Boulder County

Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • **www.bouldercounty.gov**

BOULDER COUNTY
BOARD OF COUNTY COMMISSIONERS
PUBLIC HEARING

October 17, 2024 at 9:00 a.m.

All Commissioners' public hearings and meetings will be offered in a hybrid format where attendees can join **through Zoom** or **in-person** at the Boulder County Courthouse, 3rd Floor, 1325 Pearl Street, Boulder.

STAFF RECOMMENDATION

STAFF PLANNER: Dana Yelton

Docket LU-24-0014: O'Conor Access Road

Request:	Limited Impact Special Review for 1,254 cubic yards of non-foundational earthwork for construction of a new driveway to access the existing residence on an approximately 3-acre parcel at 254 Left Fork Rd.
Location:	254 Left Fork Rd, parcel number 146130000021, approximately 0.7 miles north of the intersection of Sugarloaf Rd and Mountain Pines Rd, Section 30, Township 1N, Range 71W.
Zoning:	Forestry (F)
Applicant:	Andrea O'Conor (Owner)
Agents:	Gino Cornella and David Lucas

PACKET CONTENTS

SUMMARY

The applicant requests Limited Impact Special Use Review for 1,254 cubic yards of earthwork and grading to create a new driveway to access the existing residence at 254 Left Fork Road. Limited Impact Special Use Review is required because the proposed non-foundational earthwork exceeds 500 cubic yards, and this earthwork is analyzed pursuant to the Special Use Standards outlined in Boulder County Land Use Code (the Code) Article 4-601.

With the recommended conditions, staff finds the proposal can meet the Limited Impact Special Review Criteria in Article 4-601 of the Code and recommends conditional approval of docket **LU-24-0014: O'Conor Access Road.**

DISCUSSION

The proposed earthwork is located within a 60-foot-wide non-exclusive easement which crosses the adjacent parcel at 224 Left Fork Rd, and within the approximately 3-acre subject parcel at 254 Left Fork Road.

Figure 1, below, shows the general vicinity of the project area, which is located approximately 4.85 miles west of the City of Boulder, north of Sugarloaf Road and south of Fourmile Canyon Drive.

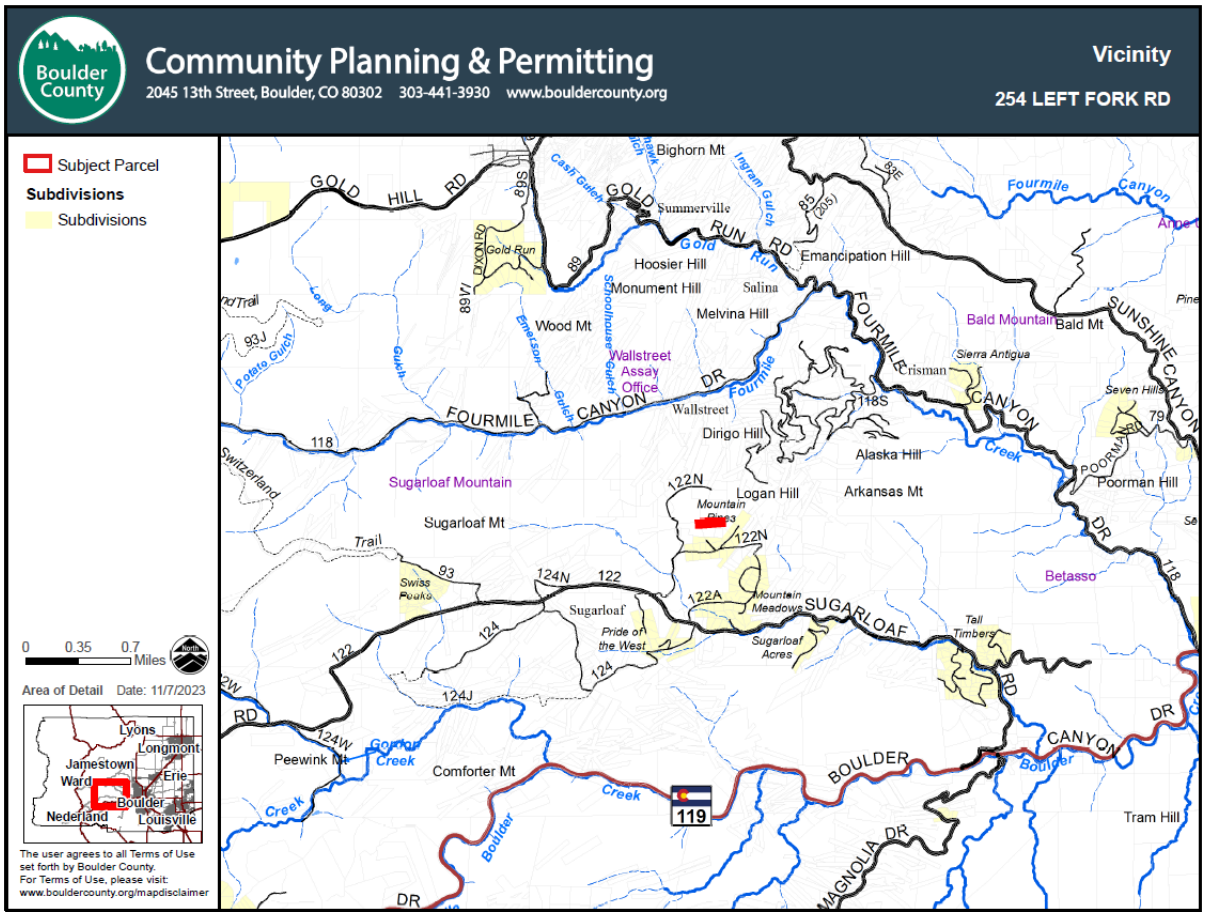


Figure 1. Vicinity Map

The subject parcel and the non-exclusive easement were created in 1969 as described on warranty deed recorded September 24, 1969 at Reception Number 90925465. Legal access has been demonstrated via the non-exclusive easement.

The proposed 1,254 cubic yards of non-foundational earthwork is intended to provide access to the existing residence at 254 Left Fork Road. The extent of the proposed driveway layout and location of the existing residence are shown in Figure 2, below (also on pages A14-A16 of Attachment A).

Figure 2: Cropped image of grading plan for the new driveway, with the non-exclusive easement outlined in green, the subject parcel shaded blue, and the existing residence shaded yellow.

As shown in Figure 3 below, the Boulder County Comprehensive Plan (the Comprehensive Plan) identifies Wetlands within the non-exclusive easement and within the subject parcel.

Potential impacts to these identified resources are discussed under Criteria 3 and 4, below.

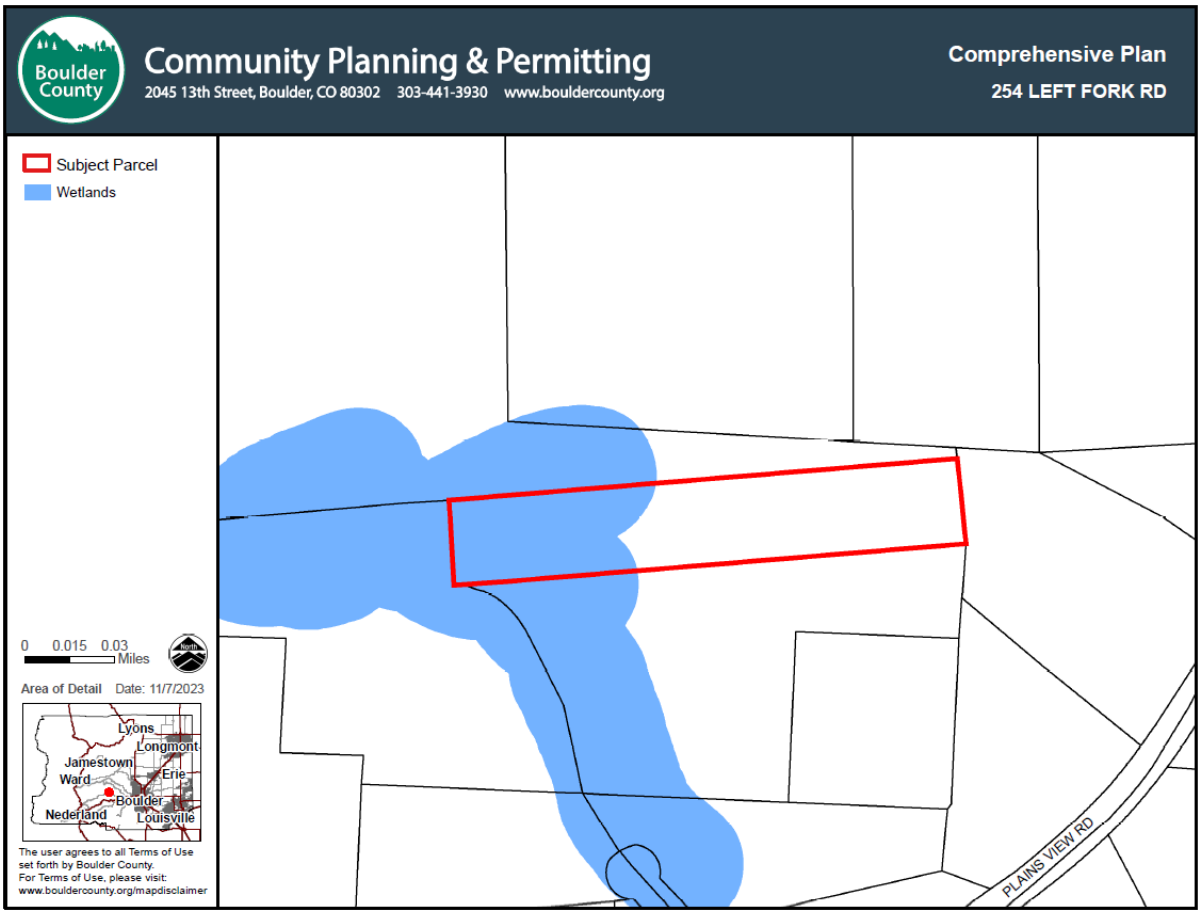


Figure 3: Comprehensive Plan Map

Staff notes that the Comprehensive Plan wetland mapping includes an automatic "buffer" around known wetlands. Figure 4 below shows a more accurate boundary of the wetland, as provided in the Boulder County Parks & Open Space referral memo (also on page B8 of Attachment B).

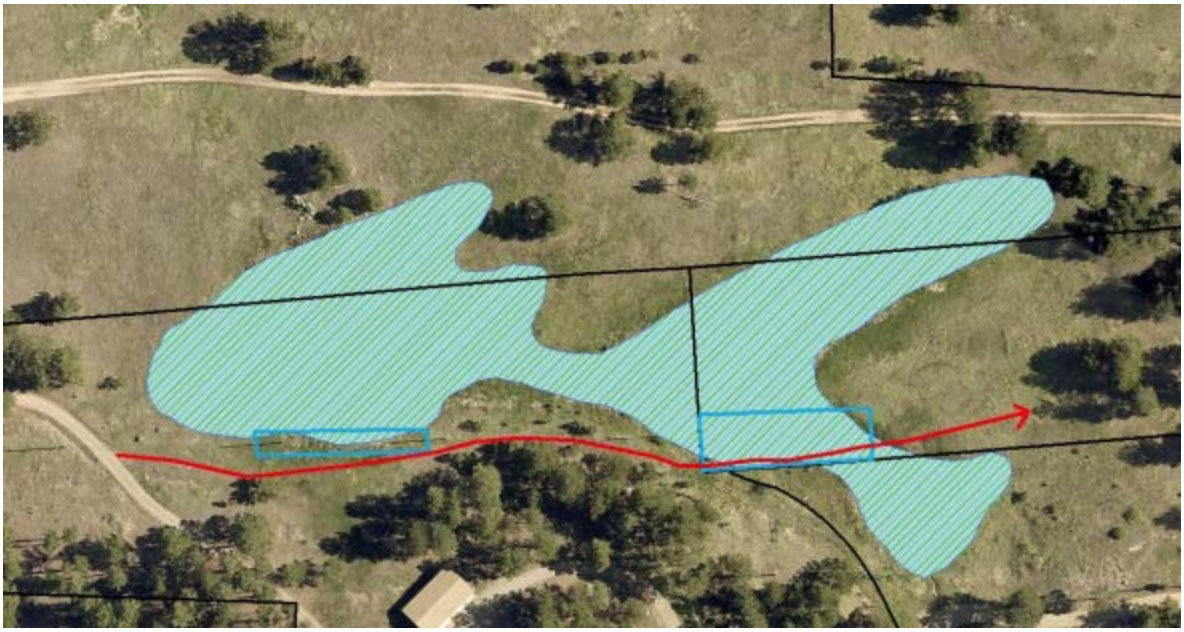


Figure 4: Wetlands boundaries shown in green per Boulder County Parks & Open Space mapping, and proposed driveway alignment shown in red.

As detailed in the criteria review below, staff finds that the proposed non-foundational grading can meet the Special Review Criteria in Article 4-601 of the Code, with the recommended conditions of approval.

REFERRALS

This application was referred to the typical agencies, departments, and adjacent property owners. All responses received are attached and summarized below.

Boulder County Building Safety & Inspection Services Team: This group reviewed the proposal and responded that a grading permit, plan review, and inspection approvals are required for the grading. The construction documents must be stamped, signed and sealed by a qualified Colorado-licensed design professional. They also noted that the design professional responsible for the design or a similarly qualified Colorado-licensed design professional must observe the grading and submit a stamped report to Building Safety & Inspection Services for review and approval. The final report must state that the work has been completed in substantial conformance with the approved engineered plans.

Boulder County Development Review – Access & Engineering: The Access & Engineering group responded that the proposed driveway must comply with Boulder County Multimodal Transportation Standards (the Standards) and that the plans submitted by the applicants meet the Standards with the exceptions of the close proximity to the easement boundaries, which will need to be staked to ensure no grading occurs outside the easement, the proposed pullout, which will need to be revised to meet the Standards, and the proposed "Y" turnaround, which currently exceeds the required radius. The referral response also noted that the offsite drainage rate must be regulated to no more than pre-development rates, and potentially even lower to offset the effects of the increased runoff volume and concentration of flow and prevent the worsening of the existing erosion channel. Updated hydrologic, hydraulic, and cross sections for swales and ditches calculations are also requested to be submitted by the applicant. Finally, the Access & Engineering team requires that the applicants submit a construction staging plan and that during construction, all vehicles, materials, machinery, dumpsters, and other items must be staged on the subject property or within the 60-foot easement such that the shared portion of the driveway at 224 Left Fork Road remain free and clear of all construction staging to avoid negative impact to the neighbor.

Boulder County Parks & Open Space – Natural Resource Planner: The Natural Resource Planner reviewed the submitted materials and notes that there are a mix of wet-meadow montane wetlands, and ponderosa pine savannah uplands within the subject parcel and surrounding area. They also acknowledge that the site has a Wetlands designation in the Boulder County Comprehensive Plan. The Natural Resource Planner states that they would have preferred that the existing driveway continue to be used for access, however the need for the new alignment appears to be unavoidable. The referral response indicates that the western and eastern portions of the proposed driveway that are located within the easement should not result in significant impacts, provided that the northern edge of the access road does not enter the wetland area, and notes that the Comprehensive Plan wetland mapping includes an automatic "buffer" around known wetlands. However, the referral response notes that the area where the alignment is proposed to cross a drainage and wetland area is of concern, and that there are two springs – one from the northwest and one from the north – that join immediately above the proposed driveway crossing where large willow shrubs currently exist. The referral response states that a construction fence must be erected on the north side of the proposed driveway prior to any site disturbance, that no construction or staging may occur north of the fence, that the fence must be located as close as possible to the proposed driveway construction and inspected by the county on-site, and that any willow trees to be removed should be plainly delineated prior to inspection. The referral response also requires that the applicants submit a Revegetation Plan that includes native grass species to be used, an explanation of how topsoils will be stockpiled and reused, mapped delineation of all disturbance areas (including construction staging areas), locations of silt fence or erosion control logs down slope of all disturbed areas (is in addition to the construction fences), and matting requirements on steeper slopes where necessary. Any straw bale barriers, or straw mulch, must be made from certified weed-free straw, and hay bales, which contain seed, cannot be used. Finally, the Natural Resource Planner questions where the fill material be sourced how the importation of noxious weed seeds will be prevented.

Boulder County Public Health: This group responded that a new permit for the installation of an absorption bed system was issued on October 21, 1976 for an onsite wastewater treatment system (OWTS) adequate for a 3-bedroom house, and the installation of the OWTS was approved by Boulder County Public Health on November 17, 1976. The referral response states that the proposed access road cannot be constructed over any of the existing OWTS components, and that documents detailing the location of the OWTS are available on the SepticSmart (Onsite Wastewater Treatment Systems) website. This group also notes that setbacks between all specified features and the OWTS serving this property and OWTS serving neighboring properties, must be in accordance with the Boulder County OWTS Regulations, Table 7-1. Finally, the referral response indicates that in order to avoid damage to the existing OWTS, heavy equipment should be restricted from the surface of the absorption field during construction to avoid soil compaction, which could cause premature absorption field malfunction. Caution should be used in conducting trenching and excavation activities so that sewer lines and other OWTS components are not damaged.

Sugarloaf Fire Protection District: The Sugarloaf Fire Protection Chief responded with comments and questions regarding the existing wetlands within the subject parcel and within the non-exclusive easement. This reviewer questioned whether there are alternative design options for the access road that would avoid the designated wetland shown on the Comprehensive Plan map. The referral response also noted that pullouts and an emergency hammerhead turnaround are required, and that certain trees will need to be removed or limbed to accommodate the new access road.

Adjacent Property Owners: Notices were sent to all property owners within a 1,500-foot radius of the subject parcel. Staff received responses from three members of the public. One commenter noted an error on the submitted application materials where the subject parcel owner's current temporary license to access the subject parcel is labeled "Mountain Pines Road". A second commenter stated that they have no objection to the construction of the new access road. A third commenter requested a

status update on the LU review, asked whether a geotechnical engineer has been retained to review or if any biological or environmental assessment has been conducted by Parks and Open Space regarding the meadow habitat.

Agencies that responded with no conflict: Boulder County Wildfire Mitigation Team

Agencies that did not submit a response: Boulder County Long Range Planning, Boulder County Assessor's Office, Boulder County Sheriff's Office Boulder County Storm Water Quality, Bureau of Land Management, U.S. Forest Service, and Xcel Energy

LIMITED IMPACT SPECIAL REVIEW CRITERIA

The Community Planning & Permitting staff has reviewed the proposal for 1,254 cubic yards of non-foundational grading pursuant to the Limited Impact Special Use Review criteria per Section 4-601.A of the Code, and finds the following:

(1) Complies with the minimum zoning requirements of the zoning district in which the use is to be established, and will also comply with all other applicable requirements;

The subject parcel is located in the Forestry zoning district. Earthwork in excess of 500 cubic yards can be permitted as an accessory use (Article 4-516), pending approval through Limited Impact Special Review.

Therefore, staff finds this criterion can be met.

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

For the purposes of this Limited Impact Special Use Review, staff considered the surrounding neighborhood to be the properties within 1,500 feet of the subject parcel. The proposed earthwork is necessary to provide access to the existing residence and staff finds that many of the existing driveways within the defined neighborhood are of a similar length and overall design as the proposed driveway. Therefore, staff finds that the proposal is compatible with the surrounding area.

Therefore, staff finds that this criterion is met.

(3) Will be in accordance with the Boulder County Comprehensive Plan;

The Boulder County Comprehensive Plan identifies Wetlands within the project area.

Based on historical aerial imagery, and as noted in the Parks & Open Space – Natural Resource Planner's referral memo, the wetland appears to be associated with two nearby springs that cause seasonal runoff. To ensure that impacts to the identified wetlands are

sufficiently mitigated, staff recommends a condition of approval requiring the applicants submit plans that include construction fencing along the north side of the proposed driveway. Staff also recommends a condition of approval that no construction or staging occur north of the construction fence, and that any willow trees proposed to be removed be plainly delineated.

