.us)





www.douglas.co.us

Department of Community Development  
Planning Services

## REFERRAL RESPONSE REQUEST – LOCATION AND EXTENT

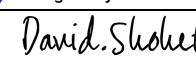
Date sent: December 15, 2025Comments due by: December 29, 2025

**Project Name:** Hier Exemption, 1st Amendment, Parcel A2 – Location and Extent

**Project File #:** LE2025-026

**Project Summary:** The applicant, Town of Castle Rock, requests approval of a Location and Extent (L & E) to construct a sewer lift station on property within Sedalia and construction of approximately 5 to 6 miles of force main to enable Sedalia's transition from individual septic systems to a centralized collection and treatment system.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

<input type="checkbox"/>	No Comment
<input type="checkbox"/>	Please be advised of the following concerns:  _____  _____
<input checked="" type="checkbox"/>	See letter attached for detail.
<b>Agency:</b> Douglas County Conservation District	<b>Phone #:</b> (303) 218 - 2622 <small>Signed by:</small>
<b>Your Name:</b> David Shohet, President  (please print)	<b>Your Signature:</b>  <small>6E6057C6E3D2404...</small>
	<b>Date:</b> 12/23/2025

A public hearing on this request will be held before the Douglas County Planning Commission on Monday, January 5, 2026, at 6:00 pm. See the County website or contact the Planning Department for instructions on how to participate.

Sincerely,

*Eric Pavlinek*

Eric Pavlinek, Project Planner  
Enclosure



**DOUGLAS**  
—CONSERVES—

**DOUGLAS COUNTY CONSERVATION DISTRICT**

PO Box 688 / 7519A E. Hwy 86 Franktown, CO 80116 / Phone 303-218-2622

DATE: December 29, 2025

RE: LE2025-026

The Douglas County Conservation District provides development responses for Douglas County in accordance with Senate Bill 35. District comments are made on the suitability of soils for the proposed land uses, floodwater management, and watershed protection. In addition, the District submits advisory comments regarding rural water supply issues, agricultural land use conversion, and endangered species protection if the development plan affects those issues.

The Douglas County Comprehensive Master Plan, Section 9 Wildlife designates this area as High Habitat Value due to the location within the Wildlife Movement Area, Wildlife Crossing Area, and the Overland Connection. "Wildlife is one of the most valuable community assets." (enclosed Section 9).

According to U.S.D.A. Natural Resources Conservation Service (NRCS) soils survey (enclosed soil report Pages 37 - 40), the rock and sediment units in this Area of Interest are very limited for sewage lagoons due to flooding, and roads due to shrink-swell soil properties, slope, and depth to hard bedrock. Due to the limitations on the above soils on the site, alternatives to mitigate the limitations of the soil will be required in your engineering design or construction techniques.

Topsoil should be stripped to a depth of 6 inches and all stockpiles should have side slopes no steeper than 3:1 and seeded. All disturbed areas should be seeded and mulched with weed free hay mulch at 4,000 lbs. /acre. Recommended seeding dates for Colorado are November 1 to May 1, when the soil is not frozen. Grasses should be seeded when soil moisture and temperature are optimum for germination, unless a dormant planting is desired. Grass seed should be drilled at a depth of  $\frac{1}{4}$  to  $\frac{1}{2}$  inch deep and if broadcasted, double the seeding rate. For more information on grass seed selections and seeding rates please contact the Douglas County Conservation District.



**DOUGLAS**  
—CONSERVES—

**DOUGLAS COUNTY CONSERVATION DISTRICT**

PO Box 688 / 7519A E. Hwy 86 Franktown, CO 80116 / Phone 303-218-2622

The District recommends disturbed land be mulched or revegetated within 45 days of disturbance.

The District recommends using a phased grading approach. By limiting the area being graded to 15 acres or less and seeding with native grasses the land area disturbed is minimized. The development site is 15.9 acres.

There is no Integrated Noxious Weed Control Plan and it is recommended that an integrated weed management program be reviewed and approved by the Douglas County Weed Inspector and/or Weed Advisory board, the County Extension Agent, NRCS, or a qualified weed management professional prior to the land use authority approval.

Vehicle tracking control stations need to be installed at all entrance and exit points on the site. The station should consist of a pad of 3 to 6-inch rock or a vehicle control pad/mat to strip mud from tires prior to vehicles leaving the construction site to prevent spreading of noxious weeds.

The channels of many of the major streams are not stable and undergo substantial shifts in alignment during flood events. Upstream development increases the magnitude and frequency of local flooding. Floods that exceed the computed 100-year storm do regularly occur. The District does not support development proposals that are located in or near drainages or development that disturbs wetlands. FEMA Map enclosed.

Silt fences or other forms of erosion barriers need to be planned and installed as a temporary sediment control device used on construction sites to protect water quality.

The District strongly recommends that Low Impact Development (LID) techniques be implemented for economic and conservation benefits.

Thank you for the opportunity to review this project. Direct any questions to Heather Kelly, District Manager, at [Admin@DouglasConserves.org](mailto:Admin@DouglasConserves.org) or (303) 218 – 2622.

# WILDLIFE

## SECTION 9



### INTRODUCTION

Wildlife is one of the most valuable community assets. Preservation of wildlife habitat enriches the human experience by providing beautiful vistas and vital links to natural systems such as watersheds for Douglas County residents. The existence of wildlife is entirely dependent upon the existence of sufficient wildlife habitat.

Douglas County accommodates the long-term needs of wildlife by creating a habitat plan based on an ecosystem model. The County model relies on a system of large, core-habitat areas connected by movement corridors to various habitat types dispersed throughout the county. The CMP also acknowledges the importance of smaller habitat areas and corridors, including the open areas within residential lots. This model uses a three-tiered approach to prioritize habitat needs for wildlife:

- **TIER 1: COUNTY/REGIONAL**

Countywide or regional (extending beyond the County) habitat areas. These areas and connections are prioritized at the highest level of importance. Countywide habitat includes large blocks of land connected by wide, multi-directional connections. Examples include the Pike National Forest; Daniels Park; Highlands Ranch Backcountry Wilderness; and the series of corridors that connect these areas such as Plum Creek and the 2,000-foot wide DuPont corridor which crosses US Highway 85.

- **TIER 2: LOCAL**

Local- or community-level areas are moderately-sized wildlife habitat areas contained within, or shaped by, development. These habitat areas and connections are prioritized at a moderate level of importance. The wildlife habitat and corridor plan within Castle Pines Village is an example. Integral wildlife movement corridors are generally 300 feet wide.

- **TIER 3: PARCEL**

Parcel-level habitat or connections are found within individual residential lots, small commercial sites, or small neighborhoods. These habitat areas are given the lowest priority. Land fragmentation, impacts to natural systems, changes in vegetation, and disturbance reduce the value of such habitat. However, wildlife uses these areas, so the cumulative value of parcel-level habitat must not be discounted totally.

The land use review process in Douglas County seeks to identify, minimize, and mitigate impacts to wildlife and the various tiers of wildlife habitat. Stricter review and mitigation of development and other land uses is required of applications in, or adjacent to, important wildlife resources, including moderate or high-value wildlife habitat areas, wildlife habitat conservation areas, movement corridors and overland connections as designated on the Wildlife Resources Map. Efforts to educate and assist residents about proper land management and living alongside wildlife are beneficial to sustaining healthy populations of wildlife.

## SECTION 9 WILDLIFE, WILDLIFE HABITAT, AND MOVEMENT CORRIDORS

## FUNDING OPEN SPACE AND HABITAT

Douglas County has thousands of acres of protected land. Much of that land was purchased or protected through open space funding that was secured through the passage of a sales tax in 1994. Douglas County Open Space acquisition dollars used in habitat protection have been leveraged almost 3 to 1 through partnerships and grants.

In 1998, Douglas County bonded its open space sales tax money primarily to facilitate acquisitions. Between 1995 and 2018, over 63,000 acres of open lands were permanently protected. Of this total, Douglas County owns approximately 17,000 acres in fee title. Over 44,000 acres are protected through conservation easements. The County contributed to the acquisition and preservation of almost 2,000 acres owned by other agencies. As acquisition money dwindles, the pace of protection also slows. Douglas County relies more on partnerships with other agencies, citizen groups, landowners, and developers to conserve additional open lands and wildlife habitat.

The County also works to conserve additional wildlife habitat through alternative means, including mitigation of land use impacts and the restoration and improvement of existing habitat. For more information on the protected lands within Douglas County, please visit [www.douglas.co.us/openspace](http://www.douglas.co.us/openspace).



## WILDLIFE RESOURCES

### GOAL 9-1

PROTECT AND ENHANCE WILDLIFE HABITAT AND MOVEMENT CORRIDORS AND FOSTER WILDLIFE CONSERVATION.

#### OBJECTIVE 9-1A

MAINTAIN HEALTHY ECOSYSTEMS WITHIN THE COUNTY BY ESTABLISHING, MAINTAINING, BUFFERING, AND IMPROVING A SET OF CORE HABITAT AREAS, SUCH AS HABITAT CONSERVATION AREAS (HCAs), CONNECTED BY MOVEMENT CORRIDORS AND OVERLAND CONNECTIONS AS SHOWN IN THE WILDLIFE RESOURCES MAP.

##### POLICY 9-1A.1

Identify important habitat and movement corridors on the Wildlife Resources Map; revise the map to reflect changes over time.

##### POLICY 9-1A.2

Develop partnerships to conserve additional habitat and manage and improve existing habitat.

##### POLICY 9-1A.3

Protect important wildlife habitat, habitat conservation areas (HCAs), movement corridors and overland connections.

#### OBJECTIVE 9-1B

MINIMIZE IMPACTS TO WILDLIFE BY ENSURING THAT DEVELOPMENT AND LAND USE ARE COMPATIBLE WITH WILDLIFE, WILDLIFE HABITAT, AND MOVEMENT CORRIDORS.