Staff also recommends a condition of approval requiring any applicable federal, state, tribal or local permits be obtained.

Therefore, as conditioned, staff finds this criterion can be met.

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

Due to steep slopes and grades within the subject parcel and the non-exclusive easement, the construction of the proposed driveway would require a substantial amount of earth movement in order to meet the Boulder County Multimodal Transportation Standards. There are significant natural areas or environmental resources of concern identified within the proposed driveway alignment, specifically wetlands. However, staff finds that the impacts to the wetlands will be sufficiently mitigated with the conditions of approval discussed in Criterion 3 above, and the proposed earthwork does not constitute an over intensive use of land.

In order to restore the disturbed areas created through this project, staff recommends requiring the applicants to submit a Revegetation and Erosion Control Plan that includes the installation of a sediment barrier as a condition of approval.

Therefore, as conditioned, staff finds this criterion can be met.

(5) Will not have a material adverse effect on community capital improvement programs;

There is no indication the proposal will have an adverse effect on community capital improvement programs, and no referral agency has responded with such a concern.

Therefore, staff finds this criterion is met.

(6) ***Will not require a level of community facilities and services greater than that which is available;***

Staff does not anticipate the proposal will have an adverse effect on community facilities and services, and no agencies submitted a response with concerns about community facilities or services.

Therefore, staff finds this criterion is met.

(7) ***Will support a multimodal transportation system and not result in significant negative impacts to the transportation system or traffic hazards;***

Legal access to the subject parcel is demonstrated via the non-exclusive easement described on warranty deed recorded September 24, 1969 at Reception Number 90925465. Staff does not anticipate any changes or long-term negative impacts to the existing transportation system from the proposal.

Staff recommends a condition of approval requiring that plans submitted for permitting demonstrate compliance with the Boulder County Multimodal Transportation Standards.

To ensure anticipated impacts to the transportation system are sufficiently mitigated, staff recommends a condition of approval requiring a construction staging plan showing all vehicles, materials, machinery, dumpsters, and other items being staged on the subject property or within the 60-foot easement, and that the shared portion of the driveway at 224 Left Fork Road must remain free and clear of all construction staging to avoid negative impact to the neighbor.

Therefore, as conditioned, staff finds this criterion can be met.

(8) ***Will not cause significant air, odor, water, or noise pollution;***

There is no indication that the proposed earthwork will cause significant air, odor, or noise pollution, and no referral agency responded with such a concern.

Therefore, staff finds this criterion can be met.

(9) ***Will be adequately buffered or screened to mitigate any undue visual impacts of the use;***

The proposed access road will utilize a portion of an existing driveway within the non-exclusive easement that is currently used to access the residence at 224 Left Fork Road. The proposed driveway alignment then diverts east towards the subject parcel at 254 Left Fork Road, where the grade slopes steeply away from the public right-of-way. The distance from the existing residence to the public right-of-way is approximately 1,300 linear feet. Therefore, staff finds that due to the existing topography and the distance from the public right-of-way, the proposed access road will be adequately buffered and will not cause undue negative visual impacts from the public right-of-way.

Revegetation of the area, as required under Criterion 4, will ensure there are no long-term undue visual impacts, and staff does not have concerns that the proposed access road will change the existing visual character of the area.

Therefore, as conditioned in Criterion 4 above, staff finds this criterion can be met.

(10) ***Will not otherwise be detrimental to the health, safety, or welfare of the present or future inhabitants of Boulder County;***

Staff does not anticipate that the proposed nonfoundational earthwork will be detrimental to present or future County inhabitants.

Therefore, staff finds this criterion is met.

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

The proposed non-foundational earthwork will establish an appropriate balance between current and future societal needs by providing adequate physical access to the existing residence located on the subject parcel.

Therefore, staff finds this criterion is met.

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

There are no identified geological hazards within or adjacent to the project area. As such, staff does not anticipate any unreasonable risk of harm to people or property – both onsite and in the surrounding area – from natural hazards as a result of this proposal.

Therefore, staff finds that this criterion is met.

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

Staff anticipates that the proposed construction of the new access road could change the overall pattern of drainage and recommends that the historic offsite drainage rate be regulated to no more than pre-development rates or potentially lower to offset the effects of the increased runoff volume and concentration of flow to prevent the worsening of the existing erosion channel.

Staff recommends a condition of approval requiring a revised drainage letter that addresses the concerns outlined in the Boulder County Development Review – Access & Engineering referral that is included on pages B4 and B5 of Attachment B.

Therefore, as conditioned, staff finds this criterion can be met.

RECOMMENDATION

Staff has determined that the proposal can meet all the applicable criteria of the Boulder County Land Use Code for Limited Impact Special Use Review. Therefore, staff recommends that the Board of County Commissioners ***conditionally approve docket LU-24-0014: O'Conor Access Road*** with the following conditions:

1. The proposed driveway access must meet the requirements of the Boulder County Building Safety and Inspection Services Team and adopted County Building Codes, including but not limited to, grading permits, observation reports, and plan review.

2. The location of the driveway access is approved as proposed in the application materials dated August 23, 2024.

3. ***Prior to issuance of Grading Permit,*** the applicants must submit plans for review and approval by Community Planning & Permitting staff that include construction fencing along the north side of the proposed driveway prior to any site disturbance and that any willow trees to be removed be plainly delineated.

4. ***Prior to any site disturbance,*** the construction fence must be installed in accordance with the approved plans and inspected by Community Planning & Permitting staff.

5. ***During construction,*** no construction or staging may occur north of the construction fence.

6. ***Prior to issuance of Grading Permit,*** the applicants must obtain any applicable federal, state, tribal or local permits.

7. ***Prior to issuance of Grading Permit,*** a Revegetation and Erosion Control Plan must be submitted for review and approval by Community Planning & Permitting staff. This plan must include native grass species to be used, an explanation of how topsoils will be stockpiled, mapped delineation of all disturbance areas (this includes construction staging areas), locations of erosion control measures around disturbed areas, and matting requirements, if necessary. Silt fencing or other appropriate erosion control must be installed downslope of all areas of disturbance.

    a. ***Prior to any grading or site disturbance,*** the silt barrier location and materials must be installed as required per the approved plans.

8. ***Prior to issuance of Grading Permit,*** the applicant must submit plans for review and approval by Community Planning & Permitting staff that demonstrate compliance with the Boulder County Multimodal Transportation Standards.

9. ***Prior to issuance of Grading Permit,*** the applicant must submit a construction staging plan for review and approval by Community Planning & Permitting staff.

10. ***During construction,*** all vehicles, materials, machinery, dumpsters, and other items must be staged on the subject property or within the 60-foot easement, andthe shared portion of the driveway at 224 Left Fork Road must remain free and clear of all construction staging to avoid negative impact to the neighbor.

11. ***Prior to issuance of Grading Permit,*** the applicant must submit a revised drainage letter for review and approval by Community Planning & Permitting staff that addresses the concerns outlined in the Boulder County Development Review – Access & Engineering referral dated October 1, 2024.

12. The applicants are subject to the terms, conditions, and commitments of record and in the file for docket **LU-24-0014: O'Conor Access Road.**

ATTACHMENT A

Boulder County Land Use Department

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

Shaded Areas for Staff Use Only
Intake Stamp

Planning Application Form

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

Project Number	Project Name

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

Location(s)/Street Address(es)				
254 Left Fork Rd, Boulder, CO				
Subdivision Name: See attached legal description in title commitment				
Lot(s)	Block(s)	Section(s)	Township(s)	Range(s)
Area in Acres	Existing Zoning	Existing Use of Property		Number of Proposed Lots
Proposed Water Supply: Well		Proposed Sewage Disposal Method: Septic		

Applicants:

Applicant/Property Owner: Andrea O'Conor			Email: oconor@indra.com
Mailing Address: 877 55th St			
City: Port Townsend	State: WA	Zip Code: 98368	Phone: 720-635-6888
Applicant/Property Owner/Agent/Consultant: Gino Cornella			Email: Gino@rockyridgecivil.com
Mailing Address: 420 21st St. Suite 101			
City: Longmont	State: CO	Zip Code: 80501	Phone: 303-651-6626 ext 5
Agent/Consultant: David Lucas			Email: david@accentproperties.net
Mailing Address: 2291 Arapahoe Ave			
City: Boulder	State: CO	Zip Code: 80302	Phone: 303-931-9998

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

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

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

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

Signature of Property Owner: Andrea O'Conor	Printed Name: Andrea O'Conor	Date: 6-16-24
Signature of Property Owner	Printed Name	Date

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

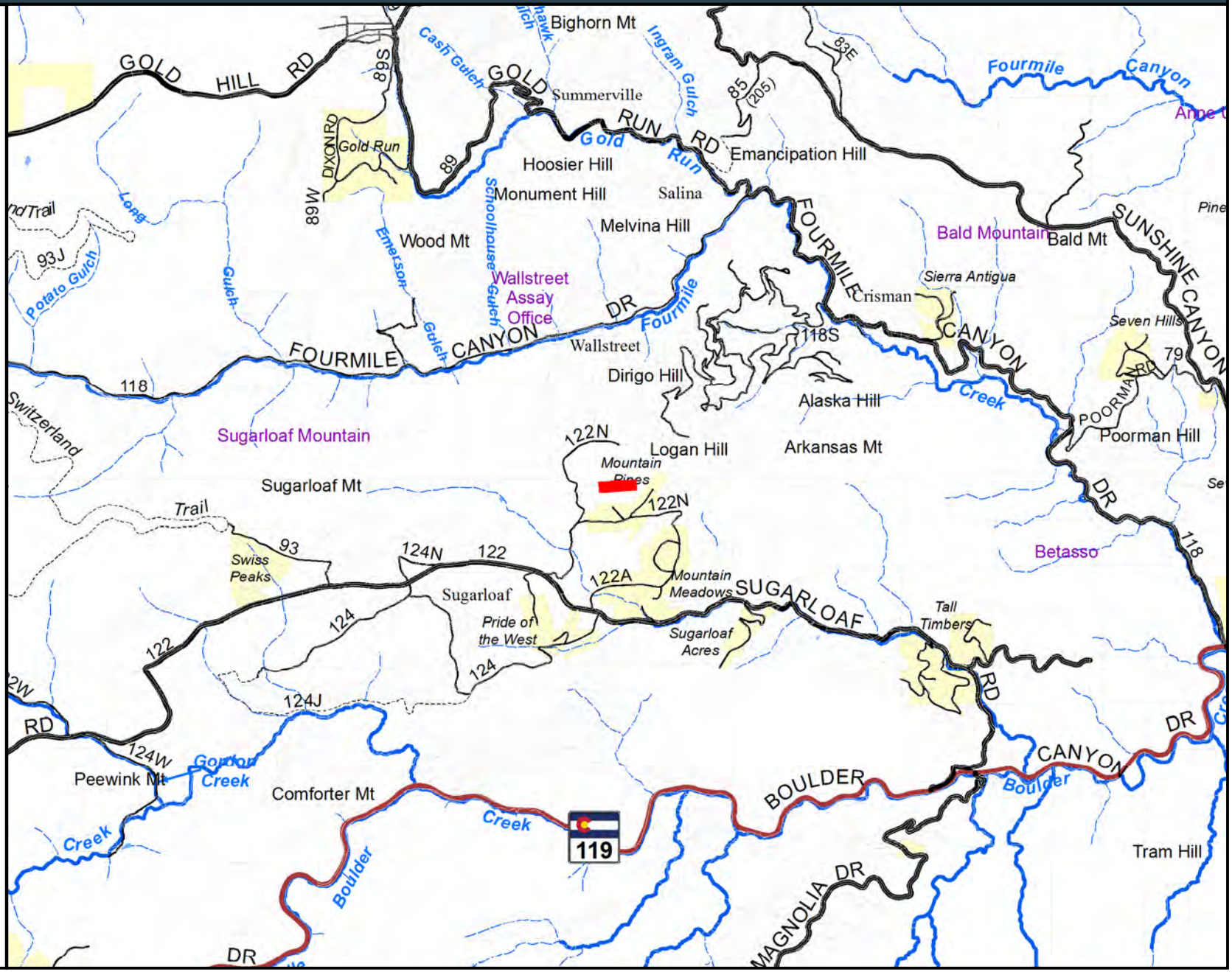
Community Planning & Permitting

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

ATTACHMENT A

Vicinity

254 LEFT FORK RD



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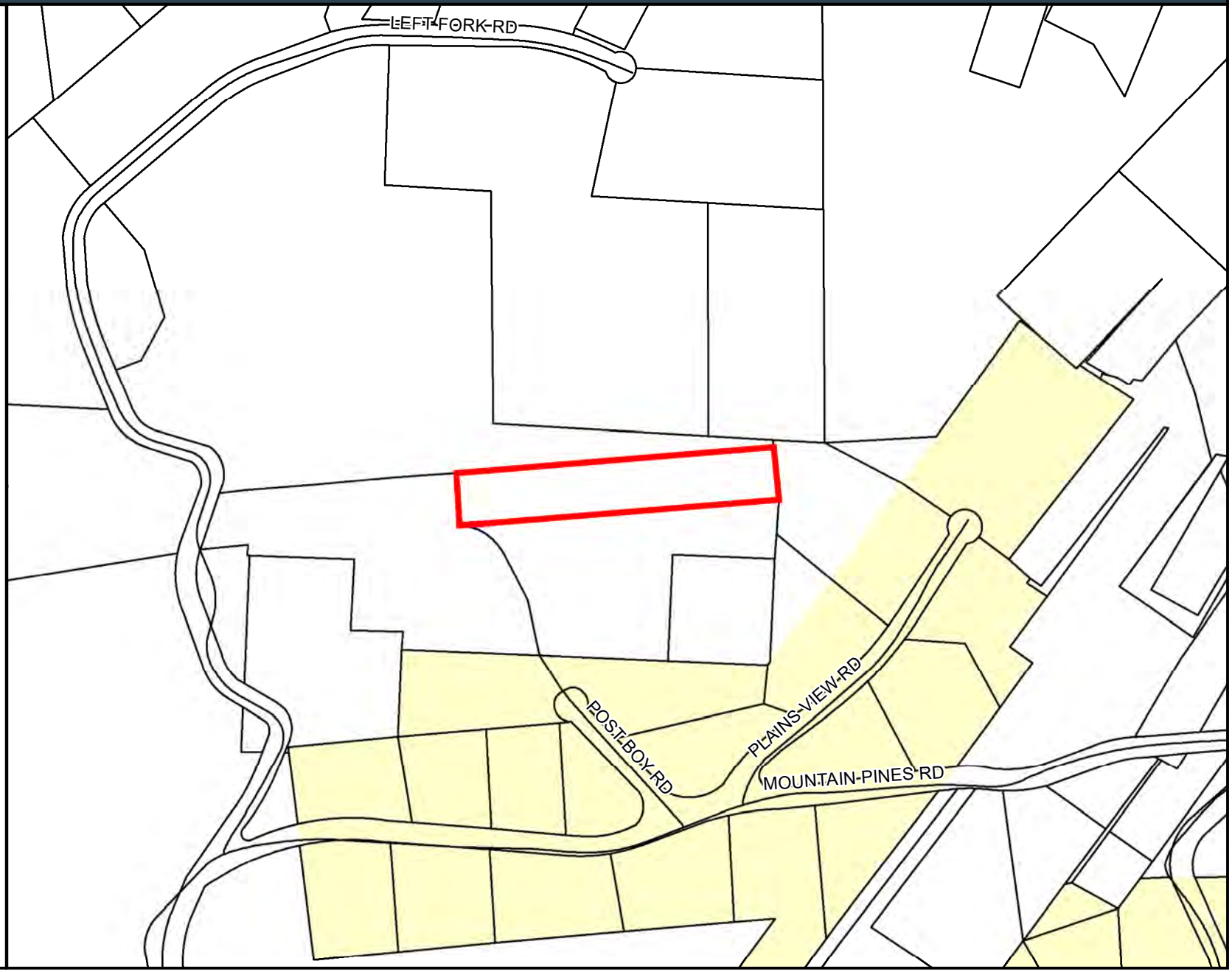
ATTACHMENT A

Location

254 LEFT FORK RD



Subject Parcel

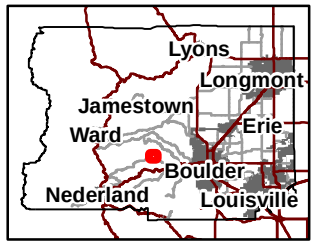
Subdivisions

Subdivisions

0 0.035 0.07 Miles

North

Area of Detail Date: 11/7/2023



joryan

ATTACHMENT A

Community Planning & Permitting

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Aerial

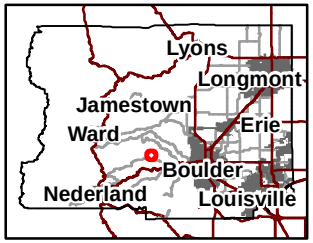
254 LEFT FORK RD

Subject Parcel

0 0.015 0.03 Miles

North

Area of Detail Date: 11/7/2023



joryan

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ATTACHMENT A

Aerial

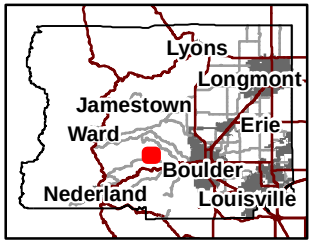
254 LEFT FORK RD

Subject Parcel

0 0.05 0.1 Miles

North

Area of Detail Date: 11/7/2023



joryan

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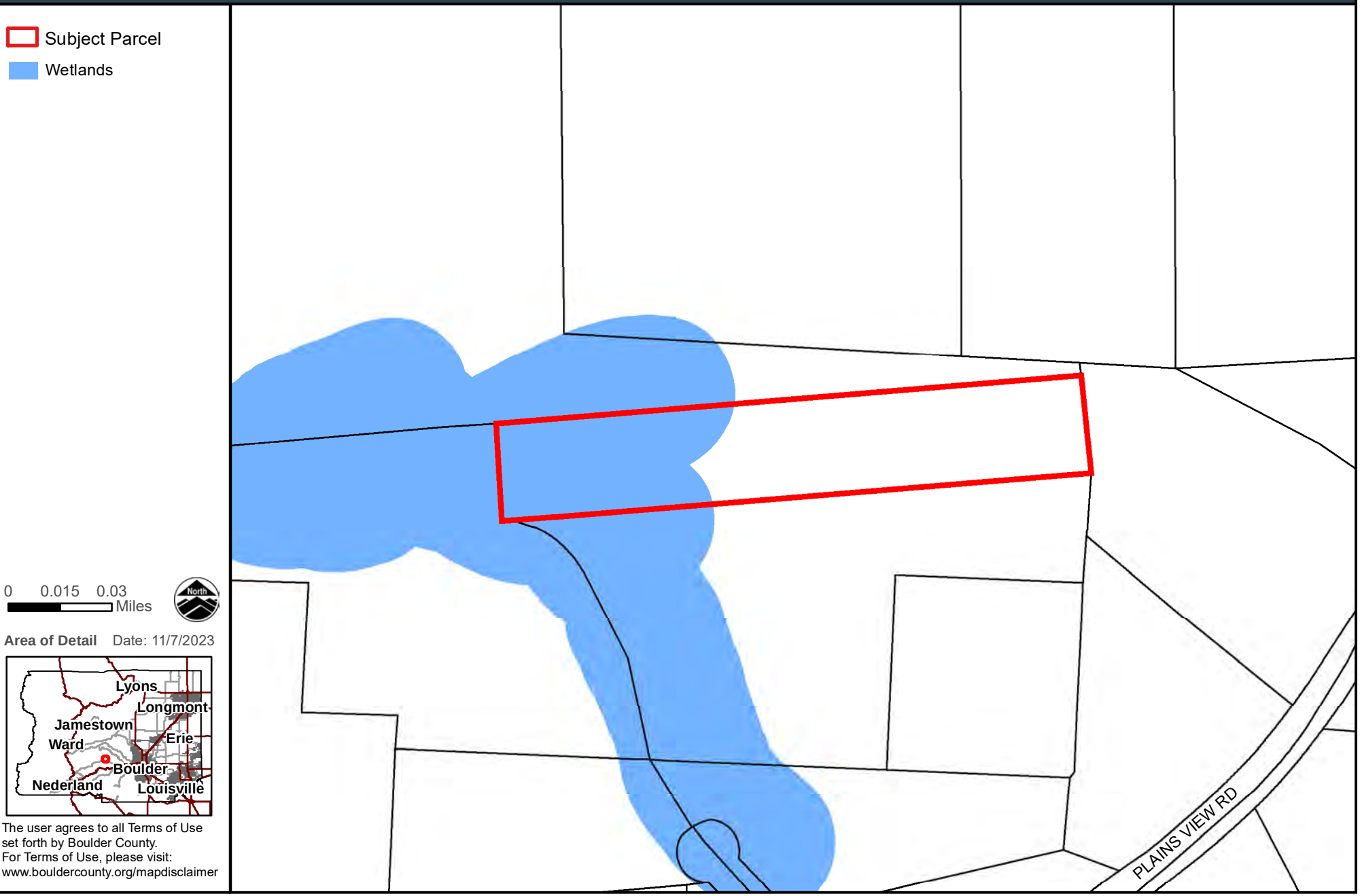
ATTACHMENT A

Comprehensive Plan

254 LEFT FORK RD



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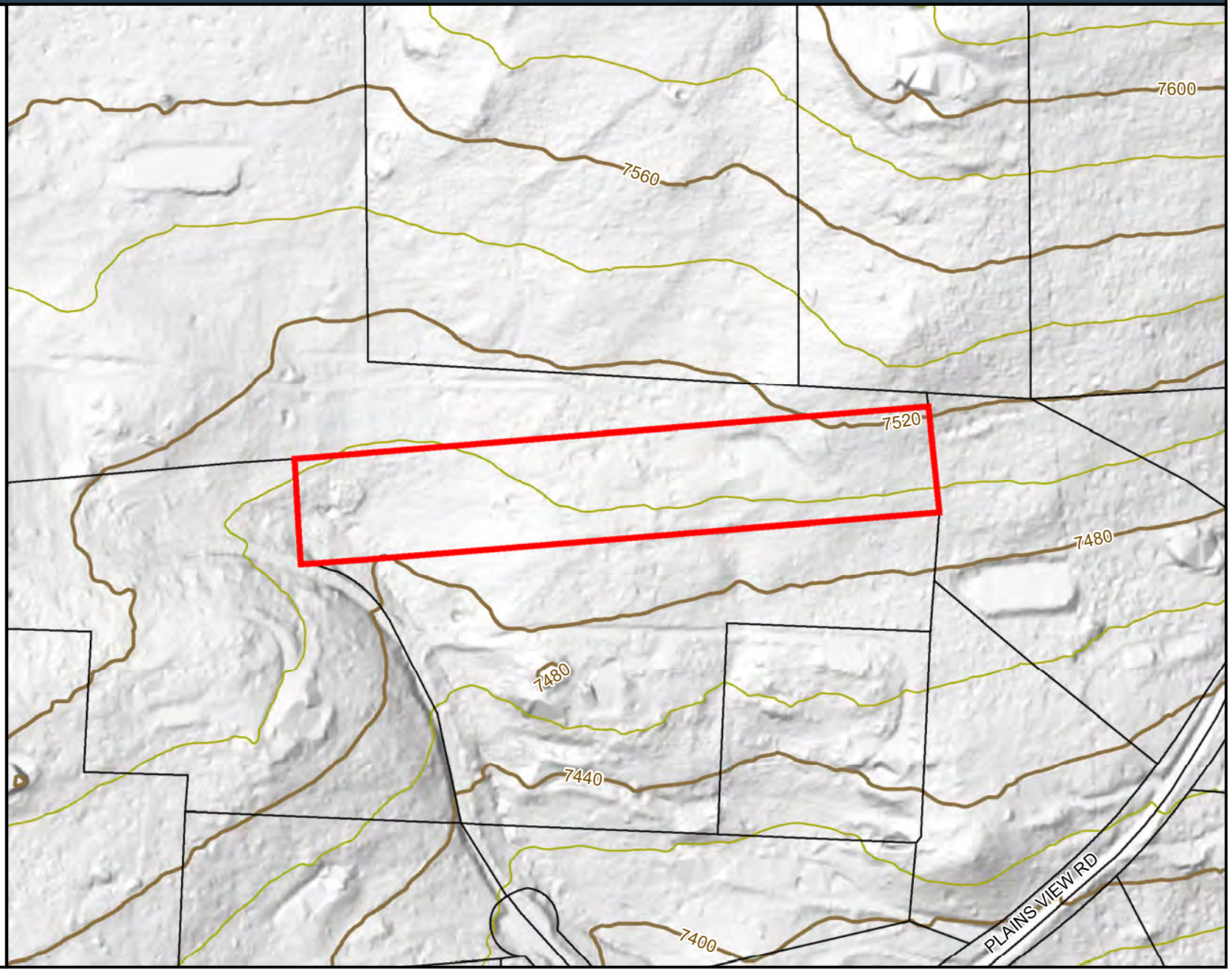
ATTACHMENT A

Elevation Contours

254 LEFT FORK RD



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ATTACHMENT A

Geologic Hazards

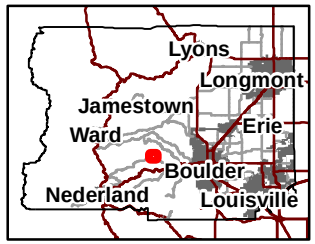
254 LEFT FORK RD

Subject Parcel

0 190 380 Feet

North

Area of Detail Date: 11/7/2023



joryan

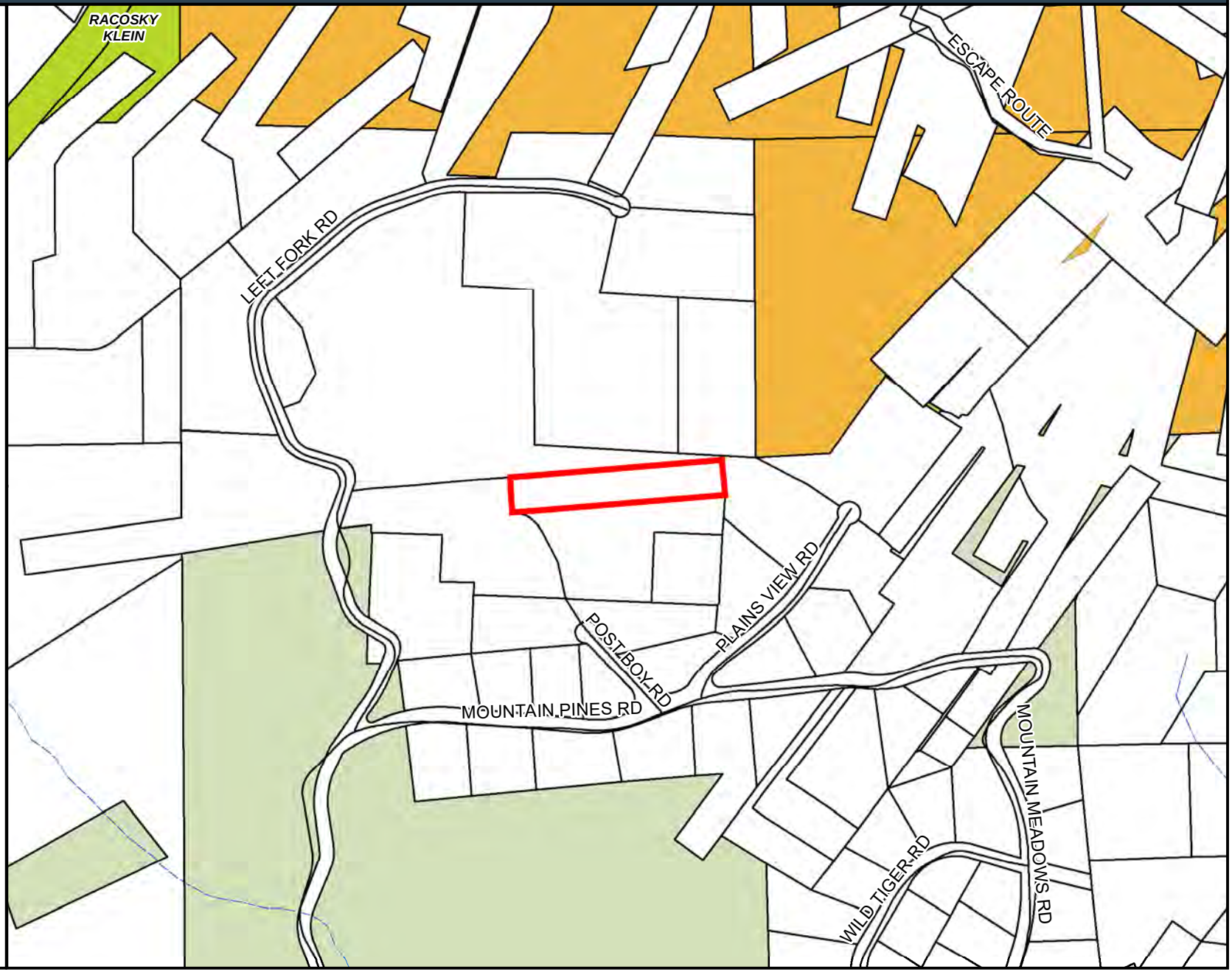
Community Planning & Permitting

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

ATTACHMENT A

Public Lands & CEs

254 LEFT FORK RD



Subject Parcel

Boulder County Open Space

County Conservation Easement

Federal Lands

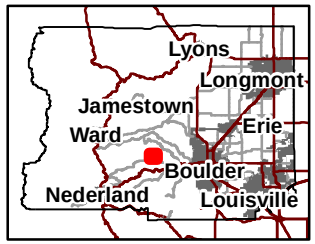
USFS Land

BLM Land

0 0.05 0.1 Miles

North

Area of Detail Date: 11/7/2023



joryan

Community Planning & Permitting

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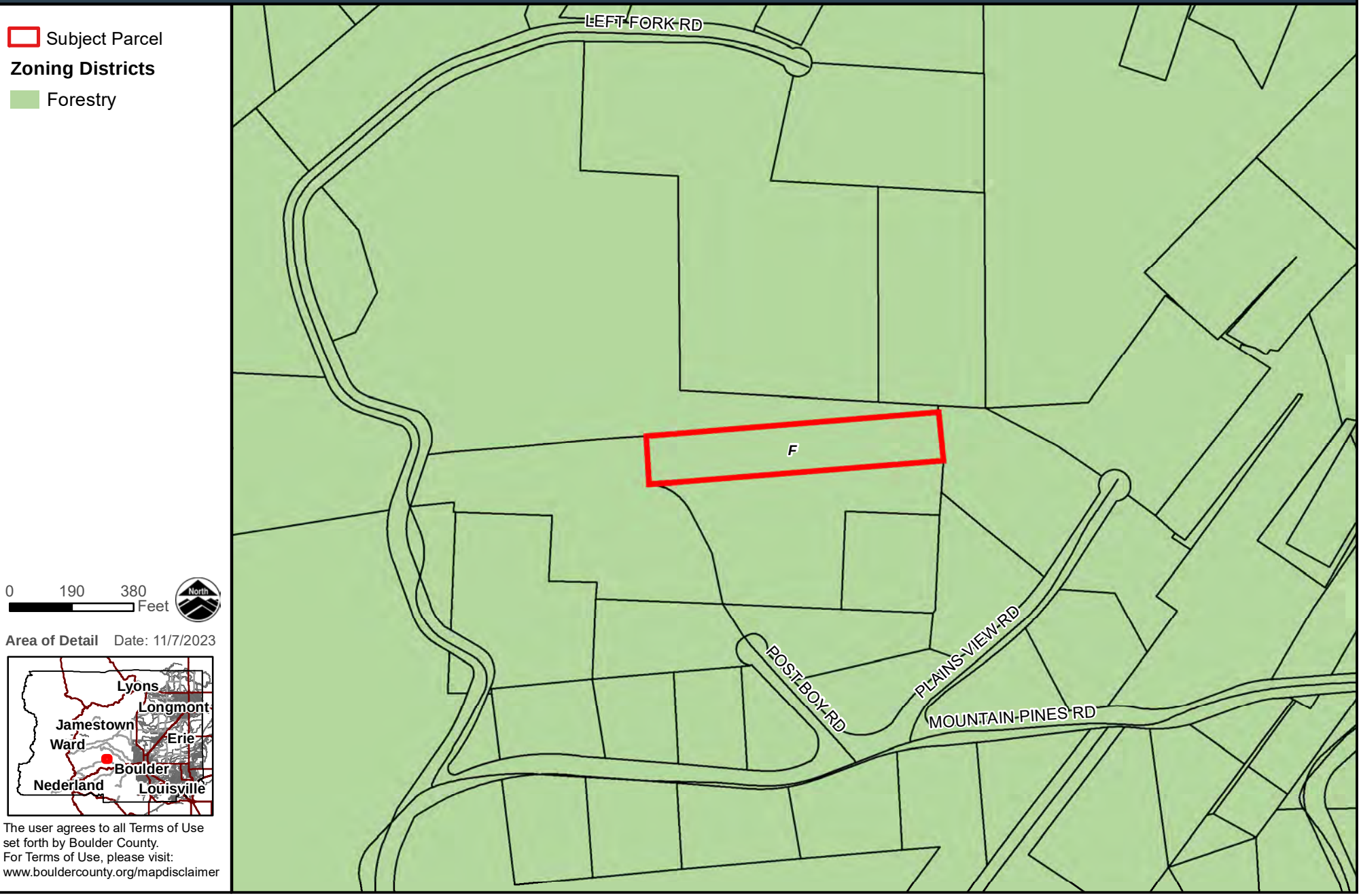
Zoning

254 LEFT FORK RD



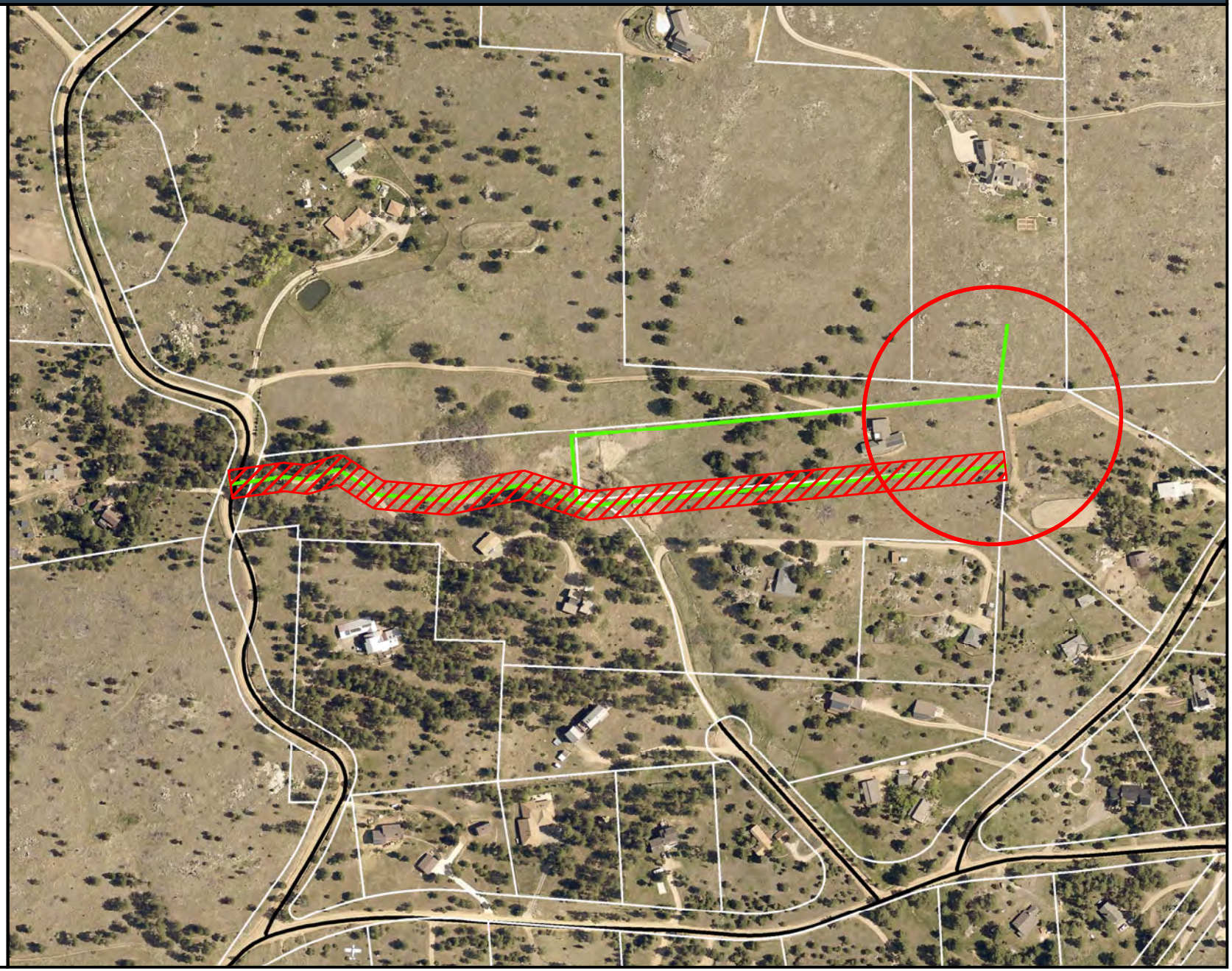
joryan

ATTACHMENT A

Community Planning & Permitting

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org

Easement Map Request



Mapped Deeds

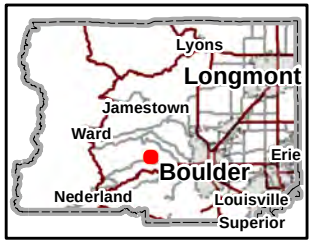
00195235

60ft Easement

0 140 280 Feet

North

Area of Detail Date: 4/15/2024



joryan

Doc Path: V:\prjlu\prjJR_Basemaps\COGO\COGO_Basemap.mxd

Limited Impact Special Use Review Fact Sheet

Project Identification

Project Name:
Property Address/Location:
Current Owner:
Size of Property in Acres:

The applicant(s) is/are required to complete each section of this Limited Impact Special Use Review Fact Sheet even if the information is duplicated elsewhere in the application. Completed Fact Sheets reduce the application review time which helps expediate the Director's Determination. Please make duplicates of this Limited Impact Special Use Review Fact Sheet if the project involves more than two structures.

Determining Floor Area

If an existing wall(s) and/or roof(s) are removed and a new wall(s)/roof(s) are constructed, the associated floor area due to the new wall(s)/roof(s) are considered new construction and must be included in the calculation of floor area for the Limited Impact Special Use Review and shown on this Fact Sheet.

Structure #1 Information

Type of Structure: (e.g. residence, studio, barn, etc.)					
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	2,675 sq. ft.		**Deconstruction:**	0 sq. ft.	

Are new floor areas being proposed where demolition will occur?

❑ **Yes** (include the new floor area square footage in the table below)

☒ **No**

Proposed Floor Area (New Construction Only)					
	Finished	**Unfinished**	**Total**		
Basement:	sq. ft.	sq. ft.	sq. ft.	**Height** (above existing grade)	
First Floor:	sq. ft.	sq. ft.	sq. ft.	**Exterior Wall Material**	
Second Floor:	sq. ft.	sq. ft.	sq. ft.	**Exterior Wall Color**	
Garage: ❑ Detached ❑ Attached	sq. ft.	sq. ft.	sq. ft.	**Roofing Material**	
Covered Deck:	sq. ft.	sq. ft.	sq. ft.	**Roofing Color**	
Total:	sq. ft.	sq. ft.	sq. ft.	**Total Bedrooms**	

Structure #2 Information

Type of Structure: (e.g. residence, studio, barn, etc.)					
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	sq. ft.		**Deconstruction:**	sq. ft.	