##### POLICY 9-1B.1

Identify important wildlife habitat, habitat conservation areas (HCAs), movement corridors, and overland connections, as designated on the Wildlife Resources Map in applicable land use applications. Evaluate the potential impact of the proposed change in land use on wildlife and habitat. The identified design solutions should be appropriate to the scale and intensity of the proposed land use.

## SECTION 9 WILDLIFE, WILDLIFE HABITAT, AND MOVEMENT CORRIDORS

**POLICY 9-1B.2**

Consider wildlife opportunities on neighboring lands, as well as a countywide scale, when evaluating land use applications.

**POLICY 9-1B.3**

Link wildlife habitat and movement corridors, wherever possible.

**POLICY 9-1B.4**

Locate development outside of important wildlife habitat and movement corridors.

**POLICY 9-1B.5**

Balance the location and design of transportation infrastructure with accommodation of wildlife habitat and movement values.

**POLICY 9-1B.6**

Minimize fencing that is exclusionary or dangerous to wildlife, except when necessary for human safety, commercial and industrial uses, protection of at-risk crops, and domestic animal containment. All other fencing should be wildlife friendly.

**POLICY 9-1B.7**

Require development to appropriately revegetate degraded and disturbed lands with native or beneficial vegetation and wildlife-friendly species in important wildlife habitat and movement corridors.

**POLICY 9-1B.8**

Require noxious weed management plans and encourage Integrated Pest Management (IPM) for new development.

**POLICY 9-1B.9**

Require habitat restoration, improvement, and management practices such as restoration of native or beneficial flora; stream stabilization; erosion control; maintenance of residual cover during the winter; and proper pasture management on new development and special uses, as appropriate.

**OBJECTIVE 9-1C**

SUPPORT PUBLIC AND PRIVATE PROGRAMS THAT FOSTER WILDLIFE CONSERVATION.

**POLICY 9-1C.1**

Support incentives and programs to foster conservation.

**POLICY 9-1C.2**

Support measures to educate landowners and homeowners about the impacts of domestic animals on wildlife, impacts of feeding wildlife, as well as measures that improve wildlife habitat and species success.

**OBJECTIVE 9-1D**

SUPPORT THE MANAGEMENT OF WILDLIFE POPULATIONS TO MAINTAIN VIABLE POPULATIONS, SPECIES HEALTH, AND TO MINIMIZE CONFLICTS BETWEEN PEOPLE AND WILDLIFE.

**POLICY 9-1D.1**

Support efforts by Colorado Parks and Wildlife and the US Fish and Wildlife Service to manage wildlife populations.

**POLICY 9-1D.2**

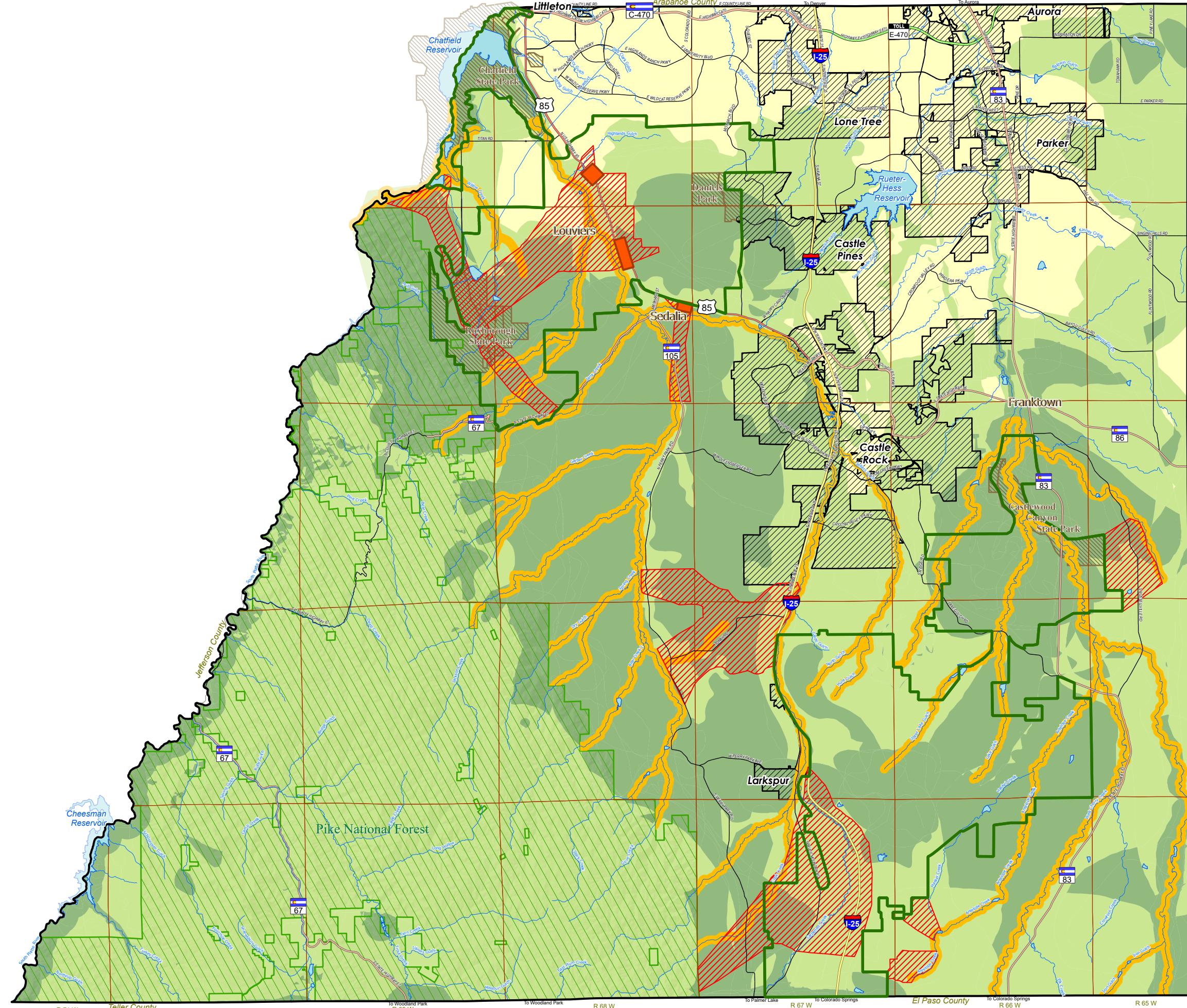
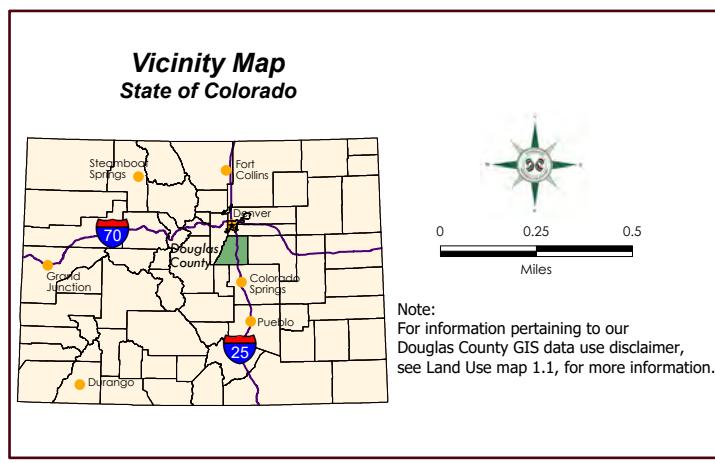
In designated high value wildlife habitat areas, require wildlife management and habitat conservation plans for new development, in consultation with professional agencies, as appropriate.



# Map 9.1 Wildlife Resources

## Comprehensive Master Plan 2040

- Wildlife Habitat Conservation Area
- Overland Connection
- Wildlife Movement Corridor
- Low Habitat Value
- Moderate Habitat Value
- High habitat Value
- Wildlife Crossing Area
- Parks
- Pike National Forest
- Municipalities
- Townships
- Douglas County Boundary
- Streams
- Interstate
- US Highway
- State Highway
- Toll Highway
- Major Road





United States  
Department of  
Agriculture



Natural  
Resources  
Conservation  
Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Castle Rock Area, Colorado

LE2025-026



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units).

Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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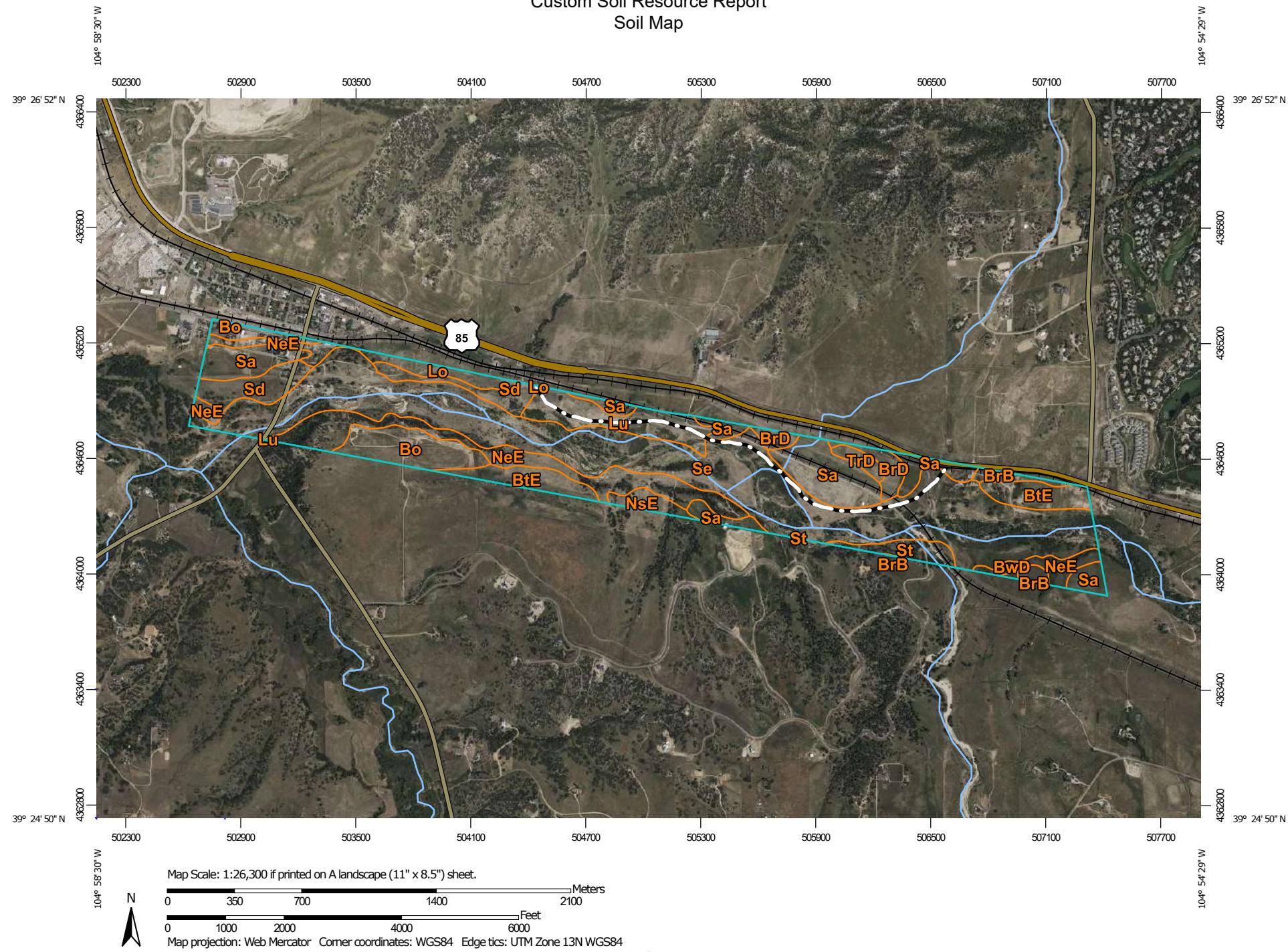
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map



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### MAP LEGEND

<b>Area of Interest (AOI)</b>		Area of Interest (AOI)
<b>Soils</b>		Soil Map Unit Polygons
		Soil Map Unit Lines
		Soil Map Unit Points
<b>Special Point Features</b>		
		Blowout
		Borrow Pit
		Clay Spot
		Closed Depression
		Gravel Pit
		Gravelly Spot
		Landfill
		Lava Flow
		Marsh or swamp
		Mine or Quarry
		Miscellaneous Water
		Perennial Water
		Rock Outcrop
		Saline Spot
		Sandy Spot
		Severely Eroded Spot
		Sinkhole
		Slide or Slip
		Sodic Spot

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

Soil Survey Area: Castle Rock Area, Colorado  
 Survey Area Data: Version 18, Aug 29, 2025

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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

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## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bo	Blakeland-Orsa association, 1 to 4 percent slopes	36.9	5.8%
BrB	Bresser sandy loam, cool, 1 to 3 percent slopes	7.8	1.2%
BrD	Bresser sandy loam, cool, 5 to 9 percent slopes	12.5	2.0%
BtE	Bresser-Truckton sandy loams, 5 to 25 percent slopes	33.2	5.2%
BwD	Buick-Satanta loams, 3 to 9 percent slopes	0.5	0.1%
Lo	Loamy alluvial land	11.3	1.8%
Lu	Loamy alluvial land, dark surface	33.2	5.2%
NeE	Newlin gravelly sandy loam, 8 to 30 percent slopes	76.7	12.1%
NsE	Newlin-Satanta complex, 5 to 20 percent slopes	8.2	1.3%
Sa	Sampson loam	79.1	12.5%
Sd	Sandy alluvial land	32.7	5.2%
Se	Sandy wet alluvial land	286.2	45.1%
St	Stapleton-Bresser association	11.3	1.8%
TrD	Truckton sandy loam, 3 to 9 percent slopes	5.2	0.8%
<b>Totals for Area of Interest</b>		<b>634.9</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

## Custom Soil Resource Report

of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

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**Castle Rock Area, Colorado****Bo—Blakeland-Orsa association, 1 to 4 percent slopes****Map Unit Setting**

*National map unit symbol:* jqy5  
*Elevation:* 5,500 to 6,600 feet  
*Mean annual precipitation:* 15 to 19 inches  
*Mean annual air temperature:* 47 to 50 degrees F  
*Frost-free period:* 120 to 135 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Blakeland and similar soils:* 50 percent  
*Orsa and similar soils:* 35 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Blakeland****Setting**

*Landform:* Hills, alluvial fans  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium and/or eolian deposits

**Typical profile**

*H1 - 0 to 13 inches:* sandy loam  
*H2 - 13 to 24 inches:* loamy coarse sand  
*H3 - 24 to 60 inches:* loamy coarse sand

**Properties and qualities**

*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 4s  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* A  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

**Description of Orsa****Setting**

*Landform:* Alluvial fans, hills  
*Landform position (three-dimensional):* Base slope

## Custom Soil Resource Report

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from arkosic sedimentary rock

### Typical profile

*H1 - 0 to 20 inches:* coarse sandy loam

*H2 - 20 to 60 inches:* gravelly loamy coarse sand

### Properties and qualities

*Slope:* 1 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* 4s

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* A

*Ecological site:* R049XB210CO - Sandy Foothill

*Hydric soil rating:* No

### Minor Components

#### Bresser

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Kassler

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Sandy alluvial land

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## BrB—Bresser sandy loam, cool, 1 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* 2tlpj

*Elevation:* 5,500 to 6,500 feet

*Mean annual precipitation:* 15 to 19 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 100 to 130 days

*Farmland classification:* Prime farmland if irrigated

## Custom Soil Resource Report

**Map Unit Composition***Bresser, cool, and similar soils:* 90 percent*Minor components:* 10 percent*Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Bresser, Cool****Setting***Landform:* Hillslopes, terraces*Landform position (two-dimensional):* Footslope*Landform position (three-dimensional):* Base slope, tread*Down-slope shape:* Linear*Across-slope shape:* Linear*Parent material:* Tertiary aged alluvium derived from arkose**Typical profile***Ap - 0 to 5 inches:* sandy loam*Bt1 - 5 to 8 inches:* sandy loam*Bt2 - 8 to 27 inches:* sandy clay loam*Bt3 - 27 to 36 inches:* sandy loam*C - 36 to 80 inches:* loamy coarse sand**Properties and qualities***Slope:* 1 to 3 percent*Depth to restrictive feature:* More than 80 inches*Drainage class:* Well drained*Runoff class:* Low*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None*Calcium carbonate, maximum content:* 5 percent*Maximum salinity:* Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)**Interpretive groups***Land capability classification (irrigated):* 2e*Land capability classification (nonirrigated):* 4s*Hydrologic Soil Group:* B*Ecological site:* R049XB210CO - Sandy Foothill*Hydric soil rating:* No**Minor Components****Truckton***Percent of map unit:* 5 percent*Landform:* Hillslopes, terraces*Landform position (two-dimensional):* Footslope*Landform position (three-dimensional):* Base slope, tread*Down-slope shape:* Linear*Across-slope shape:* Linear*Ecological site:* R049XB210CO - Sandy Foothill*Hydric soil rating:* No

## Custom Soil Resource Report

**Sampson**

*Percent of map unit:* 5 percent  
*Landform:* Terraces, alluvial fans  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope, tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R049XC202CO - Loamy Foothill Palmer Divide  
*Hydric soil rating:* No

**BrD—Bresser sandy loam, cool, 5 to 9 percent slopes****Map Unit Setting**

*National map unit symbol:* 2t1pk  
*Elevation:* 5,500 to 6,960 feet  
*Mean annual precipitation:* 15 to 19 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 100 to 130 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

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

**Description of Bresser, Cool****Setting**

*Landform:* Interfluves  
*Landform position (two-dimensional):* Shoulder, backslope  
*Landform position (three-dimensional):* Interfluvial  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Tertiary aged alluvium derived from arkose

**Typical profile**

*Ap - 0 to 5 inches:* sandy loam  
*Bt1 - 5 to 8 inches:* sandy loam  
*Bt2 - 8 to 27 inches:* sandy clay loam  
*Bt3 - 27 to 36 inches:* sandy loam  
*C - 36 to 80 inches:* loamy coarse sand

**Properties and qualities**

*Slope:* 5 to 9 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 to high  
 (0.60 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches

## Custom Soil Resource Report

*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 5 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* 4e  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* B  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

### Minor Components

#### Ascalon

*Percent of map unit:* 10 percent  
*Landform:* Interfluves  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

#### Truckton

*Percent of map unit:* 5 percent  
*Landform:* Interfluves  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

## BtE—Bresser-Truckton sandy loams, 5 to 25 percent slopes

### Map Unit Setting

*National map unit symbol:* jqy9  
*Elevation:* 5,500 to 6,600 feet  
*Mean annual precipitation:* 15 to 19 inches  
*Mean annual air temperature:* 47 to 52 degrees F  
*Frost-free period:* 120 to 135 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Bresser and similar soils:* 50 percent  
*Truckton and similar soils:* 35 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Custom Soil Resource Report