Are new floor areas being proposed where demolition will occur?

❑ **Yes** (include the new floor area square footage in the table below)

❑ **No**

Proposed Floor Area (New Construction Only)					
	Finished	**Unfinished**	**Total**		
Basement:	sq. ft.	sq. ft.	sq. ft.	**Height** (above existing grade)	
First Floor:	sq. ft.	sq. ft.	sq. ft.	**Exterior Wall Material**	
Second Floor:	sq. ft.	sq. ft.	sq. ft.	**Exterior Wall Color**	
Garage: ❑ Detached ❑ Attached	sq. ft.	sq. ft.	sq. ft.	**Roofing Material**	
Covered Deck:	sq. ft.	sq. ft.	sq. ft.	**Roofing Color**	
Total:	sq. ft.	sq. ft.	sq. ft.	**Total Bedrooms**	

Grading Calculation

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

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

Earth Work and Grading

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

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

Earth Work and Grading Worksheet:

	Cut	Fill	Subtotal
Driveway and Parking Areas	260yd^3	994 yd^3	1254 yd^3
Berm(s)	0 yd^3	0 yd^3	0 yd^3
Other Grading Site Grading	0 yd^3	0 yd^3	0 yd^3
Subtotal	260 yd^3	994 yd^3	1254 yd^3 Box 1

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

	Cut	Fill	Total
Foundation	0 yd^3	0 yd^3	0 yd^3
Material cut from foundation excavation to be removed from the property			0 yd^3

Excess Material will be Transported to the Following Location:

Excess Materials Transport Location:

Narrative

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

N/A

Is Your Property Gated and Locked? No

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

Certification

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

Signature	Print Name Joel Seamons	Date 08/23/24

EARTHWORK:

TOTAL AREA (FT²): 26,425

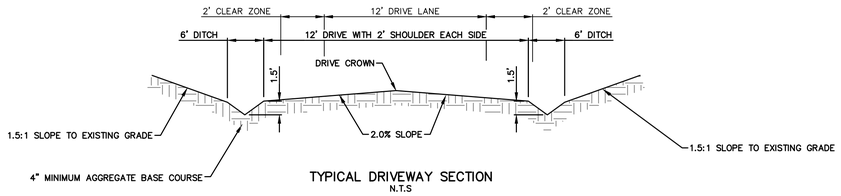
CUT (YD³): 260

FILL (YD³): 994

NET (YD³): 734 IN CUT

CUT FACTOR: 1.00

FILL FACTOR: 1.00



TYPICAL DRIVEWAY SECTION
N.T.S

GRADING LEGEND

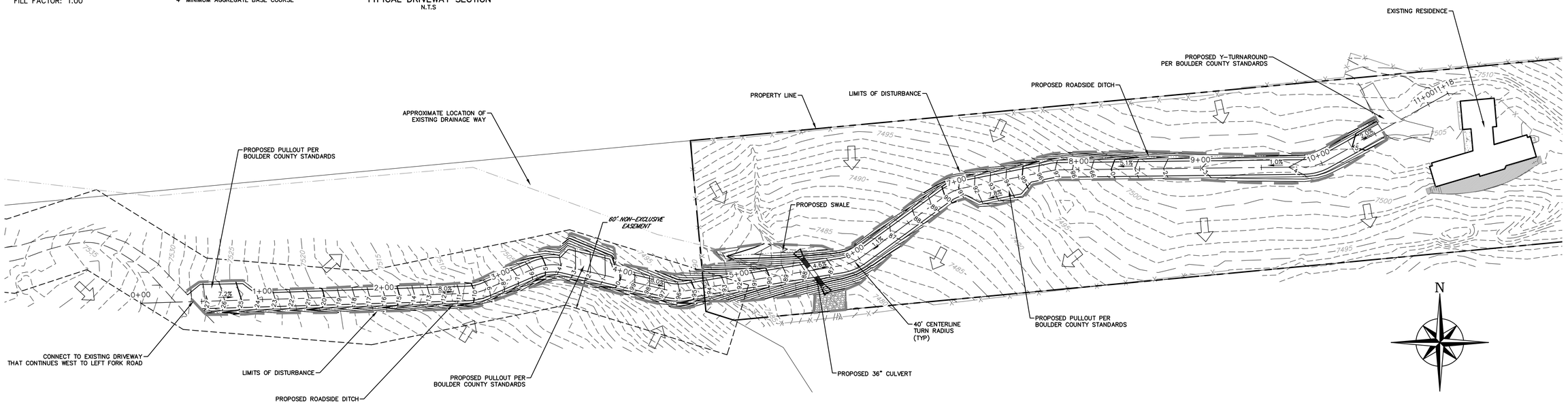
EX. 1' CONTOUR ---7584---

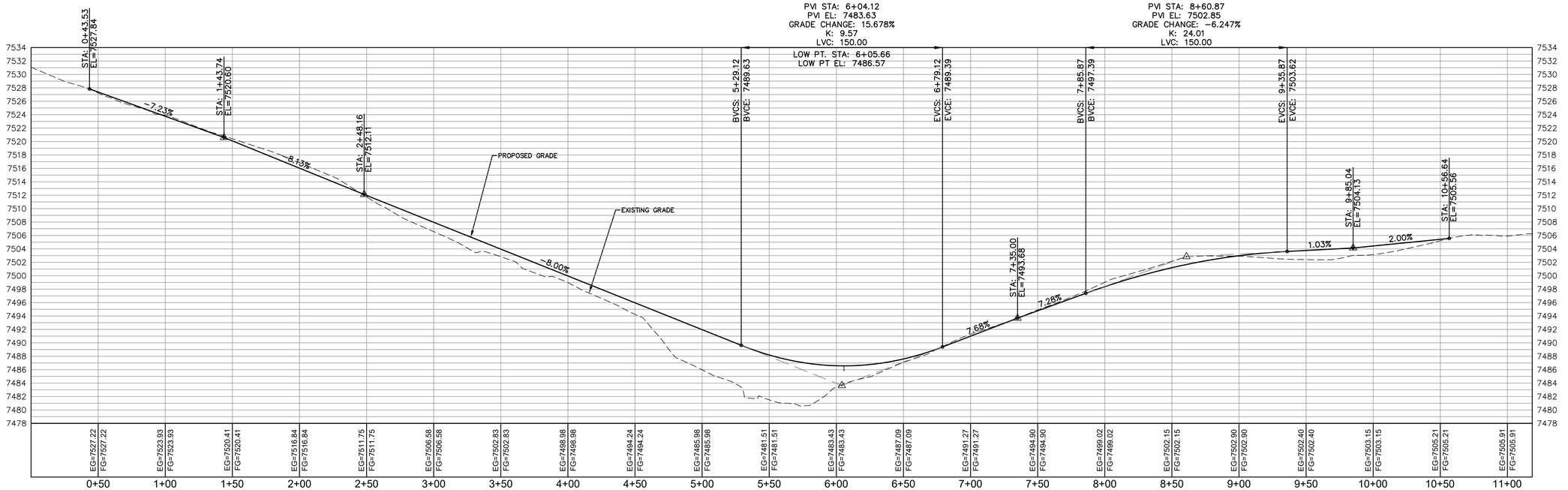
EX. 5' CONTOUR ---7485---

PROP. 1' CONTOUR 84

PROP. 5' CONTOUR 85

Know what's **below.**
Call before you dig.





DRIVEWAY PROFILE
SCALE: (H) 1" = 20.00' (V) 1" = 4.00'
START STA: 0+00.00, END STA: 11+18.48

NO.	DATE	DESCRIPTION	BY

Rocky Ridge Civil Engineering
420 21st Ave, Suite 101
Longmont, CO 80501
303.651.8626
www.rockyridgecivil.com

254 LEFT FORK RD DRIVEWAY

DRIVEWAY PLAN AND PROFILE

JOB NO 1000-9

CAD NO 10009BASE

DATE 08/23/24

SHEET NO C1

GRADING AND DRAINAGE NOTES:

1. TO THE EXTENT PRACTICAL, EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO GRADING ACTIVITIES AND AT ALL TIMES DURING PROJECT CONSTRUCTION.
2. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED AFTER ALL STORM EVENTS. ANY EROSION CONTROL MEASURES DAMAGED PRIOR TO THE RE-ESTABLISHMENT OF VEGETATION SHALL BE MAINTAINED OR REPAIRED AS REQUIRED.
3. ALL TOPSOIL AND OVERBURDEN EXCAVATED DURING CONSTRUCTION SHALL BE SEGREGATED, STOCKPILED TO THE EXTENT PRACTICAL. EROSION CONTROL MEASURES SHALL BE INSTALLED TO PREVENT EROSION FROM THE STOCKPILE. OVER-BURDEN SHALL BE DISTRIBUTED ACROSS DISTURBED AREAS PRIOR TO BEING PERMANENTLY SEEDED.
4. ALL DISTURBED AREAS SHALL BE RESEEDED WITH "MOUNTAIN SEED MIX".
5. 3:1 OR STEEPER SLOPES TO BE RESEEDED AND MULCHED.
6. 2:1 OR STEEPER SLOPES TO BE RESEEDED, MULCHED, AND STABILIZED WITH STRAW MATTING
7. THIS GRADING AND DRAINAGE PLAN WAS DESIGNED IN ACCORDANCE WITH THE BOULDER COUNTY STORM DRAINAGE CRITERIA MANUAL.

DRAINAGE LEGEND

- A / 13.0 / .24 / .57 — BASIN OR SUB-BASIN; C VALUE 10-YR STORM; C VALUE 100-YR STORM; AREA (ACRES)
- 1 — DESIGN POINT
- BASIN LIMIT
- EXISTING RUNOFF FLOW DIRECTION

GRADING LEGEND

- EX. 1' CONTOUR ----7584----
- EX. 5' CONTOUR ----7485----
- PROP. 1' CONTOUR ——84——
- PROP. 5' CONTOUR ——85——

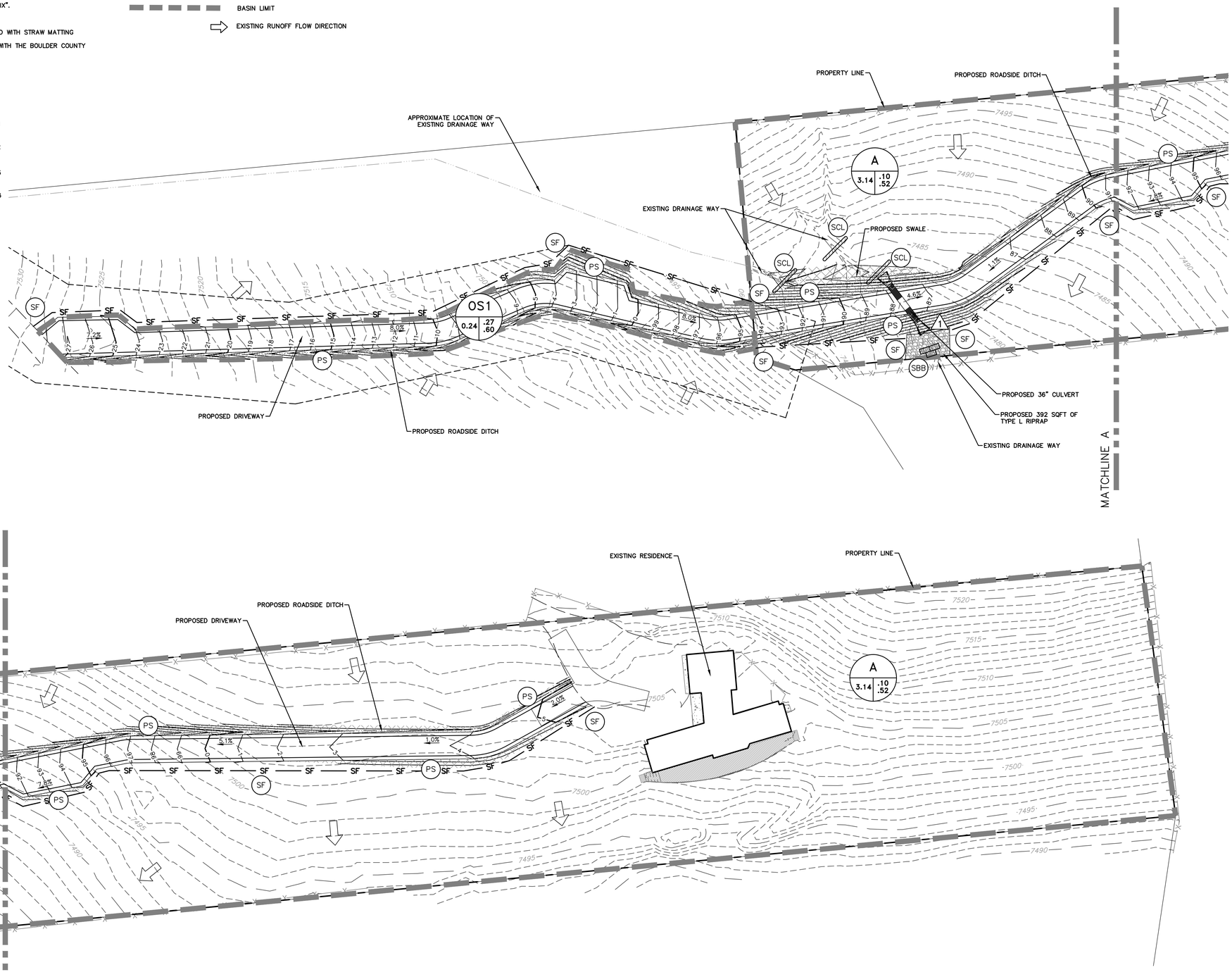
FLOODPLAIN STATEMENT

FLOOD ZONE DESIGNATION: AS SHOWN ON F.I.R.M. MAP PANEL #08013C0370J, WITH AN EFFECTIVE REVISION DATE OF DECEMBER 18, 2012, THE SUBJECT PROPERTY LIES ENTIRELY WITHIN UNSHADED ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND WITHIN SHADED ZONE "X" (AREAS OF 0.2% PERCENT ANNUAL CHANCE FLOOD; AREAS OF 1% PERCENT ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% PERCENT ANNUAL CHANGE FLOOD).

Know what's **below.**
Call before you dig.

EROSION CONTROL LEGEND

GRAPHIC	LABEL	NAME	DETAIL
SF	SF	SILT FENCE:	UDFCD SC-1
	SCL	SEDIMENT CONTROL LOG:	UDFCD SC-2
	SBB	STRAW BALE BARRIER:	UDFCD SC-3
	PS	PERMANENT SEEDING:	UDFCD SM-4



N

0 30' 60'

SCALE: 1" = 30'

NO.	DATE	DESCRIPTION	BY

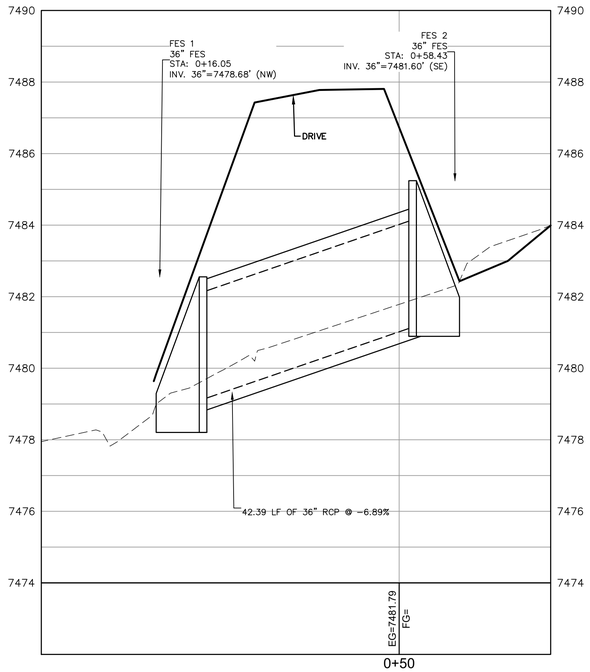
Rocky Ridge Civil Engineering
420 21st Ave, Suite 101
Longmont, CO 80501
303.651.8626
www.rockyridgecivil.com

254 LEFT FORK RD DRIVEWAY

JOB NO 1000-9
CAD NO 10009BASE
DATE 08/23/24

OVERALL DRAINAGE, GRADING, AND EROSION CONTROL PLAN

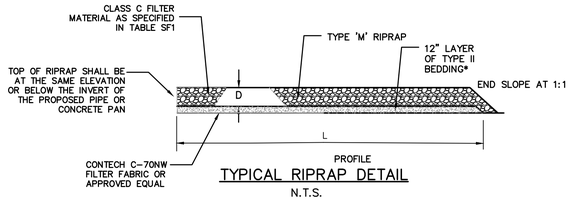
SHEET NO
C2



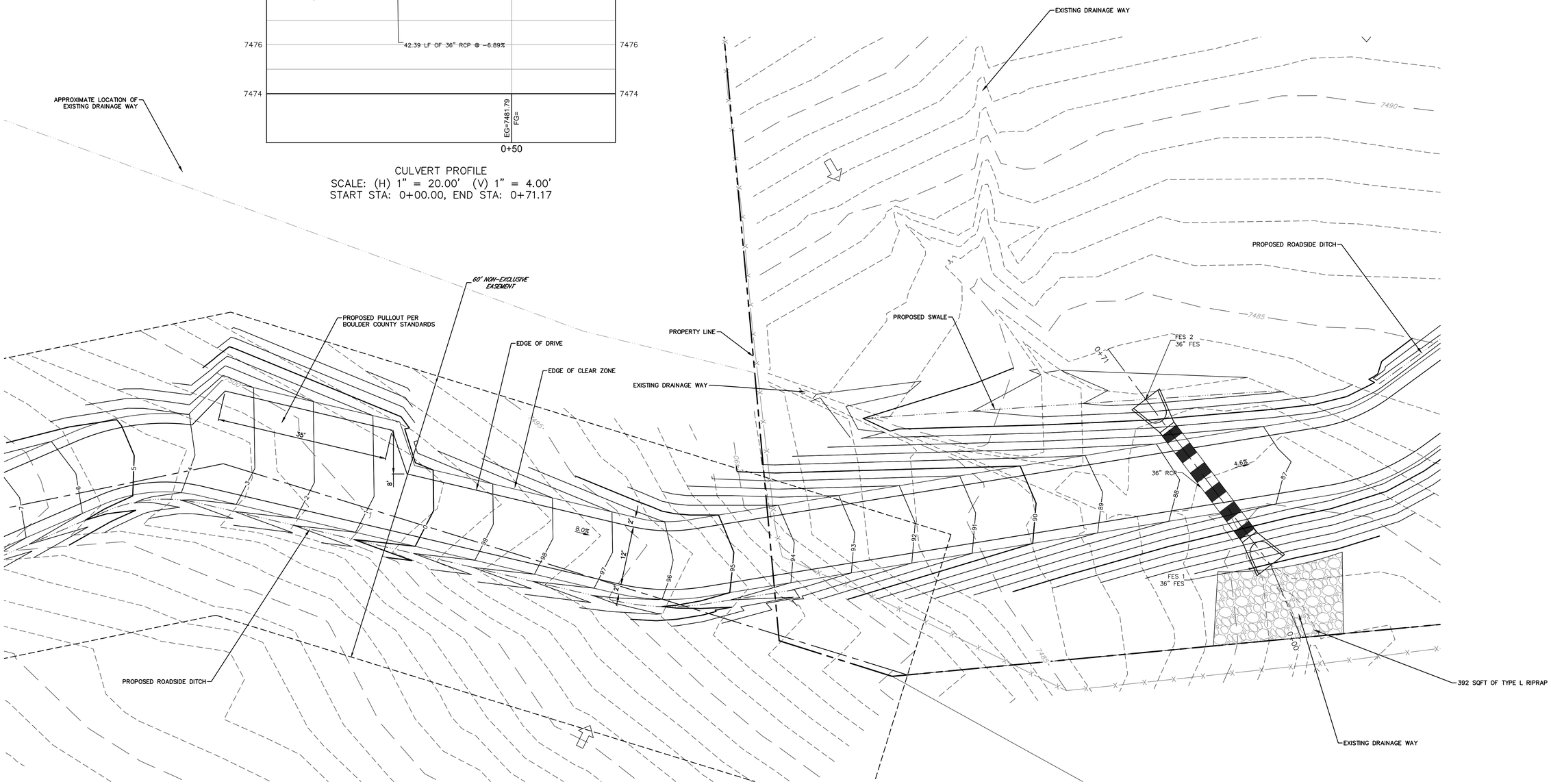
CULVERT PROFILE
SCALE: (H) 1" = 20.00' (V) 1" = 4.00'
START STA: 0+00.00, END STA: 0+71.17

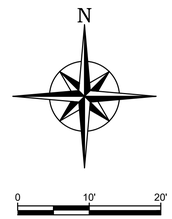
RIPRAP TYPE	GRADATION d50	RIPRAP THICKNESS (D)	BEDDING TYPE
L*	9"	18"	12" TYPE II *
M*	12"	24"	12" TYPE II *
H*	18"	36"	12" TYPE II *

* GRADATIONS PER URBAN DRAINAGE AND FLOOD CONTROL DISTRICT STANDARDS.



TYPICAL RIPRAP DETAIL
N.T.S.





Know what's below. Call before you dig.

NO.	DATE	DESCRIPTION	BY

Rocky Ridge Civil Engineering
420 21st Ave, Suite 101
Longmont, CO 80501
303.651.8626
www.rockyridgecivil.com

254 LEFT FORK RD DRIVEWAY

JOB NO	CAD NO	DATE	
1000-9	10009BASE	08/23/24	STORM CULVERT DETAIL

SHEET NO
C3

Drainage Memo

To: Boulder County, Community Planning and Permitting

From: Joel Seamons, PE, Rocky Ridge Civil Engineering

Date: August 23, 2022

Re: 254 Left Fork Road

The purpose of this memo is to compare the existing drainage patterns and impervious percentages to the proposed patterns and percentages after the proposed development has been completed on this site located at 254 Left Fork Road. The total area of disturbance is 0.61 acres. See aerial image below:

Appendix A at the end of this Memo includes a FEMA map that shows that it is located out of the 100-year floodplain and a soils map.

The proposed development is consistent with the zoning type and will add some imperviousness to the site overall. **Appendix B** shows the historic basin calculations and the proposed development runoff calculations and provides the supporting information for these calculations. A gravel driveway off Left Fork Road is being proposed to access the existing residence. The proposed imperviousness will cause increased runoff as compared to the historic basin. Developed runoff is discharged via sheet flow and channelized flow to the existing drainage way located at the southwest corner of the property.

Existing Conditions

The majority of the existing soil at the site is in hydrologic soil group D.

The 3.14-acre site is surrounded by other residences, with Left Fork Road directly west and Post Boy Road directly south of the site. The site is currently composed bare ground with native vegetation and an existing residence. The proposed driveway will go through a 60' nonexclusive easement which is mainly composed of bare ground with native vegetation.

Historic Basin

Current historic on-site (current flow as of the date of this memo) is generally directed to the southwest corner of the site where it flows into an existing drainage way and continues south. Calculations for runoff were used based on the previous historic site conditions. Using Mile High Flood District impervious, a weighted imperviousness of 5.3% was calculated. The total onsite runoff for the 5-yr event and the 100-yr event were calculated to be 0.45 cfs and 6.27 cfs respectively.

Developed Basin

The proposed development consists of a proposed gravel driveway to access the existing residence located at 254 Left Fork Road. The proposed site was split into one Basin (A) with an additional Offsite Basins (OS1). See attached Overall Drainage Plan at end of report. The offsite basin contains area that is being disturbed in the 60' nonexclusive easement. Runoff from these basins will be conveyed via sheet flow and channelized flow to the southwest corner of the site. This is consistent with historic drainage patterns. No detention or water quality is required for this site. The total imperviousness of the site was calculated to be 9.5% with the 5-yr and 100-yr runoff calculated to be 0.70 cfs and 8.55 cfs (includes offsite). See **Appendix C** for existing inlet and flow analysis calculations.

Basin A contains the 3.14-acre site. Total imperviousness was calculated to be 8.0% for this basin. The 5-yr and 100-yr event runoff was determined to be 0.70 cfs and 7.80 cfs respectively.

This basin contains existing building area, existing concrete patio, proposed gravel drive, and native vegetation. Runoff through this basin flows via sheet flow and concentrated flow through existing and proposed swales, and the proposed roadside ditches to the existing drainage way located at the southwest corner of the site (DP 1). The flow then continues south under Post Boy Road and ultimately further south, down the mountain to Bummers Gulch. The proposed road fills overtop this existing drainage way. A culvert is required to convey flow under the proposed drive. The 36" culvert was sized to match the existing 36" culvert located further south under Post Boy Road. The culvert can pass approximately 62 cfs. This will ensure that the additional flow from upstream of the drainage channel will be able to pass without any adverse effects. See calculations in Appendix C.

Basin OS1 contains 0.24 acres and is located in the 60' nonexclusive easement directly west of the site. Total imperviousness was calculated to be 29.1% for this basin. The 5-yr and 100-yr event runoff was determined to be 0.20 cfs and 0.98 cfs respectively. This basin contains the proposed and existing gravel driveway, and native vegetation. Runoff through this basin flows via sheet flow and concentrated flow through existing and proposed swales, and the proposed roadside ditches to the existing drainage way located at the southwest corner of the site (DP 1). The flow then continues south under Post Boy Road and ultimately further south, down the mountain to Bummers Gulch.

Conclusion

In conclusion, the result of this study indicates that the proposed development will conform to the Boulder County requirements and will safely convey runoff from the site with no adverse effects or impacts on the surrounding developments. The proposed development follows historic drainage patterns. The calculated impervious percentage for the site is 9.5%, a 4.2% increase from existing conditions. The total proposed flows (developed and offsite) are greater than the historic flows due to the increase in imperviousness. The total proposed flows are 0.70 cfs and 7.80 cfs (developed plus offsite) for the 5-yr and 100-yr respectively, whereas the historic flows are 0.45 cfs and 6.27 cfs for the 10-yr and 100-yr respectively.

This study has been prepared in accordance with Boulder County Standards and Specifications in the County's Storm Drainage Criteria Manual. Guidance was used for calculations regarding historic and proposed runoff and basin delineation.

Please contact us with any questions.

Appendix A:
Maps

National Flood Hazard Layer FIRMette

FEMA

105°23'27"W 40°1'54"N

105°22'49"W 40°1'27"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000 A21

Basemap Imagery Source: USGS National Map 2023

Legend

ATTACHMENT A

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

OTHER AREAS OF FLOOD HAZARD
- 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
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 8/22/2024 at 3:32 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.

Soil Map—Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties

Map Scale: 1:2,440 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties
Survey Area Data: Version 11, Aug 24, 2023

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

Date(s) aerial images were photographed: Jul 2, 2021—Aug 25, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2703B	Cypher-Ratake families complex, 5 to 40 percent slopes	8.1	79.8%
2717B	Cypher-Wetmore-Ratake families complex, 5 to 40 percent slopes	2.1	20.2%
Totals for Area of Interest		**10.1**	**100.0%**

Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties

2703B—Cypher-Ratake families complex, 5 to 40 percent slopes

Map Unit Setting

National map unit symbol: tlxk
Elevation: 6,500 to 8,500 feet
Mean annual precipitation: 16 to 25 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 70 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Cypher family and similar soils: 40 percent
Ratake family and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cypher Family

Setting

Landform: Mountain slopes
Parent material: Residuum and/or slope alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 4 inches: very gravelly coarse sandy loam
Bw - 4 to 10 inches: very gravelly coarse sandy loam
R - 10 to 20 inches: bedrock

Properties and qualities

Slope: 5 to 40 percent
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 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: Very low (about 0.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: D
Other vegetative classification: Ponderosa pine/antelope bitterbrush (PIPO/PUTR2) (C1120)

Hydric soil rating: No

Description of Ratake Family

Setting

Landform: Mountain slopes
Parent material: Colluvium and/or residuum derived from igneous and metamorphic rock

Typical profile

A - 0 to 8 inches: very gravelly sandy loam
Bw - 8 to 18 inches: very gravelly sandy loam
Cr - 18 to 28 inches: bedrock

Properties and qualities

Slope: 5 to 40 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: D
Other vegetative classification: Ponderosa pine/true mountain mahogany (PIPO/CEMO2) (C1107), Ponderosa pine-Rocky mountain juniper/true mountain mahogany (PIPO-JUSC2/CEMO2) (C1115)
Hydric soil rating: No

Minor Components

Argiustolls

Percent of map unit: 10 percent
Hydric soil rating: No

Haplustalfs

Percent of map unit: 8 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 7 percent
Hydric soil rating: Unranked

Data Source Information

Soil Survey Area: Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties
Survey Area Data: Version 11, Aug 24, 2023

Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties

2717B—Cypher-Wetmore-Ratake families complex, 5 to 40 percent slopes

Map Unit Setting

National map unit symbol: tlxs
Elevation: 6,500 to 8,500 feet
Mean annual precipitation: 16 to 25 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 70 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Cypher family and similar soils: 30 percent
Wetmore family and similar soils: 25 percent
Ratake family and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cypher Family

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum and/or slope alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 4 inches: very gravelly coarse sandy loam
Bw - 4 to 10 inches: very gravelly coarse sandy loam
R - 10 to 20 inches: bedrock

Properties and qualities

Slope: 5 to 40 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 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: Very low (about 0.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: D
Ecological site: F048AY439UT - Mountain Shallow Loam (Ponderosa pine)
Other vegetative classification: Ponderosa pine/antelope bitterbrush (PIPO/PUTR2) (C1120), Ponderosa pine/elk sedge (PIPO/CAGE2) (C1105)
Hydric soil rating: No

Description of Wetmore Family

Setting

Landform: Benches, mountain slopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from igneous and metamorphic rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: gravelly sandy loam
E - 3 to 11 inches: very gravelly sandy loam
Bt - 11 to 17 inches: very gravelly sandy clay loam
Cr - 17 to 19 inches: bedrock
R - 19 to 29 inches: bedrock

Properties and qualities

Slope: 5 to 40 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 10 to 18 inches to paralithic bedrock; 12 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 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: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: D
Ecological site: F048AY439UT - Mountain Shallow Loam (Ponderosa pine)
Other vegetative classification: Ponderosa pine-Rocky mountain juniper/true mountain mahogany (PIPO-JUSC2/CEMO2) (C1115), Ponderosa pine/antelope bitterbrush (PIPO/PUTR2) (C1120)
Hydric soil rating: No

Description of Ratake Family

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium and/or residuum derived from igneous and metamorphic rock

Typical profile

A - 0 to 8 inches: very gravelly sandy loam
Bw - 8 to 18 inches: very gravelly sandy loam
Cr - 18 to 28 inches: bedrock

Properties and qualities

Slope: 5 to 40 percent
Surface area covered with cobbles, stones or boulders: 2.0 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: D
Ecological site: F048AY439UT - Mountain Shallow Loam (Ponderosa pine)
Other vegetative classification: Ponderosa pine/Arizona fescue (PIPO/FEAR2) (C1109), Ponderosa pine/true mountain mahogany (PIPO/CEMO2) (C1107)
Hydric soil rating: No

Minor Components

Cryorthents

Percent of map unit: 10 percent
Hydric soil rating: No

Bullwark family

Percent of map unit: 8 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 7 percent

Hydric soil rating: Unranked

Data Source Information

Soil Survey Area: Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties
Survey Area Data: Version 11, Aug 24, 2023

Appendix B:
Hydrologic Calculations

ATTACHMENT A

NOAA Atlas 14, Volume 8, Version 2
Location name: Boulder, Colorado, USA*
Latitude: 40.0279°, Longitude: -105.3856°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.200** (0.160-0.250)	**0.249** (0.200-0.312)	**0.337** (0.269-0.422)	**0.415** (0.329-0.524)	**0.533** (0.410-0.707)	**0.631** (0.471-0.846)	**0.735** (0.527-1.01)	**0.847** (0.579-1.20)	**1.00** (0.657-1.46)	**1.13** (0.717-1.66)
10-min	**0.292** (0.235-0.366)	**0.365** (0.292-0.456)	**0.493** (0.393-0.618)	**0.608** (0.482-0.767)	**0.780** (0.600-1.04)	**0.924** (0.689-1.24)	**1.08** (0.772-1.48)	**1.24** (0.848-1.76)	**1.47** (0.963-2.14)	**1.66** (1.05-2.44)
15-min	**0.357** (0.286-0.446)	**0.445** (0.357-0.557)	**0.601** (0.480-0.754)	**0.742** (0.588-0.935)	**0.952** (0.732-1.26)	**1.13** (0.841-1.51)	**1.31** (0.941-1.81)	**1.51** (1.03-2.14)	**1.80** (1.17-2.61)	**2.02** (1.28-2.97)
30-min	**0.483** (0.388-0.604)	**0.602** (0.483-0.754)	**0.813** (0.649-1.02)	**1.00** (0.794-1.26)	**1.28** (0.987-1.70)	**1.52** (1.13-2.03)	**1.77** (1.27-2.43)	**2.03** (1.39-2.88)	**2.41** (1.58-3.51)	**2.71** (1.72-3.98)
60-min	**0.604** (0.484-0.754)	**0.745** (0.597-0.932)	**0.995** (0.794-1.25)	**1.22** (0.968-1.54)	**1.56** (1.20-2.07)	**1.84** (1.37-2.47)	**2.14** (1.54-2.95)	**2.46** (1.68-3.49)	**2.92** (1.91-4.25)	**3.29** (2.08-4.83)
2-hr	**0.724** (0.585-0.897)	**0.887** (0.716-1.10)	**1.18** (0.947-1.46)	**1.44** (1.15-1.80)	**1.83** (1.42-2.42)	**2.16** (1.63-2.88)	**2.52** (1.82-3.44)	**2.90** (2.00-4.07)	**3.43** (2.27-4.96)	**3.86** (2.47-5.63)
3-hr	**0.811** (0.658-1.00)	**0.982** (0.796-1.21)	**1.29** (1.04-1.60)	**1.57** (1.26-1.95)	**1.99** (1.55-2.61)	**2.34** (1.78-3.11)	**2.72** (1.98-3.71)	**3.14** (2.18-4.39)	**3.72** (2.48-5.36)	**4.20** (2.70-6.09)
6-hr	**1.02** (0.838-1.25)	**1.21** (0.991-1.49)	**1.56** (1.27-1.92)	**1.88** (1.52-2.32)	**2.37** (1.87-3.09)	**2.79** (2.14-3.68)	**3.25** (2.39-4.39)	**3.74** (2.63-5.20)	**4.46** (3.00-6.37)	**5.04** (3.28-7.25)
12-hr	**1.33** (1.10-1.62)	**1.56** (1.28-1.89)	**1.97** (1.62-2.40)	**2.36** (1.92-2.89)	**2.97** (2.37-3.85)	**3.49** (2.70-4.57)	**4.06** (3.02-5.46)	**4.69** (3.34-6.48)	**5.60** (3.81-7.94)	**6.34** (4.17-9.05)
24-hr	**1.66** (1.37-1.99)	**1.95** (1.62-2.35)	**2.49** (2.06-3.01)	**2.99** (2.46-3.63)	**3.76** (3.01-4.82)	**4.41** (3.43-5.71)	**5.12** (3.84-6.80)	**5.89** (4.22-8.05)	**6.99** (4.81-9.82)	**7.88** (5.25-11.2)
2-day	**1.94** (1.62-2.31)	**2.32** (1.94-2.77)	**3.00** (2.50-3.60)	**3.62** (3.00-4.36)	**4.56** (3.67-5.77)	**5.34** (4.18-6.83)	**6.17** (4.66-8.11)	**7.06** (5.11-9.56)	**8.34** (5.79-11.6)	**9.36** (6.30-13.2)
3-day	**2.13** (1.78-2.52)	**2.51** (2.10-2.98)	**3.20** (2.67-3.81)	**3.84** (3.19-4.60)	**4.82** (3.91-6.09)	**5.65** (4.46-7.22)	**6.55** (4.98-8.59)	**7.53** (5.49-10.2)	**8.93** (6.25-12.4)	**10.1** (6.83-14.1)
4-day	**2.28** (1.92-2.70)	**2.66** (2.24-3.15)	**3.35** (2.81-3.98)	**4.00** (3.33-4.77)	**5.00** (4.08-6.30)	**5.85** (4.64-7.46)	**6.79** (5.19-8.88)	**7.81** (5.72-10.5)	**9.28** (6.53-12.8)	**10.5** (7.14-14.6)
7-day	**2.67** (2.26-3.14)	**3.09** (2.61-3.63)	**3.84** (3.24-4.52)	**4.52** (3.79-5.36)	**5.57** (4.56-6.94)	**6.45** (5.14-8.13)	**7.39** (5.69-9.57)	**8.42** (6.21-11.2)	**9.88** (7.01-13.6)	**11.1** (7.61-15.3)
10-day	**3.02** (2.56-3.52)	**3.48** (2.95-4.07)	**4.28** (3.62-5.02)	**5.00** (4.21-5.90)	**6.06** (4.97-7.49)	**6.94** (5.55-8.69)	**7.88** (6.08-10.1)	**8.87** (6.58-11.7)	**10.3** (7.32-14.0)	**11.4** (7.89-15.7)
20-day	**4.02** (3.44-4.66)	**4.56** (3.90-5.29)	**5.48** (4.67-6.37)	**6.26** (5.31-7.32)	**7.38** (6.07-8.95)	**8.27** (6.65-10.2)	**9.18** (7.14-11.6)	**10.1** (7.57-13.2)	**11.4** (8.22-15.4)	**12.4** (8.72-17.0)
30-day	**4.85** (4.17-5.59)	**5.48** (4.71-6.32)	**6.52** (5.59-7.55)	**7.40** (6.30-8.60)	**8.61** (7.10-10.4)	**9.55** (7.71-11.7)	**10.5** (8.20-13.2)	**11.5** (8.61-14.9)	**12.8** (9.22-17.1)	**13.7** (9.69-18.7)
45-day	**5.88** (5.08-6.74)	**6.67** (5.76-7.66)	**7.95** (6.84-9.15)	**8.99** (7.70-10.4)	**10.4** (8.60-12.4)	**11.5** (9.28-13.9)	**12.5** (9.81-15.6)	**13.5** (10.2-17.4)	**14.9** (10.8-19.8)	**15.9** (11.3-21.5)
60-day	**6.74** (5.84-7.70)	**7.70** (6.67-8.81)	**9.24** (7.98-10.6)	**10.5** (8.99-12.1)	**12.1** (10.0-14.3)	**13.3** (10.8-16.0)	**14.5** (11.4-17.9)	**15.6** (11.8-20.0)	**17.1** (12.4-22.5)	**18.1** (12.9-24.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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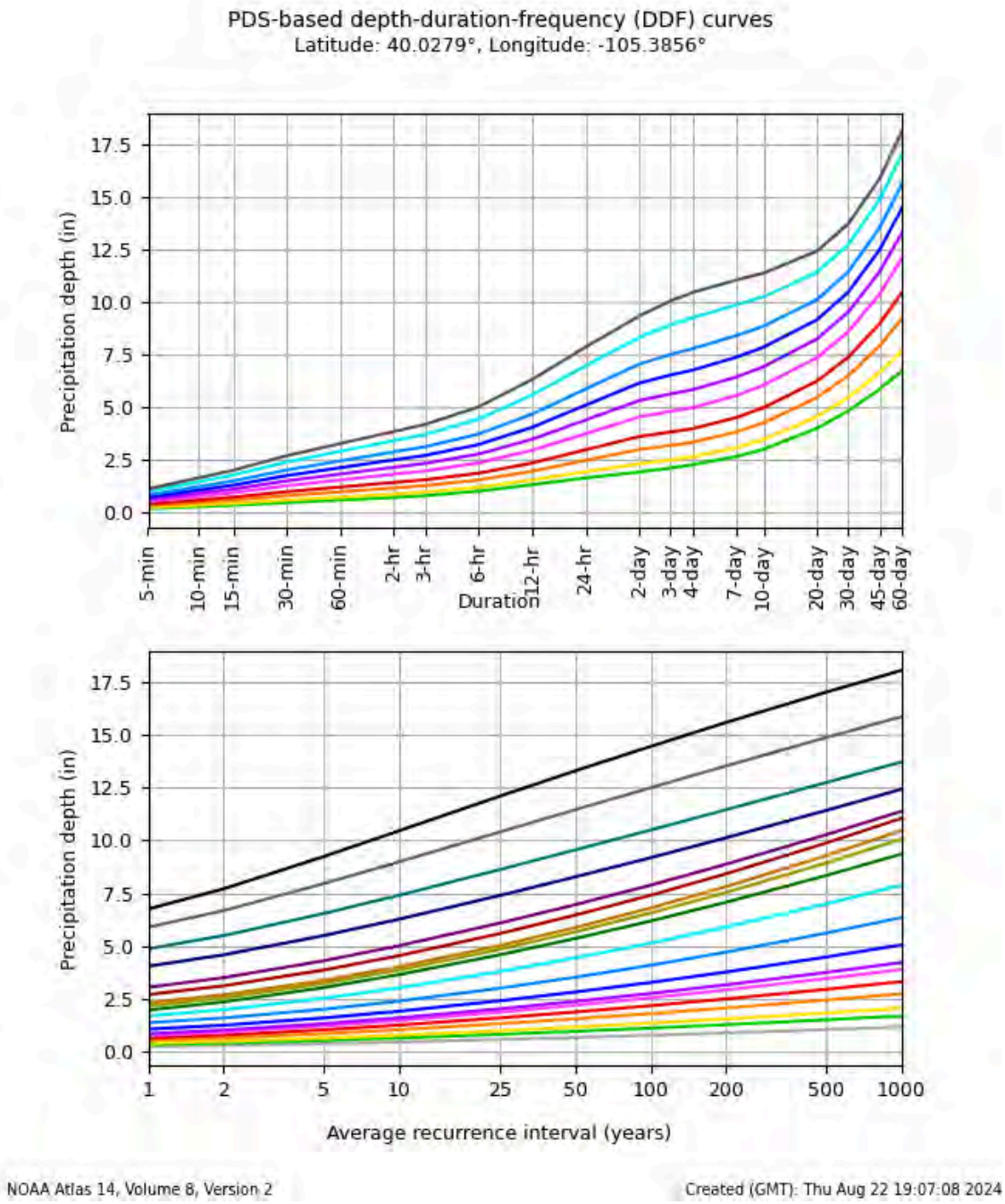
PF graphical