**Description of Bresser****Setting***Landform:* Terraces*Landform position (three-dimensional):* Riser, tread*Down-slope shape:* Linear*Across-slope shape:* Linear*Parent material:* Sandy eolian deposits**Typical profile***H1 - 0 to 8 inches:* sandy loam*H2 - 8 to 30 inches:* sandy clay loam*H3 - 30 to 60 inches:* loamy sand**Properties and qualities***Slope:* 5 to 15 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 to high (0.20 to 2.00 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None*Available water supply, 0 to 60 inches:* Moderate (about 7.6 inches)**Interpretive groups***Land capability classification (irrigated):* None specified*Land capability classification (nonirrigated):* 6e*Hydrologic Soil Group:* B*Ecological site:* R049XB210CO - Sandy Foothill*Hydric soil rating:* No**Description of Truckton****Setting***Landform:* Terraces*Landform position (three-dimensional):* Riser, tread*Down-slope shape:* Linear*Across-slope shape:* Linear*Parent material:* Alluvium derived from arkosic sedimentary rock**Typical profile***H1 - 0 to 4 inches:* sandy loam*H2 - 4 to 19 inches:* sandy loam*H3 - 19 to 60 inches:* sandy loam**Properties and qualities***Slope:* 10 to 25 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):* High (2.00 to 6.00 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None

## Custom Soil Resource Report

*Available water supply, 0 to 60 inches:* Low (about 6.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* A

*Ecological site:* R049XB210CO - Sandy Foothill

*Hydric soil rating:* No

### Minor Components

#### Newlin

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Blakeland

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Stapleton

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Aquic haplustolls

*Percent of map unit:* 1 percent

*Landform:* Swales

*Hydric soil rating:* Yes

## BwD—Buick-Satanta loams, 3 to 9 percent slopes

### Map Unit Setting

*National map unit symbol:* jqyf

*Elevation:* 5,500 to 6,800 feet

*Mean annual precipitation:* 15 to 19 inches

*Mean annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 120 to 135 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Buick and similar soils:* 50 percent

*Satanta and similar soils:* 40 percent

*Minor components:* 10 percent

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

### Description of Buick

#### Setting

*Landform:* Interfluves, ridges

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Eolian deposits over alluvial material silty

## Custom Soil Resource Report

**Typical profile**

*H1 - 0 to 4 inches:* loam  
*H2 - 4 to 15 inches:* silty clay loam  
*H3 - 15 to 22 inches:* loam  
*H4 - 22 to 60 inches:* sandy clay loam

**Properties and qualities**

*Slope:* 3 to 9 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:* 10 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 9.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 4e  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* R049XC202CO - Loamy Foothill Palmer Divide  
*Hydric soil rating:* No

**Description of Satanta****Setting**

*Landform:* Interfluviums, ridges  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Eolian deposits derived from mixed

**Typical profile**

*H1 - 0 to 9 inches:* loam  
*H2 - 9 to 30 inches:* clay loam  
*H3 - 30 to 60 inches:* loam

**Properties and qualities**

*Slope:* 6 to 9 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 to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 10 percent  
*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* B

## Custom Soil Resource Report

*Ecological site:* R049XC202CO - Loamy Foothill Palmer Divide  
*Hydric soil rating:* No

### Minor Components

#### Bresser

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Fondis

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Newlin

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Aquic haplustolls

*Percent of map unit:* 1 percent  
*Landform:* Swales  
*Hydric soil rating:* Yes

## Lo—Loamy alluvial land

### Map Unit Setting

*National map unit symbol:* jqzb  
*Elevation:* 7,000 to 8,000 feet  
*Mean annual precipitation:* 17 to 19 inches  
*Mean annual air temperature:* 44 to 46 degrees F  
*Frost-free period:* 115 to 120 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Loamy alluvial land:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Loamy Alluvial Land

#### Setting

*Landform:* Flood plains, swales  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear

#### Typical profile

*H1 - 0 to 20 inches:* sandy loam  
*H2 - 20 to 40 inches:* stratified loamy sand to clay loam  
*H3 - 40 to 60 inches:* sand and gravel

#### Properties and qualities

*Slope:* 1 to 5 percent

## Custom Soil Resource Report

*Drainage class:* Well drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 6.00 in/hr)

*Depth to water table:* About 48 to 72 inches

*Frequency of flooding:* Frequent

*Calcium carbonate, maximum content:* 5 percent

*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Moderate (about 6.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* C

*Ecological site:* R049XY036CO - Overflow

*Hydric soil rating:* No

### Minor Components

#### Sampson

*Percent of map unit:* 7 percent

*Hydric soil rating:* No

#### Bresser

*Percent of map unit:* 7 percent

*Hydric soil rating:* No

#### Sandy alluvial land

*Percent of map unit:* 5 percent

#### Fluvaquentic haplustolls

*Percent of map unit:* 1 percent

*Landform:* Terraces

*Hydric soil rating:* Yes

## Lu—Loamy alluvial land, dark surface

### Map Unit Setting

*National map unit symbol:* jqzc

*Elevation:* 7,000 to 8,000 feet

*Mean annual precipitation:* 17 to 19 inches

*Mean annual air temperature:* 44 to 46 degrees F

*Frost-free period:* 115 to 120 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Loamy alluvial land, dark surface:* 85 percent

*Minor components:* 15 percent

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

## Custom Soil Resource Report

**Description of Loamy Alluvial Land, Dark Surface****Setting***Landform:* Flood plains, swales*Down-slope shape:* Linear*Across-slope shape:* Linear**Typical profile***H1 - 0 to 20 inches:* sandy loam*H2 - 20 to 40 inches:* stratified loamy sand to clay loam*H3 - 40 to 60 inches:* sand and gravel**Properties and qualities***Slope:* 0 to 4 percent*Drainage class:* Well drained*Runoff class:* Very low*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 6.00 in/hr)*Depth to water table:* About 48 to 72 inches*Frequency of flooding:* Frequent*Calcium carbonate, maximum content:* 5 percent*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)*Available water supply, 0 to 60 inches:* Moderate (about 6.0 inches)**Interpretive groups***Land capability classification (irrigated):* None specified*Land capability classification (nonirrigated):* 4w*Hydrologic Soil Group:* C*Ecological site:* R049XC202CO - Loamy Foothill Palmer Divide*Hydric soil rating:* No**Minor Components****Sandy alluvial land***Percent of map unit:* 14 percent*Hydric soil rating:* No**Fluvaquentic haplustolls***Percent of map unit:* 1 percent*Landform:* Terraces*Hydric soil rating:* Yes**NeE—Newlin gravelly sandy loam, 8 to 30 percent slopes****Map Unit Setting***National map unit symbol:* jqzg*Elevation:* 5,500 to 6,600 feet*Mean annual precipitation:* 15 to 19 inches*Mean annual air temperature:* 49 to 51 degrees F*Frost-free period:* 120 to 135 days*Farmland classification:* Not prime farmland

## Custom Soil Resource Report

**Map Unit Composition***Newlin and similar soils: 85 percent**Minor components: 15 percent**Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Newlin****Setting***Landform: Terraces, mesas, plateaus**Landform position (three-dimensional): Riser**Down-slope shape: Linear**Across-slope shape: Linear**Parent material: Unconformable sandy and gravelly and/or mixed source alluvium***Typical profile***H1 - 0 to 8 inches: gravelly sandy loam**H2 - 8 to 17 inches: gravelly sandy clay loam**H3 - 17 to 22 inches: gravelly sandy loam**H4 - 22 to 60 inches: very gravelly sand***Properties and qualities***Slope: 8 to 30 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 to high (0.20 to 2.00 in/hr)**Depth to water table: More than 80 inches**Frequency of flooding: None**Frequency of ponding: None**Available water supply, 0 to 60 inches: Low (about 3.8 inches)***Interpretive groups***Land capability classification (irrigated): None specified**Land capability classification (nonirrigated): 6e**Hydrologic Soil Group: B**Ecological site: R049XY214CO - Gravelly Foothill**Hydric soil rating: No***Minor Components****Bresser***Percent of map unit: 5 percent**Hydric soil rating: No***Stapleton***Percent of map unit: 4 percent**Hydric soil rating: No***Satanta***Percent of map unit: 4 percent**Hydric soil rating: No***Aquic haplustolls***Percent of map unit: 2 percent**Landform: Swales**Hydric soil rating: Yes*

## Custom Soil Resource Report

### **NsE—Newlin-Satanta complex, 5 to 20 percent slopes**

#### **Map Unit Setting**

*National map unit symbol:* jqzh  
*Elevation:* 5,500 to 6,600 feet  
*Mean annual precipitation:* 15 to 19 inches  
*Mean annual air temperature:* 49 to 51 degrees F  
*Frost-free period:* 120 to 135 days  
*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Newlin and similar soils:* 50 percent  
*Satanta and similar soils:* 30 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Newlin**

##### **Setting**

*Landform:* Drainageways, knobs  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Unconformable sandy and gravelly and/or mixed source alluvium

##### **Typical profile**

*H1 - 0 to 8 inches:* gravelly sandy loam  
*H2 - 8 to 17 inches:* gravelly sandy clay loam  
*H3 - 17 to 22 inches:* gravelly sandy loam  
*H4 - 22 to 60 inches:* very gravelly sand

##### **Properties and qualities**

*Slope:* 5 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 to high (0.20 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.8 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* B  
*Ecological site:* R049XC202CO - Loamy Foothill Palmer Divide  
*Hydric soil rating:* No

## Custom Soil Resource Report

**Description of Satanta****Setting***Landform:* Drainageways, knobs*Down-slope shape:* Linear*Across-slope shape:* Linear*Parent material:* Eolian deposits derived from mixed**Typical profile***H1 - 0 to 9 inches:* loam*H2 - 9 to 30 inches:* clay loam*H3 - 30 to 60 inches:* loam**Properties and qualities***Slope:* 5 to 10 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 to high (0.60 to 2.00 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None*Calcium carbonate, maximum content:* 10 percent*Available water supply, 0 to 60 inches:* High (about 10.2 inches)**Interpretive groups***Land capability classification (irrigated):* None specified*Land capability classification (nonirrigated):* 4e*Hydrologic Soil Group:* B*Ecological site:* R049XY214CO - Gravelly Foothill*Hydric soil rating:* No**Minor Components****Bresser***Percent of map unit:* 6 percent*Hydric soil rating:* No**Buick***Percent of map unit:* 6 percent*Hydric soil rating:* No**Truckton***Percent of map unit:* 6 percent*Hydric soil rating:* No**Aquic haplustolls***Percent of map unit:* 2 percent*Landform:* Swales*Hydric soil rating:* Yes

## Custom Soil Resource Report

### Sa—Sampson loam

#### Map Unit Setting

*National map unit symbol:* jr02  
*Elevation:* 5,500 to 6,600 feet  
*Mean annual precipitation:* 15 to 19 inches  
*Mean annual air temperature:* 48 to 50 degrees F  
*Frost-free period:* 120 to 135 days  
*Farmland classification:* Prime farmland if irrigated

#### Map Unit Composition

*Sampson and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Sampson

##### Setting

*Landform:* Stream terraces on drainageways  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Weathered alluvium derived from arkose

##### Typical profile

*H1 - 0 to 9 inches:* loam  
*H2 - 9 to 28 inches:* clay loam  
*H3 - 28 to 38 inches:* loam  
*H4 - 38 to 60 inches:* silt loam

##### Properties and qualities

*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 9.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e  
*Land capability classification (nonirrigated):* 3c  
*Hydrologic Soil Group:* B  
*Ecological site:* R049XC202CO - Loamy Foothill Palmer Divide

## Custom Soil Resource Report

*Hydric soil rating:* No

### Minor Components

#### Englewood

*Percent of map unit:* 8 percent

*Hydric soil rating:* No

#### Bresser

*Percent of map unit:* 7 percent

*Hydric soil rating:* No

#### Loamy alluvial land

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Aquic haplustolls

*Percent of map unit:* 1 percent

*Landform:* Swales

*Hydric soil rating:* Yes

## Sd—Sandy alluvial land

### Map Unit Setting

*National map unit symbol:* jr03

*Elevation:* 5,500 to 6,600 feet

*Mean annual precipitation:* 15 to 19 inches

*Mean annual air temperature:* 48 to 50 degrees F

*Frost-free period:* 120 to 135 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Sandy alluvial land:* 75 percent

*Minor components:* 25 percent

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

### Description of Sandy Alluvial Land

#### Setting

*Landform:* Drainageways, swales

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Weathered alluvium derived from arkose

#### Typical profile

*H1 - 0 to 20 inches:* loamy sand

*H2 - 20 to 60 inches:* stratified sand to sandy loam

#### Properties and qualities

*Slope:* 1 to 5 percent

*Drainage class:* Excessively drained

*Runoff class:* Negligible

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (2.00 to 20.00 in/hr)

*Depth to water table:* About 60 inches

*Frequency of flooding:* Frequent

*Calcium carbonate, maximum content:* 5 percent

*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

### Minor Components

#### Loamy alluvial land

*Percent of map unit:* 8 percent

*Hydric soil rating:* No

#### Loamy alluvial land, dark surface

*Percent of map unit:* 8 percent

*Hydric soil rating:* No

#### Bresser

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Truckton

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Fluvaquentic haplustolls

*Percent of map unit:* 1 percent

*Landform:* Terraces

*Hydric soil rating:* Yes

## Se—Sandy wet alluvial land

### Map Unit Setting

*National map unit symbol:* jr04

*Elevation:* 5,500 to 6,600 feet

*Mean annual precipitation:* 15 to 19 inches

*Mean annual air temperature:* 48 to 50 degrees F

*Frost-free period:* 120 to 135 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Sandy wet alluvial land:* 80 percent

*Minor components:* 20 percent

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

## Custom Soil Resource Report

### Description of Sandy Wet Alluvial Land

#### Setting

*Landform:* Drainageways, flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Weathered alluvium derived from arkose

#### Typical profile

*H1 - 0 to 6 inches:* coarse sand  
*H2 - 6 to 60 inches:* stratified coarse sand to sandy loam

#### Properties and qualities

*Slope:* 1 to 4 percent  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)  
*Depth to water table:* About 0 to 24 inches  
*Frequency of flooding:* Frequent  
*Available water supply, 0 to 60 inches:* Very low (about 2.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8w  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* No

### Minor Components

#### Loamy wet alluvial land

*Percent of map unit:* 9 percent  
*Hydric soil rating:* No

#### Sandy alluvial land

*Percent of map unit:* 9 percent  
*Hydric soil rating:* No

#### Fluventic haplaquolls

*Percent of map unit:* 2 percent  
*Landform:* Terraces  
*Hydric soil rating:* Yes

### St—Stapleton-Bresser association

#### Map Unit Setting

*National map unit symbol:* jr09  
*Elevation:* 5,500 to 6,600 feet  
*Mean annual precipitation:* 15 to 19 inches  
*Mean annual air temperature:* 49 to 51 degrees F  
*Frost-free period:* 120 to 135 days  
*Farmland classification:* Not prime farmland

## Custom Soil Resource Report

**Map Unit Composition***Stapleton and similar soils: 60 percent**Bresser and similar soils: 25 percent**Minor components: 15 percent**Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Stapleton****Setting***Landform: Ridges, knobs, valley sides**Down-slope shape: Linear**Across-slope shape: Linear**Parent material: Weathered alluvium derived from arkose***Typical profile***H1 - 0 to 7 inches: sandy loam**H2 - 7 to 16 inches: sandy loam**H3 - 16 to 60 inches: gravelly sandy loam***Properties and qualities***Slope: 8 to 30 percent**Depth to restrictive feature: More than 80 inches**Drainage class: Well drained**Runoff class: Low**Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.60 to 6.00 in/hr)**Depth to water table: More than 80 inches**Frequency of flooding: None**Frequency of ponding: None**Available water supply, 0 to 60 inches: Low (about 5.7 inches)***Interpretive groups***Land capability classification (irrigated): None specified**Land capability classification (nonirrigated): 6e**Hydrologic Soil Group: A**Ecological site: R049XB210CO - Sandy Foothill**Hydric soil rating: No***Description of Bresser****Setting***Landform: Valley sides**Down-slope shape: Linear**Across-slope shape: Linear**Parent material: Sandy alluvium and/or sandy eolian deposits***Typical profile***H1 - 0 to 8 inches: sandy loam**H2 - 8 to 30 inches: sandy clay loam**H3 - 30 to 60 inches: loamy sand***Properties and qualities***Slope: 8 to 15 percent**Depth to restrictive feature: More than 80 inches**Drainage class: Well drained**Runoff class: Medium*

## Custom Soil Resource Report

*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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 7.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* B

*Ecological site:* R049XB210CO - Sandy Foothill

*Hydric soil rating:* No

### Minor Components

#### Loamy alluvial land

*Percent of map unit:* 14 percent

*Hydric soil rating:* No

#### Aquic haplustolls

*Percent of map unit:* 1 percent

*Landform:* Swales

*Hydric soil rating:* Yes

## TrD—Truckton sandy loam, 3 to 9 percent slopes

### Map Unit Setting

*National map unit symbol:* 2x0j2

*Elevation:* 5,300 to 6,850 feet

*Mean annual precipitation:* 14 to 19 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 85 to 155 days

*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Truckton and similar soils:* 85 percent

*Minor components:* 15 percent

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

### Description of Truckton

#### Setting

*Landform:* Interfluves, hillslopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Re-worked alluvium derived from arkose

## Custom Soil Resource Report

**Typical profile**

*A - 0 to 4 inches:* sandy loam  
*Bt1 - 4 to 12 inches:* sandy loam  
*Bt2 - 12 to 19 inches:* sandy loam  
*C - 19 to 80 inches:* sandy loam

**Properties and qualities**

*Slope:* 3 to 9 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):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 1 percent  
*Maximum salinity:* Nonsaline (0.1 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 6.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* A  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

**Minor Components****Blakeland**

*Percent of map unit:* 8 percent  
*Landform:* Interfluvies, hillslopes  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Side slope, crest  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex, linear  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

**Bresser**

*Percent of map unit:* 7 percent  
*Landform:* Interfluvies, low hills  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave, linear  
*Across-slope shape:* Concave, linear  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

# **Soil Information for All Uses**

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## **Suitabilities and Limitations for Use**

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

## **Sanitary Facilities**

Sanitary Facilities interpretations are tools designed to guide the user in site selection for the safe disposal of sewage and solid waste. Example interpretations include septic tank absorption fields, sewage lagoons, and sanitary landfills.

### **Sewage Lagoons (LE2025-026)**

ENG - Engineering

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Ksat is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