ATTACHMENT A



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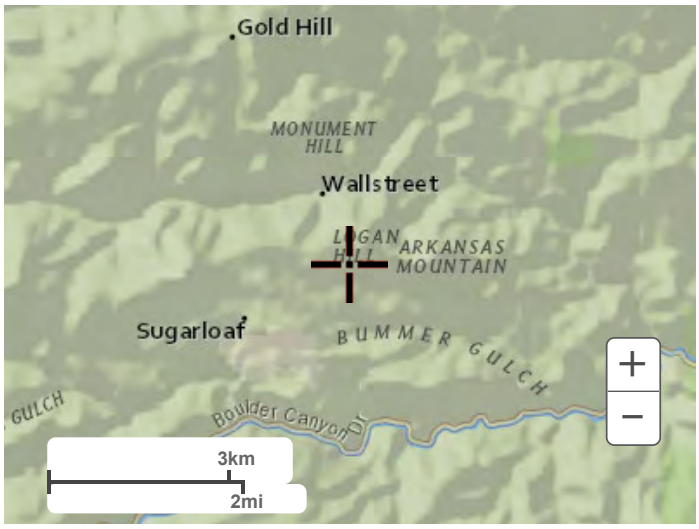
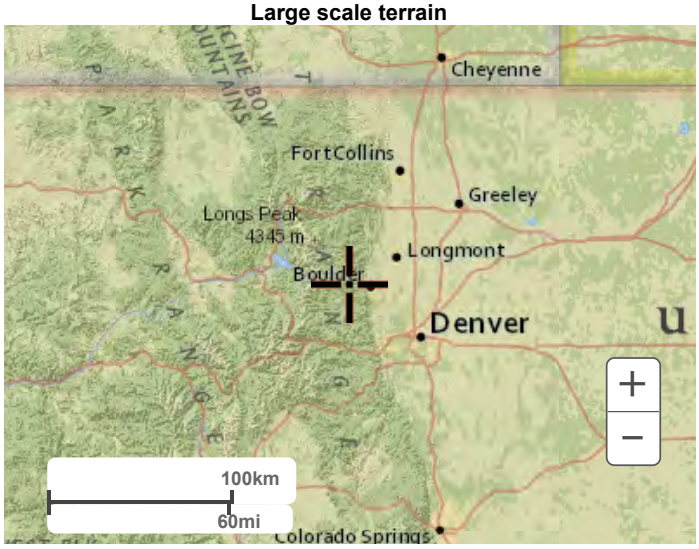
Maps & aerials

Small scale terrain

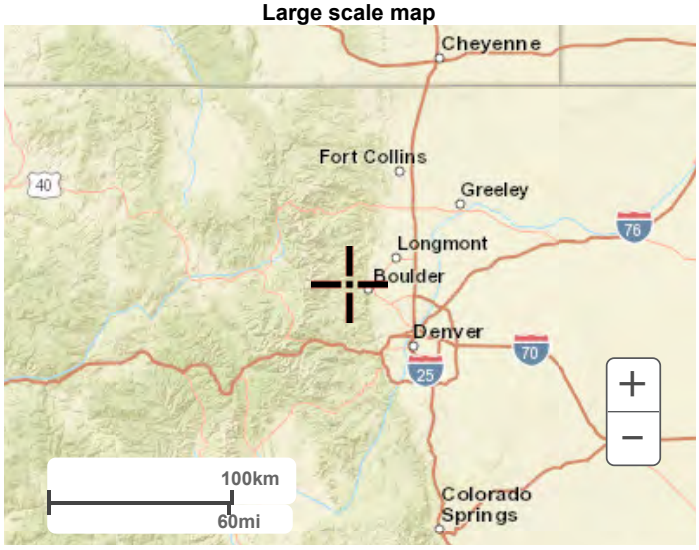
ATTACHMENT A



Large scale terrain

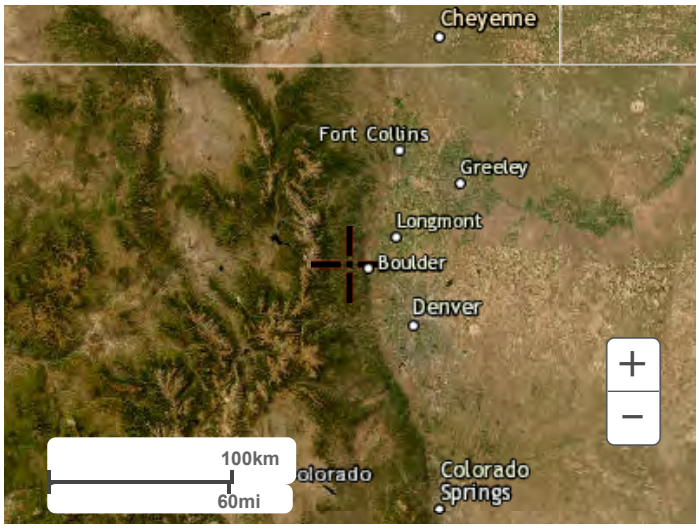


Large scale map



Large scale aerial

ATTACHMENT A



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

C factors & Impervious %

254 LEFT FORK ROAD

HYDROLOGIC SOIL TYPE: D

HISTORIC

LAND USE	AREA (sf)	AREA (AC)	% IMPERV	C2	C5	C10	C100
ROOF	2,675	0.06	90%	0.74	0.77	0.80	0.85
DRIVE/WALK	1,070	0.02	90%	0.74	0.77	0.80	0.85
PAVED STREET	-	0.00	100%	0.83	0.86	0.87	0.89
LAWN	129,667	2.98	2%	0.01	0.05	0.15	0.49
GRAVEL STREET	3,170	0.07	40%	0.30	0.36	0.43	0.65
TOTAL	**136,582**	**3.135**	**5.3%**	**0.04**	**0.08**	**0.17**	**0.51**

DEVELOPED

LAND USE	AREA (sf)	AREA (AC)	% IMPERV	C2	C5	C10	C100
ROOF	2,675	0.06	90%	0.74	0.77	0.80	0.85
DRIVE/WALK	1,070	0.02	90%	0.74	0.77	0.80	0.85
PAVED STREET	-	0.00	100%	0.83	0.86	0.87	0.89
LAWN	122,904	2.82	2%	0.01	0.05	0.15	0.49
GRAVEL STREET	20,416	0.47	40%	0.30	0.36	0.43	0.65
TOTAL	**147,065**	**3.376**	**9.5%**	**0.07**	**0.11**	**0.20**	**0.52**

DEVELOPED BASIN A

LAND USE	AREA (sf)	AREA (AC)	% IMPERV	C2	C5	C10	C100
ROOF	2,675	0.06	90%	0.74	0.77	0.80	0.85
DRIVE/WALK	1,070	0.02	90%	0.74	0.77	0.80	0.85
PAVED STREET		0.00	100%	0.83	0.86	0.87	0.89
LAWN	119,891	2.75	2%	0.01	0.05	0.15	0.49
GRAVEL STREET	12,946	0.30	40%	0.30	0.36	0.43	0.65
TOTAL	**136,582**	**3.135**	**8.0%**	**0.06**	**0.10**	**0.19**	**0.52**

OFFSITE BASIN OS1

LAND USE	AREA (sf)	AREA (AC)	% IMPERV	C2	C5	C10	C100
ROOF		0.00	90%	0.74	0.77	0.80	0.85
DRIVE/WALK		0.00	90%	0.74	0.77	0.80	0.85
PAVED STREET		0.00	100%	0.83	0.86	0.87	0.89
LAWN	3,013	0.07	2%	0.01	0.05	0.15	0.49
GRAVEL STREET	7,470	0.17	40%	0.30	0.36	0.43	0.65
TOTAL	**10,483**	**0.241**	**29.1%**	**0.21**	**0.27**	**0.35**	**0.60**

Calculation of Peak Runoff using Rational Method

Designer:
Company: RRCE
Date: 8/22/2024
Project: 254 LEFT FORK ROAD
Location: BOULDER COUNTY

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

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

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

$$\text{Computed } t_c = t_i + t_t$$

$$\text{Regional } t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$$

$t_{minimum}$ = 5 (urban)
$t_{minimum}$ = 10 (non-urban)

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

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

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.75	1.00	1.22	1.56	1.84	2.14	2.92

Rainfall Intensity Equation Coefficients =	a	b	c
	28.50	10.00	0.786

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

$$Q(cfs) = CIA$$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time							Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
HISTORIC	3.14	D	5.3	0.03	0.08	0.17	0.35	0.42	0.51	0.60	471.00			0.060	22.17	62.00			0.050	15	3.35	0.31	22.47	25.57	22.47	1.38	1.84	2.25	2.88	3.40	3.96	5.40	0.13	0.45	1.21	3.15	4.47	6.27	10.23
DEVELOPED	3.38	D	9.5	0.06	0.11	0.20	0.37	0.44	0.52	0.62	84.00			0.020	13.00	565.00			0.050	20	4.47	2.11	15.11	28.46	15.11	1.69	2.25	2.76	3.53	4.16	4.84	6.61	0.34	0.85	1.88	4.44	6.18	8.55	13.78
BASIN A	3.14	D	8.0	0.05	0.10	0.19	0.36	0.43	0.52	0.61	84.00			0.020	13.16	565.00			0.050	20	4.47	2.11	15.27	28.80	15.27	1.68	2.24	2.75	3.51	4.14	4.82	6.57	0.26	0.70	1.64	4.01	5.62	7.80	12.64
OFFSITE 1	0.24	D	29.1	0.21	0.27	0.35	0.48	0.54	0.60	0.68	20.00			0.020	5.32	420.00			0.080	20	5.66	1.24	6.56	22.95	6.56	2.34	3.12	3.83	4.90	5.78	6.72	9.17	0.12	0.20	0.32	0.57	0.75	0.98	1.50

Appendix C:
Hydraulic Calculations

Culvert Report

ATTACHMENT A

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Aug 23 2024

36" Culvert

Invert Elev Dn (ft)	=	7478.68
Pipe Length (ft)	=	42.39
Slope (%)	=	6.89
Invert Elev Up (ft)	=	7481.60
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

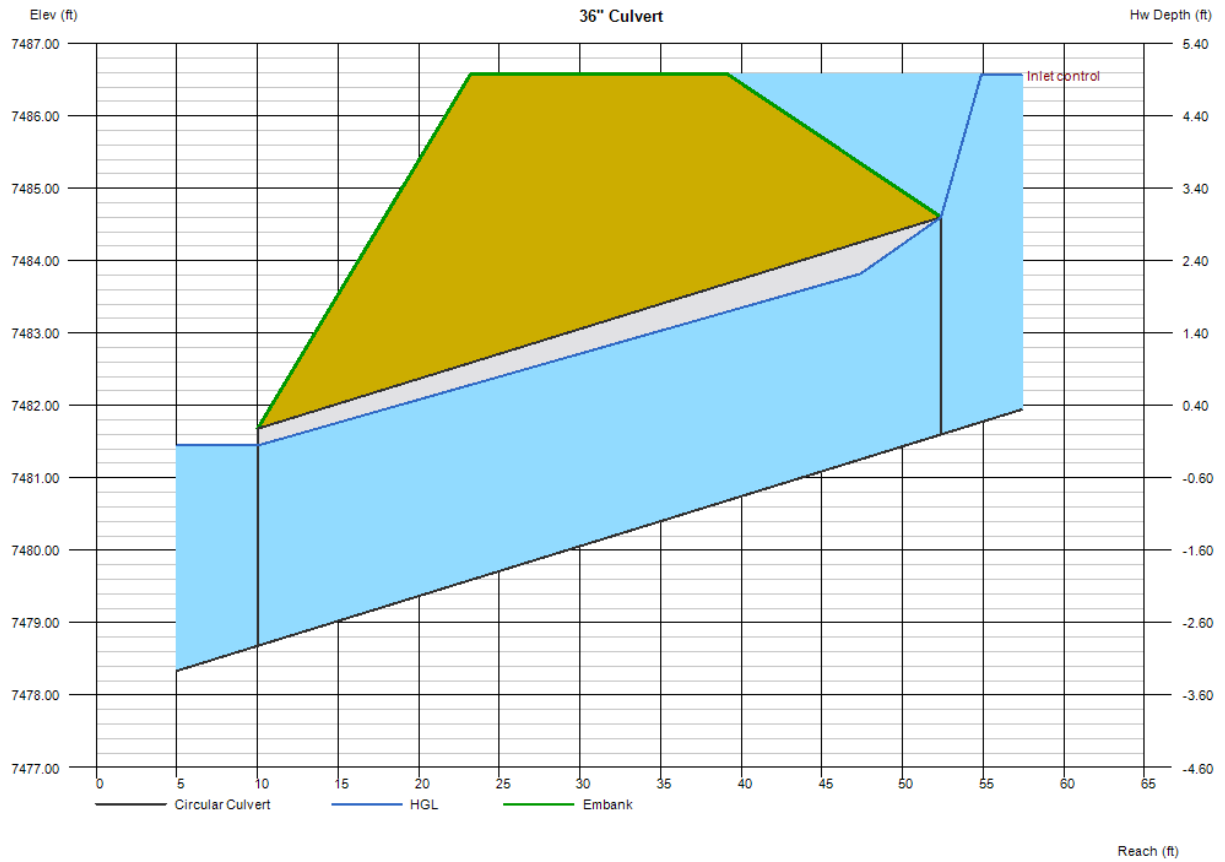
Top Elevation (ft)	=	7486.57
Top Width (ft)	=	16.00
Crest Width (ft)	=	45.00

Calculations

Qmin (cfs)	=	62.00
Qmax (cfs)	=	62.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	62.00
Qpipe (cfs)	=	62.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	9.10
Veloc Up (ft/s)	=	9.73
HGL Dn (ft)	=	7481.45
HGL Up (ft)	=	7484.14
Hw Elev (ft)	=	7486.57
Hw/D (ft)	=	1.66
Flow Regime	=	Inlet Control



August 14, 2024

Rocky Ridge Civil Engineering
420 21st Avenue, Suite 101
Longmont, Colorado 80501

Attn: Joel Seamons

Re: Geotechnical Subsurface Exploration Report
Proposed Driveway Realignment
Parcel Numbers 146119000061 & 146130000021
254 Left Fork Road
Boulder County (Boulder), Colorado
Project # 24-1150

Mr. Seamons:

Substrata LLC (Substrata) personnel have completed the geotechnical subsurface exploration you requested for the proposed driveway realignment to be constructed to provide access to 254 Left Fork Road near Boulder, in unincorporated Boulder County, Colorado. The results of our subsurface exploration and pertinent geotechnical engineering recommendations are included with this report.

We understand the proposed driveway will be constructed adjacent to Left Fork Road and extend east approximately 1,100 lineal feet to the property described above. We understand the road will be finished with an all-weather (gravel) surfacing. At the low point of the driveway, we understand a box culvert and associated cast-in-place wing walls will be constructed to allow surficial drainage from an existing drainage swale to pass beneath the driveway. Grade changes on the order of two to five (2-5) feet are anticipated to develop finish roadway and box culvert subgrade levels.

The purpose of our exploration was to describe the subsurface conditions encountered in the completed site test pits and develop the test data necessary to provide recommendations concerning design and construction of the support of the box culvert and wing wall foundations and development of the roadway subgrade soils. The conclusions and recommendations outlined in this report are based on results of the completed field and laboratory testing and our experience with subsurface conditions in this area.

SITE DESCRIPTION

The proposed gravel driveway and box culvert will be constructed on properties identified by the Boulder County Assessor's Office as Parcel Numbers 146119000061 and 146130000021 and will provide access to 254 Left Fork Road near Boulder, in unincorporated Boulder County, Colorado. At the time of our site exploration, the ground surface across the new driveway alignment contained a moderate growth of native grass vegetation as well as scattered small to medium-sized diameter coniferous trees and deciduous shrubs. The site slopes downward to the east and west to a low point at the approximate center of the of the roadway alignment. The maximum difference in ground surface elevation across the roadway is estimated to be about 50 to 55 feet based on our review of a provided driveway profile site plan provided by the client. The existing drainage swale at the central portion of the property contained standing water at the time of our site observation.

EXPLORATION AND TESTING PROCEDURES

To develop subsurface information in the area of the proposed construction, three (3) test pits were excavated by a representative of the client along the approximate driveway alignment to depths of approximately 4 feet below present site grade. The test pit excavation locations were established in the field by the client. A diagram indicating the approximate test pit locations is included with this report. The test pit locations outlined on the attached diagram should be considered accurate only to the degree implied by the methods used to make the field measurements. Graphic logs of the test pit excavations are also included.

Samples of the subsurface materials were obtained from the test pit excavations by hand. The samples collected were sealed and returned to our laboratory for further evaluation, classification and testing.

The samples collected were tested in the laboratory to measure natural moisture content and were visually and/or manually classified in accordance with the Unified Soil Classification System (USCS). The USCS group symbols are indicated on the attached test pit logs. An outline of the USCS classification system is included with this report.

Classification of bedrock was completed through visual and tactual observation of disturbed samples. Other bedrock types could be revealed through petrographic analysis.