## Custom Soil Resource Report

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

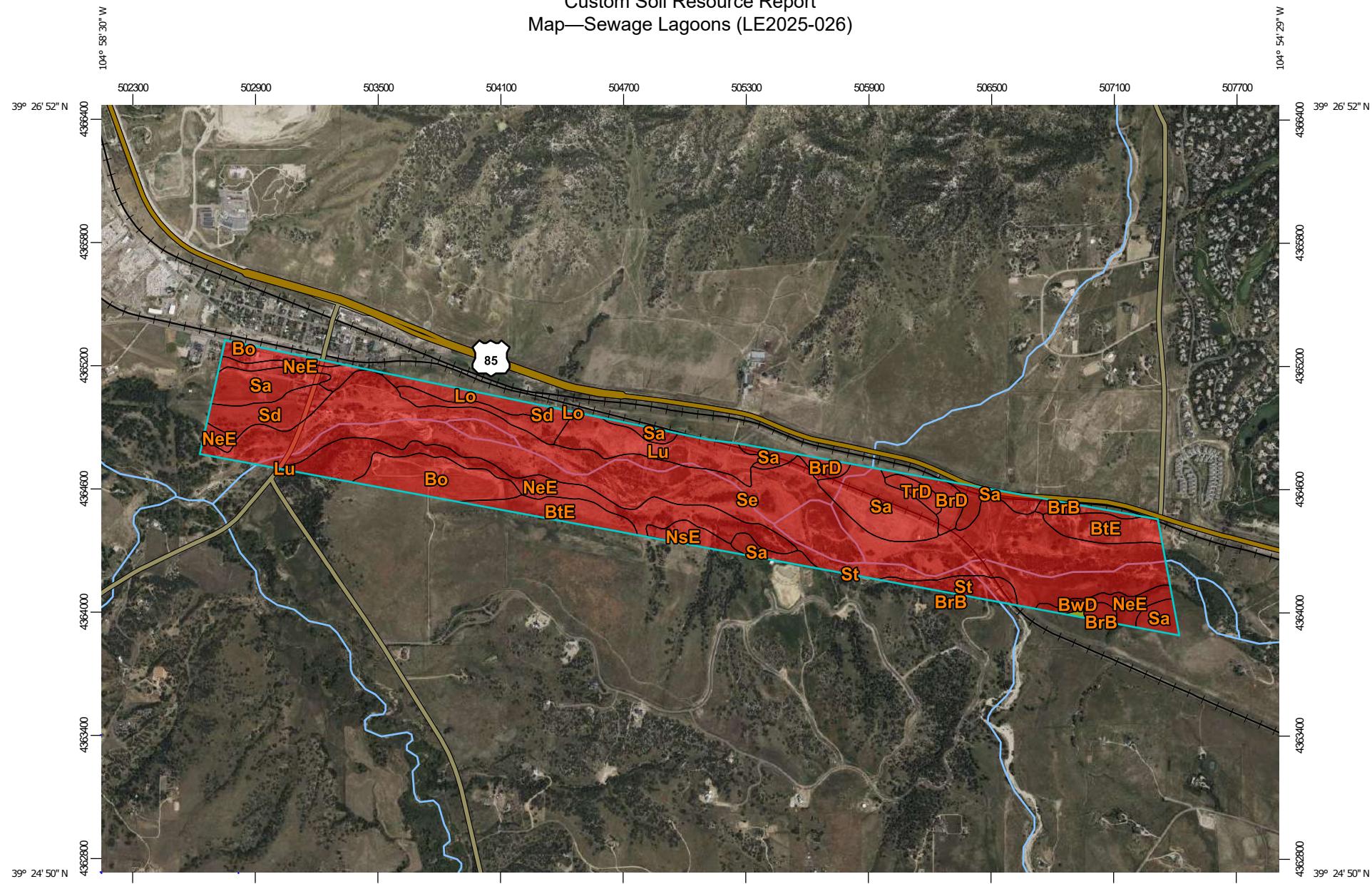
The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

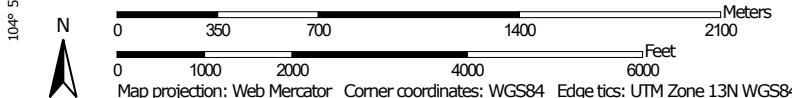
The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report  
Map—Sewage Lagoons (LE2025-026)

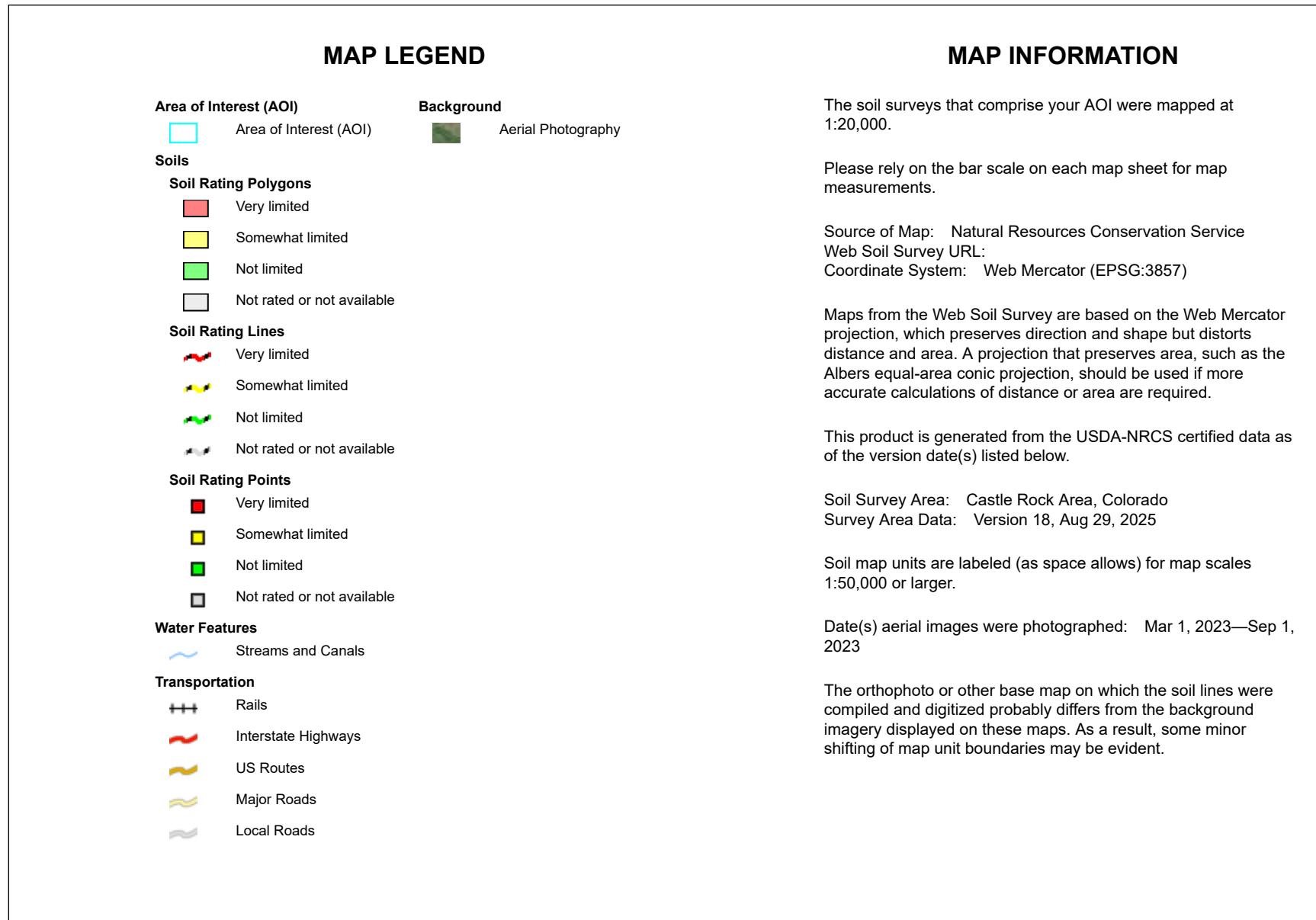


Map Scale: 1:26,300 if printed on A landscape (11" x 8.5") sheet.



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## Custom Soil Resource Report



## Custom Soil Resource Report

**Tables—Sewage Lagoons (LE2025-026)**

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Bo	Blakeland-Orsa association, 1 to 4 percent slopes	Very limited	Blakeland (50%) Orsa (35%)	Seepage (1.00)	36.9	5.8%
				Slope (0.08)		
				Seepage (1.00)		
BrB	Bresser sandy loam, cool, 1 to 3 percent slopes	Very limited	Bresser, cool (90%) Truckton (5%) Sampson (5%)	Seepage (1.00)	7.8	1.2%
				Seepage (1.00)		
				Seepage (1.00)		
				Flooding (0.40)		
BrD	Bresser sandy loam, cool, 5 to 9 percent slopes	Very limited	Bresser, cool (85%) Ascalon (10%) Truckton (5%)	Seepage (1.00)	12.5	2.0%
				Slope (1.00)		
				Seepage (1.00)		
				Slope (1.00)		
				Seepage (1.00)		
				Slope (1.00)		
BtE	Bresser-Truckton sandy loams, 5 to 25 percent slopes	Very limited	Bresser (50%) Truckton (35%)	Seepage (1.00)	33.2	5.2%
				Slope (1.00)		
				Slope (1.00)		
				Seepage (1.00)		
BwD	Buick-Satanta loams, 3 to 9 percent slopes	Somewhat limited	Buick (50%)	Slope (0.92)	0.5	0.1%
				Seepage (0.53)		
Lo	Loamy alluvial land	Very limited	Loamy alluvial land (80%)	Flooding (1.00)	11.3	1.8%
				Seepage (1.00)		
				Slope (0.08)		
Lu	Loamy alluvial land, dark surface	Very limited	Loamy alluvial land, dark surface (85%)	Flooding (1.00)	33.2	5.2%
				Seepage (1.00)		
NeE	Newlin gravelly sandy loam, 8 to 30 percent slopes	Very limited	Newlin (85%)	Slope (1.00)	76.7	12.1%
				Seepage (1.00)		
NsE	Newlin-Satanta complex, 5 to 20 percent slopes	Very limited	Newlin (50%) Satanta (30%)	Seepage (1.00)	8.2	1.3%
				Slope (1.00)		
				Slope (1.00)		
				Seepage (0.53)		
Sa	Sampson loam	Very limited	Sampson (80%)	Seepage (1.00)	79.1	12.5%
				Slope (0.08)		
Sd	Sandy alluvial land	Very limited	Sandy alluvial land (75%)	Flooding (1.00)	32.7	5.2%
				Seepage (1.00)		

## Custom Soil Resource Report

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slope (0.08)		
Se	Sandy wet alluvial land	Very limited	Sandy wet alluvial land (80%)	Flooding (1.00) Seepage (1.00) Depth to saturated zone (1.00) Slope (0.08)	286.2	45.1%
St	Stapleton-Bresser association	Very limited	Stapleton (60%) Bresser (25%)	Slope (1.00) Seepage (1.00) Slope (1.00) Seepage (1.00)	11.3	1.8%
TrD	Truckton sandy loam, 3 to 9 percent slopes	Very limited	Truckton (85%) Blakeland (8%) Bresser (7%)	Seepage (1.00) Slope (0.68) Seepage (1.00) Slope (1.00) Seepage (1.00) Slope (0.08)	5.2	0.8%
<b>Totals for Area of Interest</b>					<b>634.9</b>	<b>100.0%</b>