As part of laboratory testing, -200 wash tests were completed on selected samples to help establish specific soil/bedrock characteristics. The percent passing the #200 size sieve (-200 wash) test is used to determine the percentage of fine-grained materials (clay and silt) in a sample. Typically, Atterberg limits tests are used to determine soil/bedrock plasticity and swell/consolidation tests are performed to evaluate soil/bedrock volume change potential with variation in moisture content. However, due to the essentially granular nature of the soils and very hard, well-cemented nature of the bedrock encountered, Atterberg limits and swell/consolidation testing could not be completed on the retrieved samples. The results of the completed laboratory tests are outlined on the attached test pit logs.

SUBSURFACE CONDITIONS

The materials encountered in the completed site test pits can be summarized as follows. A thin layer of vegetation and topsoil was encountered at the surface at the test pit locations, underlain by brown/rust/black decomposed metamorphic rock composed of silty sand with gravel. The silty sand appeared to be medium dense to dense in terms of relative density based on hand probe tests completed in the test pit excavations, would be expected to be non-expansive based on the physical properties and engineering characteristics of the material, and extended to the bottom of the test pits at depths ranging from 3 to 5½ feet below present site grades.

The stratigraphy indicated on the included test pit logs represents the approximate location of changes in soil and/or bedrock types. Actual changes may be more gradual than those indicated.

Groundwater was not encountered in test pits TP-1 and TP-3 to the full depth of exploration (approximately 4 to 5½ feet below present site grade) at the time of our site visit but was observed at/near existing ground surface in test pit TP-2 at that time. Groundwater levels will vary seasonally and over time based on weather conditions, site development, irrigation practices and other hydrologic conditions. Perched and/or trapped groundwater conditions may also be encountered at times throughout the year. Perched water is commonly encountered in soils overlying less permeable soil layers and/or bedrock.

Trapped water is typically encountered within more permeable zones of layered soil and bedrock systems. The location and amount of perched/trapped water can also vary over time.

ANALYSIS AND RECOMMENDATIONS

Site Development

Any existing topsoil and vegetation, including all tree root systems and dry and desiccated soils associated with the tree root systems be completely removed from the proposed roadway, culvert and wing wall areas. The depth and extent of any required removal can best be established at the time of excavation through openhole observation.

Care should be taken to avoid disturbing all subgrade soils prior to placement of any overlying improvements. To reduce the potential of disturbance of foundation bearing soils and the requirement for corrective work, we recommend completing foundation excavations remotely. Soils which are allowed to dry out or become wet and softened or disturbed by the construction activities should be removed and replaced or reworked in place prior to concrete placement.

All existing topsoil and vegetation should be removed from the roadway embankment, box culvert/wing wall and any proposed fill areas. After stripping and completing all cuts, and prior to the placement of any new fill, we recommend the exposed subgrade soils be scarified to a depth of 9 inches, adjusted in moisture content and compacted to at least 95% of the materials standard Proctor maximum dry density. The moisture content of the reconditioned subgrade soils should be adjusted to be within the range of ±2% of standard Proctor optimum moisture content at the time of compaction.

Fill soils required to develop the roadway embankment should consist of approved low-volume-change (LVC) soils free from organic matter, debris and other objectionable materials. Based on results of the completed laboratory testing, it is our opinion the site silty sand could be used as fill to develop finish roadway subgrade levels. All bedrock and/or gravel-sized materials greater than three (3) inches in any dimension should not be used as fill/backfill and should be screened and stockpiled separately. We recommend the

site silty sand and/or similar soils be placed in loose lifts not to exceed 9 inches thick, adjusted in moisture content and compacted as recommended for the scarified materials above.

Gravel-Surfaced Pavements

Gravel surfacing could be supported directly on the reconditioned and stable subgrade soils and/or suitable fill soils placed and compacted as outlined in the "Site Development" section of this report. Care will be required at the time of construction to ensure stable subgrade soils are developed immediately prior to surfacing.

Materials used to develop all-weather/gravel-surfaced areas should consist of select granular materials meeting CDOT Class 5 or 6 aggregate base course grain-size distribution specifications. Aggregate base course, recycled asphalt pavement (RAP) or recycled concrete materials could be considered for use. We recommend a minimum of four (4) inches of granular surfacing be developed for the wearing course along the access road. Aggregate surfacing should be placed in loose lifts not to exceed 9 inches thick, adjusted to within ±3% of standard Proctor optimum moisture content and compacted to at least 95% of the material's standard Proctor maximum dry density.

The all-weather surfacing section outlined above does not follow conventional pavement section design criteria and is based on our experience with similar loading conditions and anticipated performance. In addition, the load-carrying capacity of the all-weather surfacing would be most dependent on subgrade strength. Care should be taken to develop adequate drainage across the surface of the gravel-surfaced areas and away from the edges of the gravel pavement. Water which is allowed to pond on or adjacent to the gravel-surfaced areas can result in a loss of subgrade support and unsatisfactory performance of the aggregate surfacing over time. With the intrinsic qualities of gravel-surfaced roadways, periodic maintenance efforts should be expected. Thicker sections of granular surfacing could be considered where very loose subgrades are encountered and would provide more reliable support. Thicker pavement sections also would require less periodic maintenance.

Working Platform Development

The site soils may be comparatively loose near current groundwater levels in the area of the existing swale. Very loose silty sand soils would be easily disturbed by the construction activities. Some overexcavation/replacement procedures may be required to develop foundation bearing and a suitable working platform. The depth and extent of required overexcavation, if any, can best be established at the time of construction through openhole/test pit observations. If required, we recommend the very loose silty sand be removed to a depth of 18 inches beneath the box culvert and wing walls and replaced with screened and crushed ¾ to 1½ inch aggregate. Greater thicknesses may be warranted in some areas. Materials consistent with Colorado Department of Transportation (CDOT) #57/67 coarse concrete aggregate could be considered for use in this area. Screened recycled concrete could also be considered for use, provided it meets gradation specifications outlined above. The washed rock, recycled concrete and/or similar aggregate should be placed in loose lifts not to exceed 9 inches thick and compacted to at least 75% of the material's relative density. A separation fabric should be employed between all screened rock/soil interfaces in order to reduce the potential for the migration of fines. The screened rock zone should extend a minimum of 8 inches laterally past the exterior edges of the box culvert and wing wall footing foundations for every 12 inches of screened rock depth.

Dewatering

Groundwater was measured at/near existing ground surface in test pit TP-2 at the time of our site visit. Dewatering of excavations extended below groundwater will likely be required to facilitate culvert and wing wall construction.

Based on the materials encountered in the completed site test pits, results of laboratory testing and observed depth to groundwater, we expect it will be possible to dewater the box culvert structure(s) at current or lower groundwater level conditions through open pumping procedures from sumps and ditches.

We expect collected water will be discharged downstream of the work area. If sump pits are constructed, care should be taken to construct a suitable sump outside of the

improvement area. Fine-grained materials can be drawn to the sump area, creating unsuitable bearing conditions. A sump should consist of a slotted pipe large enough to house a submersible pump, extended deep enough such that when it is pumped out, the entire excavation will be drained. Pumps are typically suspended a minimum of 12 inches above the bottom of the pit in order to provide room for sediment. The slotted pipe should be surrounded by a much larger mass of free-draining gravel. A ¾-inch screened rock could be considered to develop the sedimentation zone. A larger sedimentation zone will reduce water velocities, allowing fines to settle out prior to entering the slotted pipe and mechanical pump. Periodic cleaning and maintenance of the sump should be anticipated.

Drainage ditches should be constructed outside of the immediate work area to allow for collection of the infiltration waters and feeding of the sump. It may be necessary to construct ditches on either side of the box culvert in order to reduce the potential for infiltration waters entering the excavation and flowing laterally across the box culvert bearing materials in order to reach the drains.

Careful observation of sump pit waters should be completed at the start of pumping. If excessive fines are observed being transported up from the bottom or out of the sides of any excavation, pumping should be stopped and the excavation flooded until methods to reduce soil migration can be employed.

Spread Footing/Mat Foundations

For design of box culvert and wing wall footing foundations supported on medium dense to dense silty sand or suitable working platform materials developed as outlined above, we recommend using a maximum net allowable soil bearing pressure of 1,500 psf.

For design of footing foundations and wing walls to resist lateral movement, a submerged passive equivalent fluid pressure value of 125 pcf could be used for that portion of the wall extended below frost depth, considered to be 30 inches in this area. A coefficient of friction of 0.45 could be used between foundation and box culvert concrete and the bearing soils to resist sliding. The recommended passive equivalent fluid pressure value and coefficient of friction do not include a factor of safety.

Wing-wall foundations should be placed a minimum of 30 inches below finished adjacent exterior grade to provide frost protection. We recommend formed strip footings have a minimum width of 12 inches in order to facilitate construction and reduce the potential for development of eccentrically loaded footings. Actual footing widths should be designed by a structural engineer.

We estimate settlement of footing foundations designed and constructed as outlined above would be less than 1 inch. Differential settlement could approach the amount of total settlement estimated above.

Wing Wall & Box Culvert Lateral Earth Pressures

Care should be taken to prevent the development of unbalanced hydrostatic loads on the wing walls. A drainage blanket consisting of 12 inches of free-draining rock placed behind the walls and extending the full height of the wall from approximate grade at the front of the wall to approximately 12 to 18 inches below finish grade on the retained soil side of the walls should be constructed. We recommend ¾-inch or larger washed rock be used to construct the drainage blanket. A drainage composite could also be considered. The top 12 to 18 inches of retaining wall backfill should consist of an essentially cohesive soil to reduce the potential for immediate surface water infiltration into the wall backfill. A filter fabric should be employed between all free-draining aggregate and adjacent soil interfaces to reduce the potential for the migration of finer-grained soils into the gap-graded rock.

Weep holes or other approved methods should be employed to help transfer any collected water to the front of the wall. A water collection system, similar to a perimeter drain system could also be considered. A typical collection drain system would consist of 4-inch diameter rigid perforated pipe surrounded by a minimum of 6 inches of the free-draining aggregate and placed at the base of the retained soils side of the wall. The invert of the drain pipe at the high point of the system should be placed at approximate front-of-wall grade and sloped a minimum of ⅛-inch per foot to facilitate efficient water removal to an appropriate outfall. Flap gates or other approved methods should be employed at all free outfalls to reduce the potential for animal access and reverse flow in the system.

Wing wall backfill should consist of approved LVC soils free from organic matter and debris. Essentially granular soils offer better stacking characteristics and are less prone to movements associated with freezing through the face of the walls than finer-grained materials. Materials consistent with Colorado Department of Transportation (CDOT) Class 7 aggregate base course or Class I structure backfill could be used as wing-wall backfill. Wing-wall backfill should be placed in loose lifts not to exceed 9 inches thick, adjusted in moisture content and compacted to at least 95% of the materials standard Proctor maximum dry density. The moisture content of the backfill soils should be adjusted to within ±2% of standard Proctor optimum moisture content at the time of compaction.

Excessive lateral stresses can be imposed on wing-walls during backfilling when using heavier mechanical compaction equipment. We recommend compaction of retaining wall backfill be completed using light mechanical or hand compaction equipment.

For design of wing walls protected from hydrostatic loading and backfilled with select granular fill, we recommend using an angle of internal friction of $\Phi=30°$ and active equivalent fluid pressure value of 45 pounds per cubic foot in addition to any surcharge loads. The equivalent fluid pressure value outlined above is based on an active stress distribution analysis in which some rotation of the retaining wall is assumed. The angle of internal friction and equivalent fluid pressure values outlined above do not include a factor of safety. Sloped backfill geometry, surcharge loads on the retained soil side of the walls or point loads developed in the wall backfill can add to the lateral forces on retaining walls.

Variables that affect lateral earth pressures include but are not limited to the shrink/swell potential of the backfill soils, backfill compaction and geometry, wetting of the backfill soils, surcharge loads and point loads developed in the backfill materials. The recommended equivalent fluid pressure values do not include a factor of safety or an allowance for hydrostatic loads. Use of expansive soil backfill, excessive compaction of the wall backfill or surcharge loads placed adjacent to the below-grade walls can add to the lateral earth pressures causing the equivalent fluid pressure values used in design to be exceeded.

Infiltration

At this time, we understand Boulder County has requested infiltration rates for the subgrade soils at the location of the proposed culvert. Groundwater was encountered in the area of test pit TP-2 at the ground surface at the time of our site visit. Based on a visual and tactual evaluation of the samples of subgrade soils obtained from test pit TP-2, it is our opinion an infiltration rate of 58 millimeters per hour or a Long-Term Acceptance Rate (LTAR) value of 0.50 gallons/day per square foot could be used in design.

Drainage

Positive drainage should be developed away from the roadway and wing wall areas. Water which is allowed to pond adjacent to site improvements can result in unsatisfactory performance of those improvements over time.

GENERAL COMMENTS

This report was prepared based upon the data obtained from the completed site-specific exploration, laboratory testing, engineering analysis and any other information discussed. The completed test pits provide an indication of subsurface conditions at the test pit locations only. Variations in subsurface conditions can occur in relatively short distances away from the test pits. This report does not reflect any variations which may occur across the site or away from the test pits. If variations in the subsurface conditions anticipated become evident, the geotechnical engineer should be notified immediately so that further evaluation can be completed and when warranted, alternative recommendations provided.

The scope of services for this project does not include either specifically or by implication any biological or environmental assessment of the site or identification or prevention of pollutants or hazardous materials or conditions. Other studies should be completed if concerns over the potential of such contamination or pollution exist.

The geotechnical engineer should be retained to review the plans and specifications so that comments can be made regarding the interpretation and implementation of our geotechnical recommendations in the design and specifications. The geotechnical engineer

should also be retained to provide testing and observation services during construction to help determine that the design requirements are fulfilled.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with the generally accepted standard of care for the profession. No warranties express or implied, are made. The conclusions and recommendations contained in this report should not be considered valid in the event that any changes in the nature, design or location of the project as outlined in this report are planned, unless those changes are reviewed, and the conclusions of this report modified and verified in writing by the geotechnical engineer.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the enclosed information or if we can be of further service to you in any way, please do not hesitate to contact us.

Respectfully,
Substrata LLC

Darrel DiCarlo, P.E.
Senior Project Engineer

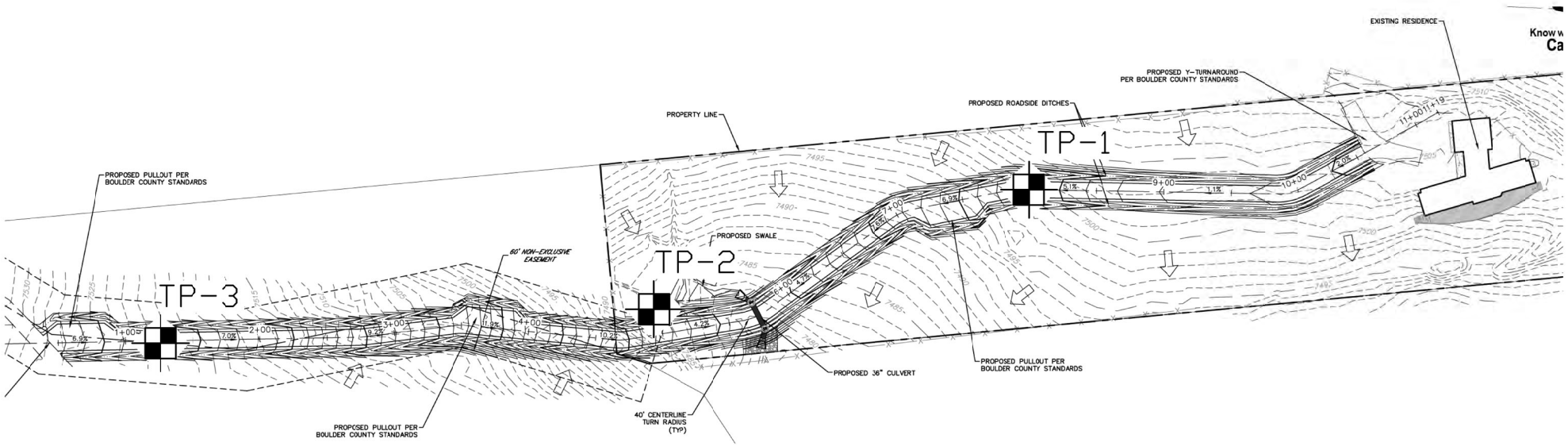
Reviewed by:

Alec Kaljian, P.E.
Senior Project Engineer

AUGUST 2024
PROJECT #24-1114

TEST PIT LOCATION DIAGRAM

SUBSTRATA
CONSULTING ENGINEERS



N

NOT TO SCALE

PROPOSED DRIVEWAY REALIGNMENT (PARCEL NUMBERS 146119000061 & 146130000021)

254 LEFT FORK ROAD, BOULDER COUNTY (BOULDER), COLORADO

PROPOSED DRIVEWAY REALIGNMENT (PARCEL NUMBERS 146119000061 & 146130000021)

254 LEFT FORK ROAD, BOULDER COUNTY (BOULDER), COLORADO

Project # 24-1150

August 2024

LOG OF TEST PIT TP-1

SUBSTRATA CONSULTING ENGINEERS

Sheet	1/1	Drilling Rig:	-	Water Depth Information	
Start Date	7/17/2024	Auger Type:	-	-	-
Finish Date	7/17/2024	Hammer Type:	-	During Site Visit	None
Surface Elev.	-	Field Personnel:	JS	-	-

USCS	SOIL DESCRIPTION	Depth (ft)	Sampler	"N"	MC (%)	DD (pcf)	Estimated q_u (psf)	% Swell @ 500 psf	Swell Pressure (psf)	Atterberg Limits LL	Atterberg Limits PI	% Passing # 200 Sieve (%)
	6-8" VEGETATION & TOPSOIL	-										
		1										
		-										
		2										
	DECOMPOSED METAMORPHIC ROCK;	-										
SP-SM	SILTY SAND with GRAVEL	3	BS	-	1.7	-	-	-	-	-	-	9.3%
	brown, rust, black	-										
		4										
		-										
		5										
		-										
	BOTTOM OF TEST PIT @ 5.5'	6										
		-										
		7										
		-										
		8										
		-										
		9										
		-										
		10										
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PROPOSED DRIVEWAY REALIGNMENT (PARCEL NUMBERS 146119000061 & 146130000021)

254 LEFT FORK ROAD, BOULDER COUNTY (BOULDER), COLORADO

Project # 24-1150

August 2024

LOG OF TEST PIT TP-2

SUBSTRATA CONSULTING ENGINEERS

Sheet	1/1	Drilling Rig:	-	Water Depth Information	
Start Date	7/17/2024	Auger Type:	-	-	-
Finish Date	7/17/2024	Hammer Type:	-	During Site Visit	Ponded @ Surface
Surface Elev.	-	Field Personnel:	JS	-	-

USCS	SOIL DESCRIPTION	Depth (ft)	Sampler	"N"	MC (%)	DD (pcf)	Estimated q_u (psf)	% Swell @ 500 psf	Swell Pressure (psf)	Atterberg Limits LL	Atterberg Limits PI	% Passing # 200 Sieve (%)
	6-8" VEGETATION & TOPSOIL	-										
SP-SM	DECOMPOSED METAMORPHIC ROCK; SILTY SAND with GRAVEL brown, rust, black	1 - 2 -										
		3	BS	-	10.2	-	-	-	-	-	-	-
	BOTTOM OF TEST PIT @ 3.0'	- 4 - **5** - 6 - 7 - 8 - 9 - **10** - 11 - 12 - 13 - 14 - **15** - 16 - 17 - 18 - 19 - **20** - 21 - 22 - 23 - 24 - **25**										

PROPOSED DRIVEWAY REALIGNMENT (PARCEL NUMBERS 146119000061 & 146130000021)

254 LEFT FORK ROAD, BOULDER COUNTY (BOULDER), COLORADO

Project # 24-1150

August 2024

LOG OF TEST PIT TP-3

SUBSTRATA CONSULTING ENGINEERS

Sheet	1/1	Drilling Rig:	-	Water Depth Information	
Start Date	7/17/2024	Auger Type:	-	-	-
Finish Date	7/17/2024	Hammer Type:	-	During Site Visit	None
Surface Elev.	-	Field Personnel:	JS	-	-