Rating	Acres in AOI	Percent of AOI
Very limited	634.3	99.9%
Somewhat limited	0.5	0.1%
<b>Totals for Area of Interest</b>	<b>634.9</b>	<b>100.0%</b>

## Rating Options—Sewage Lagoons (LE2025-026)

### *Aggregation Method: Dominant Condition*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component

## Custom Soil Resource Report

typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule: Higher*

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

# References

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American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

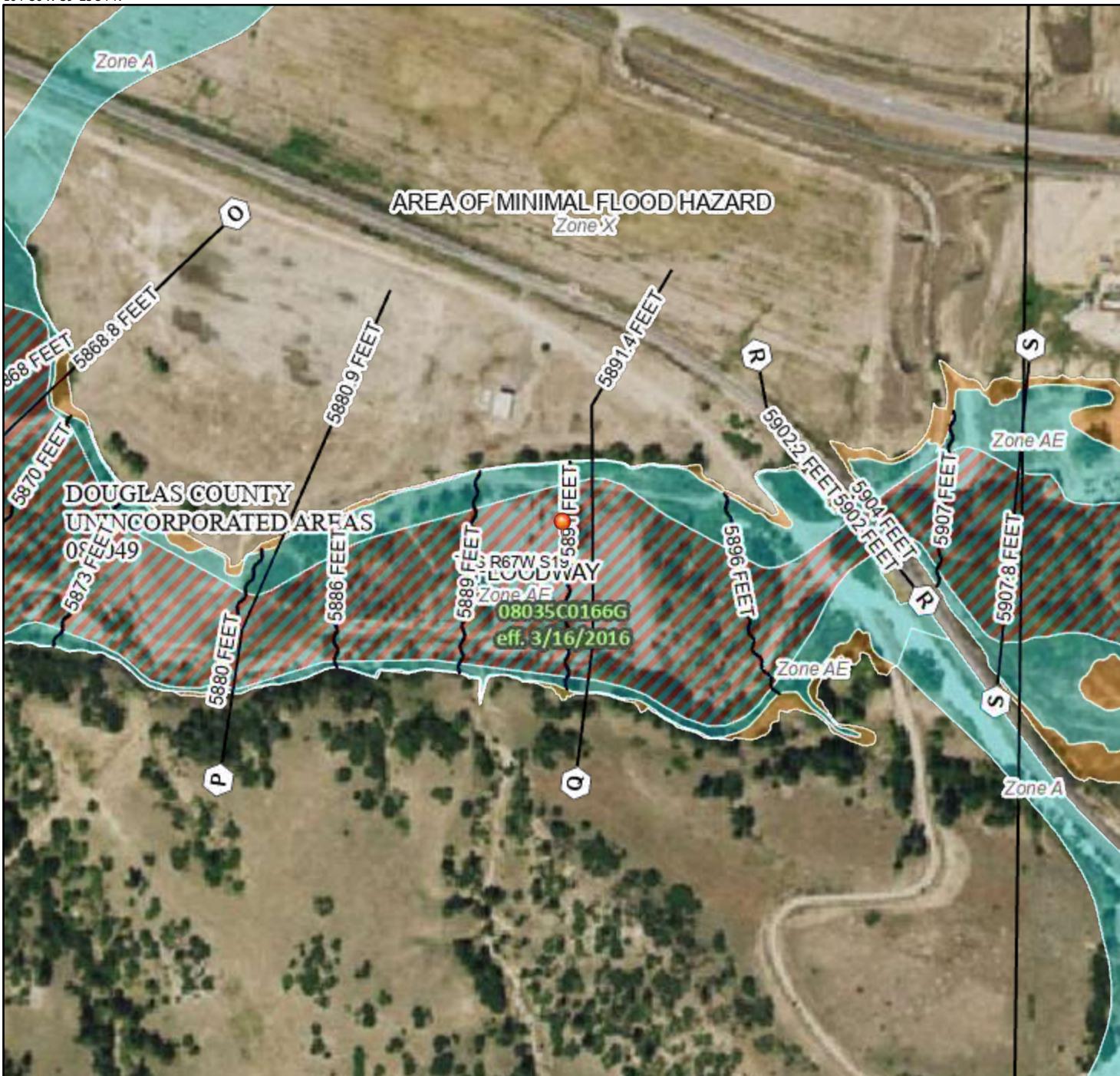
United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

# National Flood Hazard Layer FIRMette



104°56'W 39°25'54"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

### SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X

Future Conditions 1% Annual Chance Flood Hazard Zone X

Area with Reduced Flood Risk due to Levee. See Notes. Zone X

Area with Flood Risk due to Levee Zone D

### OTHER AREAS OF FLOOD HAZARD

NO SCREEN Area of Minimal Flood Hazard Zone X

Effective LOMRs

### OTHER AREAS

Channel, Culvert, or Storm Sewer

Levee, Dike, or Floodwall

### GENERAL STRUCTURES

20.2 Cross Sections with 1% Annual Chance

17.5 Water Surface Elevation

8 - - - Coastal Transect

~~~~~ Base Flood Elevation Line (BFE)

Limit of Study

Jurisdiction Boundary

Coastal Transect Baseline

Profile Baseline

Hydrographic Feature

### OTHER FEATURES

Digital Data Available

No Digital Data Available

Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/23/2025 at 4:23 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.





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December 26, 2025

Eric Pavlinek  
100 Third St.  
Castle Rock, CO 80104

RE: LE2025-026

Dear Mr. Pavlinek

Thank you for the opportunity to review and comment on the application for a Location & Extent for the Town of Castle Rock request for Sewer Lift Station and 12" force main to serve Sedalia. Douglas County Health Department (DCHD) staff have reviewed the application for compliance with pertinent environmental and public health regulations. After reviewing the application, DCHD has no comments.

Please contact me at 720-907-4888 or [bfreyer@douglas.co.us](mailto:bfreyer@douglas.co.us) if you have any questions about our comments.

Sincerely,

A handwritten signature in blue ink that appears to read 'B. Freyer'.

Brent Freyer  
Environmental Health Specialist II  
Douglas County Health Department

December 19, 2025

Erin Evans  
Authorized Representative  
Town of Castle Rock  
175 Kellogg Court  
Castle Rock, CO 80109

DV 2025-607

Subject: Hier Exemption – 1<sup>st</sup> Amendment - Parcel A2 - Location & Extent

Dear Erin,

**Plan Review Summary:**

|                          |   |          |
|--------------------------|---|----------|
| Submitted to Engineering | - | 12/15/25 |
| Comments Sent Out        | - | 12/18/25 |

Engineering has reviewed this project and has the following concerns and comments:

**Location & Extent Comments**

**Comment #1**-Please show the limits of the 100-yr. floodplain on the location and extent exhibit.

**Comment #2**-Construction Access Permits may be required from the different entities.

**Comment #3**-The following items will need to be submitted for review and approval prior to permits being issued for the project:

- Construction Plans
- Drainage Report
- GESC Plans & Report
- Operation & Maintenance Manual for the proposed detention/water quality pond
- Secondary Drainage Easement will be required

If you have any questions, please give me a call.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chuck Smith".

Chuck Smith  
Development Review Engineer

cc: Erik Pavlinek, Project Planner

DV25607



**Right of Way & Permits**

1123 West 3<sup>rd</sup> Avenue  
Denver, Colorado 80223  
Telephone: 303.285.6612  
violeta.ciocanu@xcelenergy.com

December 16, 2025

Douglas County Planning Services  
100 Third Street  
Castle Rock, CO 80104

Attn: Eric Pavlinek

**RE: Hier Exemption, 1st Amendment, Parcel A2, Case # LE2025-026**

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the request for approval of a Location and Extent (L & E) to construct a sewer lift station on property within Sedalia. Based on this review, no specific concerns regarding the proposed project have been identified.

As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.

Violeta Ciocanu (Chokanu)  
Right of Way and Permits  
Public Service Company of Colorado dba Xcel Energy  
Office: 303-285-6612 – Email: [violeta.ciocanu@xcelenergy.com](mailto:violeta.ciocanu@xcelenergy.com)



188 Inverness Drive W  
Suite 500  
Englewood, CO 80112  
TEL 303.721.6932  
[www.GarverUSA.com](http://www.GarverUSA.com)

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12/31/2025

Douglas County Planning Services Division  
100 Third St.  
Castle Rock, Colorado 80104

Attn: Eric Pavlinek  
Jeanette Bare  
Brett Thomas

Re: Response to Referral Comments on Hier Exemption, 1<sup>st</sup> Amendment, Parcel A2 – LE2025-026

Dear Douglas County Planning Services Division:

This letter provides Garver's response to comments provided by referral agencies following their review of the Hier Exemption, 1<sup>st</sup> Amendment, Parcel A2 – LE2025-026 project. Not all referral agencies provided comments, and some comments do not warrant a response.

## **1.0 Agency Comments and Garver Responses**

### **1.1 Addressing Analyst**

#### **1.1.1 Comment**

The proposed address is: 4282 DOULGAS AVENUE. This address is not to be used for any purpose other than for plan review until after this project is approved. Proposed addresses are subject to changes as necessary for 911 dispatch and life safety purposes.

Addresses are recorded by Douglas County following all necessary approvals. Contact [DCAddressing@douglas.co.us](mailto:DCAddressing@douglas.co.us) or 303.660.7411 with questions.

#### **1.1.2 Response**

Acknowledged.

### **1.2 AT&T Long Distance - ROW**

#### **1.2.1 Comment**

[Summarized]: AT&T reviewed the request and there should be no conflicts with AT&T Long Lines.

### **1.3 Building Services**

#### 1.3.1 Comment

Permit is required for structure(s). Please visit Douglas County's web site for requirements and contact 303-660-7497 if you have any questions.

#### 1.3.2 Response

All building permits will be obtained by contractor prior to commencement of work.

### **1.4 CDPHE - Water Quality Control Division**

#### 1.4.1 Comment

[Summarized]: CDPHE Air Pollution Control Division provided comments related to APEN and Regulation No. 3, odor, land development, and VOC and Hazardous Air Pollutants Analysis for small wastewater projects.

#### 1.4.2 Response

Our project is not expected to be subject to the regulations regarding air pollution emissions from internal combustion engines.

A bio-trickling filter odor control unit is included in the design on the lift station site to collect foul air and eliminate odors that would otherwise be released into the surrounding area.

The contractors responsible for construction will be utilizing fugitive dust control measures while work is being completed.

### **1.5 CenturyLink**

#### 1.5.1 Comment

N/A

### **1.6 Chatfield Watershed Authority**

#### 1.6.1 Comment

N/A

### **1.7 Colorado Department of Transportation CDOT-Region # 1**

#### 1.7.1 Comment

[Summarized]: CDOT has no objection to the request. Any work that will take place in the State Highway will require a permit.

**1.7.2 Response**

Acknowledged. We are currently preparing permit application materials.

**1.8 Comcast**

**1.8.1 Comment**

N/A

**1.9 CORE Electric Cooperative**

**1.9.1 Comment**

CORE Electric Cooperative has completed its review of the above-referenced referral response packet. Our evaluation considered the potential impacts of the proposed project on existing CORE facilities, utility easements, electric loading, and service requirements. Based on this review, we provide the following comments and determinations:

**Approval**

CORE Electric Cooperative approves the Location and Extent as submitted, contingent upon the applicant's compliance with all clearance, access, and safety requirements detailed below.

**Existing CORE Facilities**

CORE maintains existing underground and overhead electric facilities located on the subject property. These facilities and their associated utility easements will remain in place unless the applicant formally requests modifications in accordance with CORE's current line extension policies.

CORE Electric Cooperative also owns and operates an existing 115 kV transmission line and associated overhead electric facilities on the property. These facilities and their easements will be maintained. All proposed structures, grading, and landscaping must preserve the required clearances and allow CORE adequate access for ongoing operation and maintenance activities.

If any grading is proposed that may affect clearances or accessibility to the 115 kV transmission line, the applicant must submit a detailed grading profile to CORE for review.

**Clearance Requirements**

The applicant must maintain a minimum 20-foot clearance from CORE's existing 115 kV transmission line during all construction activities. The proposed temporary construction easement may require modification to ensure compliance with this minimum clearance requirement and all applicable OSHA regulations governing work near high-voltage transmission lines.

**Safety Requirements**

The applicant and all contractors working on or near CORE Electric Cooperative facilities must comply with the following safety requirements:

#### Compliance With OSHA Regulations

All work near CORE's electric facilities must comply with OSHA regulations pertaining to minimum approach distances, equipment operation, and safe-work practices around energized high-voltage lines.

#### Qualified Personnel

Only trained and qualified personnel may perform work in proximity to CORE facilities. Contractors must ensure all workers are trained in electrical hazard awareness and proper safety protocols.

#### Pre-Construction Coordination

Prior to beginning any work near CORE infrastructure, the applicant must coordinate with CORE to review planned activities, verify clearance compliance, and address any site-specific safety considerations.

#### Protection of CORE Facilities

Construction equipment, staging areas, materials, and temporary structures must not encroach upon CORE's required clearances. Any work that may impact CORE infrastructure including excavation, grading, or operation of tall equipment—must be coordinated with CORE in advance.

#### Emergency Access

Access to CORE's transmission line and associated facilities must remain unobstructed at all times to ensure safe entry for maintenance or emergency response.

If you have any questions or need further coordination regarding this project, please contact me

#### 1.9.2 Response

Garver and SJ Louis (designer and design-builder) will comply with all of the clearance, access, and safety requirements outlined by CORE. We are working closely with CORE to ensure our design does not conflict with their utilities and easements.

### **1.10 Dominion Water and Sanitation District**

#### 1.10.1 Comment

N/A

### **1.11 Douglas County Conservation District**

#### 1.11.1 Comment

[Summarized]: The Conservation District recommends various measures for minimizing impact and provides requirements for trenching slopes and reseeding. Native soils are subject to erosion and swelling and noxious weeds must be controlled on site.

#### 1.11.2 Response

Garver has a completed geotechnical analysis of the area which has been used to support the structural design of facilities and trenchless crossings, and concrete pipe encasement is included in areas identified as drainage pathways having potential for erosion.

We have prepared GESC plans to outline erosions control measures and reseeding in accordance with the conservation district's requirements will be completed by the contractors following construction activities. Noxious weed control measures will also be practiced during construction.

## **1.12 Douglas County Health Department**

### **1.12.1 Comment**

Thank you for the opportunity to review and comment on the application for a Location & Extent for the Town of Castle Rock request for Sewer Lift Station and 12" force main to serve Sedalia. Douglas County Health Department (DCHD) staff have reviewed the application for compliance with pertinent environmental and public health regulations. After reviewing the application, DCHD has no comments.

Please contact me at 720-907-4888 or [bfreyer@douglas.co.us](mailto:bfreyer@douglas.co.us) if you have any questions about our comments.

## **1.13 Douglas County Parks and Trails**

### **1.13.1 Comment**

Parks has no concerns with this project.

## **1.14 Douglas County School District RE 1**

### **1.14.1 Comment**

N/A

## **1.15 Douglas Land Conservancy**

### **1.15.1 Comment**

N/A

## **1.16 Elk Ridge Estates HOA**

### **1.16.1 Comment**

N/A

## **1.17 Engineering Services**

### **1.17.1 Comment**

Engineering provided comments related to the permits and approval required for the project.

Please also show the limits of the 100-yr floodplain on the L & E exhibit.

#### 1.17.2 Response

All required permits and approvals will be obtained prior to project commencement.

Garver has updated the L & E exhibit to show the limits of the floodplain.

### **1.18 Hockaday Heights HOA**

#### 1.18.1 Comment

N/A

### **1.19 Indian Creek Ranch Improvement Association**

#### 1.19.1 Comment

N/A

### **1.20 Mile High Flood District**

#### 1.20.1 Comment

N/A

### **1.21 Office of Emergency Management**

#### 1.21.1 Comment

No Comment.

### **1.22 Open Space and Natural Resources**

#### 1.22.1 Comment

Thank you for providing the opportunity to comment on this location and extent. If there is potential to work with the property owner and the town to obtain a surface easement over the sewer line for a trail connection between the Town of Castle Rock and the Sedalia area, we would be interested in seeing how that would align with the overall plum creek trail that Douglas County Parks, Trails, and Building Grounds is planning.

We did not see it mentioned in the environmental section of the L & E report, but the Riparian Conservation Zone (RCZ) runs through this project area. Earthwork and impacts to vegetation within the RCZ constitute a 'take' of the Preble's meadow jumping mouse (PMJM), a species listed as threatened under the Endangered Species Act (ESA). The Town should plan to cover impacts and provide

revegetation/mitigation under the Douglas County Regional Habitat Conservation Plan (HCP), as Castle Rock is a party to this HCP.

Plum Creek is also an important wildlife corridor; it is identified as a Tier 1 wildlife resource in the County's Comprehensive Master Plan. The corridor is home to hundreds of indigenous species. Minimizing the duration of activity and the impacts to habitat will help reduce negative impacts to the wildlife that use the corridor. Swift revegetation is also helpful in minimizing the duration of impacts.

It is likely that a Clean Water Act 404 permit will be required for this work. A state dredge and fill permit may also be required. Early consultation with Army Corps of Engineers and Colorado Department of Health and Environment may help streamline permitting and the project timeline. Although unlikely for this type of permit, if any fill or structure is proposed within the 100-year floodplain, a Letter of Map Revision may be required by the Federal Emergency Management Agency. None of these permits or coordination were mentioned in the environmental section of the L & E Report but are worth considering to avoid inadvertent legal violations and project delays.

#### 1.22.2 Response

We are working with an environmental consultant to complete floodplain and wildlife surveys in the project area and coordinate permits. We take seriously the environmental sensitivity in the area and have incorporated low-impact installation methods in key areas to avoid major disruptions to the native ecosystem.

### 1.23 Plum Creek Water Reclamation Authority

#### 1.23.1 Comment

Thank you for the review and please keep us updated if this permit adds new documents or if there are other permits that open associated with this project.

Patou Griggs

Industrial Pretreatment Manager

303-688-1991

#### 1.23.2 Response

Acknowledged.

### 1.24 Ranch at Coyote Ridge HOA

#### 1.24.1 Comment

N/A

### 1.25 Sedalia Property Owners Coalition

#### 1.25.1 Comment

N/A

**1.26 Sedalia Water & Sanitation District**

1.26.1 Comment

SWSD is aware of this project and working with applicant on water use/location of water taps. Inclusion into the SWSD and associated fees will be required. Applicant shall facilitate meetings with SWSD to begin that process.

1.26.2 Response

Acknowledged.

**1.27 Sheriff's Office**

1.27.1 Comment

N/A

**1.28 Sheriff's Office E911**

1.28.1 Comment

N/A

**1.29 Town of Castle Rock**

1.29.1 Comment

No Comment.

**1.30 West Douglas County FD**

1.30.1 Comment

We have carefully reviewed this proposal and have no concerns.

**1.31 Wildfire Mitigation**

1.31.1 Comment

N/A

**1.32 Xcel Energy-Right of Way & Permits**

1.32.1 Comment

[Summarized]: Xcel Energy does not have conflicts with the request.

If there are any questions or concerns with the responses provided, please don't hesitate to reach out to me.

Sincerely,

GARVER

A handwritten signature in black ink that reads "Wesley Lozano". The signature is fluid and cursive, with "Wesley" on the top line and "Lozano" on the bottom line, slightly overlapping.

Wesley Lozano, PE  
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