USCS	SOIL DESCRIPTION	Depth (ft)	Sampler	"N"	MC (%)	DD (pcf)	Estimated q_u (psf)	% Swell @ 500 psf	Swell Pressure (psf)	Atterberg Limits LL	Atterberg Limits PI	% Passing # 200 Sieve (%)
	6-8" VEGETATION & TOPSOIL	-										
		1										
		-										
	DECOMPOSED METAMORPHIC ROCK;	2										
SP-SM	SILTY SAND with GRAVEL	-										
	brown, rust, black	3	BS	-	0.9	-	-	-	-	-	-	9.0%
		-										
		4										
	BOTTOM OF TEST PIT @ 4.0'	-										
		5										
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UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification	
					Group Symbol	Group Name[B]
Coarse Grained Soils	Gravels	Clean Gravels	Cu ≥ 4 and 1 ≤ Cc ≤ 3[E]		GW	Well graded gravel[F]
More than 50% retained	More than 50% of coarse fraction retained on No. 4 sieve	Less than 5% fines[C]	Cu < 4 and/or 1 > Cc > 3[E]		GP	Poorly graded gravel[F]
on No. 200 sieve		Gravels with Fines More than 12% fines[C]	Fines classify as ML or MH		GM	Silty gravel[F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel[F,G,H]
	Sands	Clean Sands	Cu ≥ 6 and 1 ≤ Cc ≤ 3[E]		SW	Well graded sand[I]
	50% or more of coarse fraction passes No. 4 sieve	Less than 5% fines[D]	Cu < 6 and/or 1 > Cc > 3[E]		SP	Poorly graded sand[I]
		Sands with Fines More than 12% fines[D]	Fines classify as ML or MH		SM	Silty sand[G,H,I]
			Fines classify as CL or CH		SC	Clayey sand[G,H,I]
Fine-Grained Soils	Silts and Clays	Inorganic	PI > 7 and plots on or above "A" line[J]		CL	Lean clay[K,L,M]
50% or more passes the No. 200 sieve	Liquid limit less than 50		PI < 4 or plots below "A" line[J]		ML	Silt[K,L,M]
		Organic	**Liquid limit - oven dried**	< 0.75	OL	Organic clay[K,L,M,N]
			Liquid limit - not dried			Organic silt[K,L,M,O]
	Silts and Clays	Inorganic	PI plots on or above "A" line		CH	Fat clay[K,L,M]
	Liquid limit 50 or more		PI plots below "A" line		MH	Elastic silt[K,L,M]
		Organic	Liquid limit - oven dried	< 0.75	OH	Organic clay[K,L,M,P]
			Liquid limit - not dried			Organic silt[K,L,M,Q]
Highly organic soils	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well graded gravel with silt, GW-GC well graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well graded sand with silt, SW-SC well graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

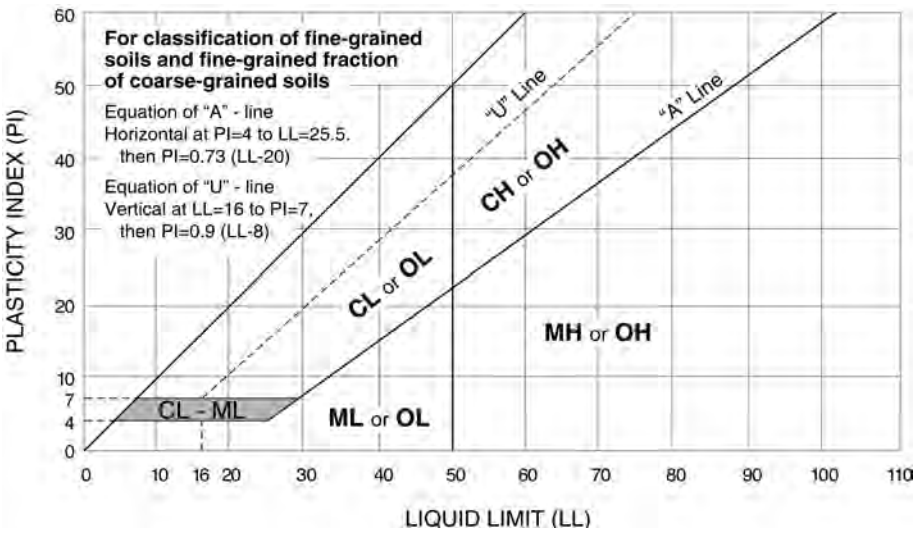
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1⅜" I.D., 2" O.D., unless otherwise noted	HS:	Hand Sample
ST:	Thin-Walled Tube – 2.5" O.D., unless otherwise noted	PA:	Power Auger
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
CS:	California Barrel - 1.92" I.D., 2.5" O.D., unless otherwise noted	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB:	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value". For 2.5" O.D. California Barrel samplers (CB) the penetration value is reported as the number of blows required to advance the sampler 12 inches using a 140-pound hammer falling 30 inches, reported as "blows per inch," and is not considered equivalent to the "Standard Penetration" or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling
WCI:	Wet Cave in	WD:	While Drilling
DCI:	Dry Cave in	BCR:	Before Casing Removal
AB:	After Boring	ACR:	After Casing Removal

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

FINE-GRAINED SOILS			COARSE-GRAINED SOILS			BEDROCK		
(CB) Blows/Ft.	(SS) Blows/Ft.	Consistency	(CB) Blows/Ft.	(SS) Blows/Ft.	Relative Density	(CB) Blows/Ft.	(SS) Blows/Ft.	Consistency
< 3	0-2	Very Soft	0-5	< 3	Very Loose	< 24	< 20	Weathered
3-5	3-4	Soft	6-14	4-9	Loose	24-35	20-29	Firm
6-10	5-8	Medium Stiff	15-46	10-29	Medium Dense	36-60	30-49	Medium Hard
11-18	9-15	Stiff	47-79	30-50	Dense	61-96	50-79	Hard
19-36	16-30	Very Stiff	> 79	> 50	Very Dense	> 96	> 79	Very Hard
> 36	> 30	Hard						

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Terms of Other Constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Terms of Other Constituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifiers	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1-10
Medium	11-30
High	30+

SUBSTRATA
CONSULTING ENGINEERS

Review Criteria Analysis

254 Left Fork Road, Boulder County, CO

Rocky Ridge Civil Engineering

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

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

The zoning is for residential use. An existing residence is already on the property. Only new access to the residence is being proposed. All other design complies with Boulder County Standards.

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

The existing terrain is mountainous and steep. In order for the proposed drive to function per Boulder County Standards, a large amount of fill is required. Only minimal disturbance to construct the driveway is required. There will be no adverse effects to the surrounding area or environment.

3. The use will be in accordance with the Comprehensive Plan.

This project is in accordance with the comprehensive plan.

4. The use will not result in an over-intensive use of land or excessive depletion of natural resources. In evaluating the intensity of the use, the Board should consider the extent of the proposed development in relation to parcel size and the natural landscape/topography; the area of impermeable surface; the amount of blasting, grading, or other alteration of the natural

topography; the elimination or disruption of agricultural lands; the effect on significant natural areas and environmental resources; the disturbance of plant and animal habitat, and wildlife migration corridors; the relationship of the proposed development to natural hazards; and available mitigation measures such as the preservation of open lands, the addition or restoration of natural features and screening, the reduction or rearrangement of structures and land disturbance, and the use of sustainable construction techniques, resource use, and transportation management;

The minimum area to construct the road is to be disturbed. Due to the existing topography of the site, a large amount of fill is required to meet Boulder County Standards. The existing area is mainly grassy field, and the proposed gravel road will not have any adverse effects on the area.

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

The proposed driveway will not have adverse effects on the community capital improvement programs.

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

There will not be any additional community facilities or services required.

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

There will be no adverse effects to the transportation system nor cause any traffic hazards. The proposed driveway is private and will only be used by the property owner.

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

No noise, air, odor, or water pollution will be caused by the proposed drive.

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

The proposed drive follows the existing topography as much as possible to be within Boulder County Standards. Surrounding trees and vegetation will limit the visibility of the proposed drive.

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

The proposed driveway will not be detrimental to the health, safety, or welfare of the present or future inhabitants of Boulder County.

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

The proposed road will have no effect on current or future economic, environmental, or societal needs. No insufficient use of energy, materials, minerals, water, land, or resources will occur.

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

The proposed road will not cause any risk to harm people or property. The proposed road crosses an existing drainage way, which a 36" culvert has been provided and sized based on existing conditions. There will be no geologic hazards as a result of the proposed driveway.

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

The proposed road crosses an existing drainage way, which a 36" culvert has been provided and sized based on existing conditions. Roadside ditches have been provided along the side of the road which will convey water to the existing drainage way as historic conditions present. The property or proposed driveway is not in a floodway.

Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • **www.bouldercounty.gov**

Building Safety & Inspection Services Team

M E M O

TO: Dana Yelton, Planner I
FROM: Michelle Huebner, Plans Examiner Supervisor
DATE: September 16, 2024

RE: Referral Response, LU-24-0014: O'Conor Access Road. Limited Impact Special Review for 1,254 cubic yards of non-foundational earthwork for construction of a new driveway to access the existing residence on an approximately 3-acre parcel.

Location: 254 Left Fork Road

Thank you for the referral. We have the following comments for the applicants:

1. **Building Permit.** A grading permit, plan review, and inspection approvals are required for the grading. The construction documents must be Stamped, signed and sealed by the Colorado design.

   Please refer to the county's adopted 2015 editions of the International Codes and code amendments, which can be found via the internet under the link:

   2015 Building Code Adoption & Amendments

2. **Grading Permit.** A separate grading permit and plan review and inspections approvals are required for the proposed non-foundational grading. Please refer to the county's adopted 2015 editions of the International Codes and code amendments, including IBC Appendix Chapter J for grading.

3. **Observation Reports.** The design professional responsible for the design or a similarly qualified Colorado-licensed design professional is to observe the grading and submit a stamped report to Building Safety & Inspection Services for review and approval. The final report is to state that the work has been completed in substantial conformance with the approved engineered plans.

4. **Plan Review.** The items listed above are a general summary of some of the county's building code requirements. A much more detailed plan review will be performed at the time of grading permit application.

If the applicants should have questions or need additional information, we'd be happy to work with them toward solutions that meet minimum building code requirements. Please call (720) 564-2640.

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October 1, 2024

TO: Dana Yelton, Planner I; Community Planning & Permitting, Development Review Team - Zoning

FROM: Anita Riley, Principal Planner; Community Planning & Permitting, Development Review Team – Access & Engineering

SUBJECT: Docket # LU-24-0014: O'Conor Access Road – 254 Left Fork Road

The Development Review Team – Access & Engineering has reviewed the above referenced docket and has the following comments:

1. The subject property is accessed from Left Fork Road, a gravel Boulder County owned and maintained right-of-way (ROW) with a Functional Classification of Local Secondary, via a driveway within a 60-foot access easement. Legal access to the subject property has been demonstrated by a warranty deed recorded October 6, 1976 at Reception #00195235.

2. An Access Improvement and Maintenance Agreement (AIMA), which is an agreement for future maintenance responsibility, will be issued for the shared driveway during building permit review. The AIMA will be prepared by the Access & Engineering staff, signed by the property owner and notarized, and approved as part of the building permit process.

Geometry

3. The proposed driveway must comply with the Boulder County Multimodal Transportation Standards ("the Standards"), including without limitation:

    a. Table 5.5.1 – Parcel Access Design Standards (1-Lane Mountain Access)
    b. Section 5.3.2 – Typical Cross Section Design
    c. Section 5.3.3 – Geometric Standards
    d. Standard Drawings 11 – Private Access
    e. Standard Drawing 14 – Access with Roadside Ditch
    f. Standard Drawing 15 – Access Profiles Detail
    g. Standard Drawing 16 – Access Grade & Clearance
    h. Standard Drawing 17 – Access Pullouts
    i. Standard Drawing 18 – Access Turnaround
    j. Standard Drawing 19 – Typical Turnaround & Pullout Locations

4. The proposed driveway design generally meets the requirements of the Standards with the following exceptions:

a. At some points on the plan, the improvements are proposed very close to the easement and property line. The easement boundaries and property line should be staked between Stations 4+00 and 6+00 of the road alignment to ensure no grading or placement of riprap occurs beyond the easement and subject property.
b. The pullout beginning at approximately Station 3+50 incorporates tapers that do not meet the Standards.
c. The radius of the "Y" turnaround appears to exceed the required 30-foot radius.

At building permit, submit plans that comply with the Boulder County Multimodal Transportation Standards.

Drainage

5. There appears to be an existing erosion problem area downstream of the proposed development. To avoid exacerbating the issue, the historic offsite drainage rate should be regulated to no more than pre-development rates, and potentially even lower to offset the effects of the increased runoff volume and concentration of flow. Another option would be to stabilize the eroding channels downstream. See aerial image below.

6. Drainage Memo, Appendix B: Hydrologic Calculations Imperviousness

a. The value used for gravel on the C Factors and Impervious % Tables is outdated and the updated value should be used. Those areas identified as "lawn" within the table are described in the drainage report as areas consisting of "bare ground with native vegetation." Please table to increase imperviousness and runoff coefficients to reflect bare ground as opposed to a lawn with dense turf coverage.

b. The value used for the historic overland flow length on the Calculation of Peak Runoff Using Rational Method Table is much longer than expected on a steep slope. Usually flow concentrates more rapidly on steeper slopes. Please reduce this to a more realistic overland flow length or provide more justification for why it would be this long on a

slope as steep as this, such as measurement of the distance from the watershed divide to the first observed rilling.

7. Drainage Memo, Appendix C: Hydraulic Calculations

    a. The value used for Hw/D Culvert Report is higher than allowable. Per Mile High Flood District's (MHFD) Culverts and Bridges Chapter, Hw/D should be 1.5 or less in 100-year event. Please revise to stay within this headwater limitation.

    b. Provide design and calculations to show how road and downstream embankment will be protected from erosion when it overtops. The road surface must be armored to protect against erosion during overflow. The current design indicates the culvert has zero freeboard; in this circumstance, the culvert could be partially obstructed leading to overtopping.

    c. Provide calculations for riprap sizing and length of pad downstream of culvert using MHFD Culvert or comparable calculations.

8. Drainage Memo, Driveway Plan and Profile –

    a. Provide calculations and cross sections for swales and ditches. Specify whether or not check dams, TRM lining, or other measures are needed based on velocities.

    b. Please show culvert on driveway profile.

This concludes our comments at this time.

Boulder County

Community Planning & Permitting

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October 9, 2024

TO: Dana Yelton, Planner I; Community Planning & Permitting, Development Review Team - Zoning

FROM: Anita Riley, Principal Planner; Community Planning & Permitting, Development Review Team – Access & Engineering

SUBJECT: Docket # LU-24-0014: O'Conor Access Road – 254 Left Fork Road
Addendum #1

The Development Review Team – Access & Engineering has the following comment to add to the review of the above referenced docket:

1. During construction, all vehicles, materials, machinery, dumpsters, and other items must be staged on the subject property or within the 60-foot easement. The shared portion of the driveway at 224 Left Fork Road must remain free and clear of all construction staging to avoid negative impact to the neighbor.

   At building permit, submit a construction staging plan for approval.

This concludes our comments at this time.

Parks & Open Space
5201 St. Vrain Road • Longmont, CO 80503
303-678-6200 • POSinfo@bouldercounty.org
www.BoulderCountyOpenSpace.org

ATTACHMENT B

TO: Dana Yelton, Community Planning & Permitting Department
FROM: Ron West, Natural Resource Planner
DATE: October 6, 2024
SUBJECT: LU-24-0014, O'Conor, 254 Left Fork Road

Site Conditions

I have reviewed the submitted materials, and have visited the locale many times in the past. The subject parcel and environs are a mix of wet-meadow montane wetlands, and ponderosa pine savannah uplands.

County Comprehensive Plan Designations

The site has the following designations in the Boulder County Comprehensive Plan, and from other resource inventories.

- Wetlands

Discussion

Staff would have preferred that the existing driveway continue to be used for access, however the need for the new alignment appears to be unavoidable.

About the first half of the new driveway (western end) would be on the adjacent parcel, in upland and on a previously disturbed, old road grade. This portion should not result in significant impacts as long as construction on the northern edge of the drive does not enter the wetland area on the north (see fencing requirement below; and Figure 1, blue polygon on west.)

Staff notes that the Comprehensive Plan wetland mapping includes an automatic "buffer" on known wetlands. On Figure 1, a more accurate boundary of the wetland is presented.

For the eastern end of the new driveway, in upland, there also should not be significant impacts. However, in the middle of the driveway, the alignment crosses a drainage and wetland area. This site is staff's main concern – blue polygon on east in Figure 1.

Figure 2 shows a close-up of this middle portion of wetland. Two springs – one from the northwest and one from the north – join immediately above the proposed driveway crossing. There are large willow shrubs at the crossing.

A construction fence must be erected on the north side of this area before any earthmoving begins. This fence must be inspected by the county on-site, and must be as "tight" to the driveway construction as possible. Staff recognizes that a culvert needs to be installed, some

willows may have to be removed, and that the parcel boundary is quite close on the south. Willows to be removed should be plainly delineated prior to inspection.

Figure 1

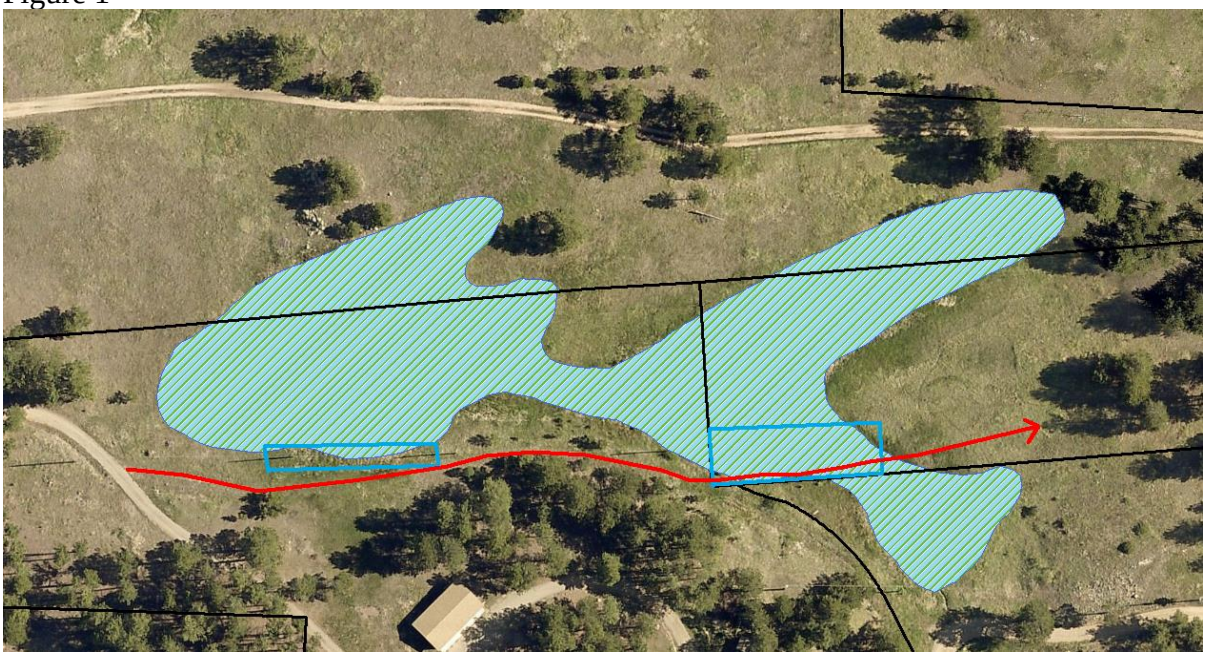

Figure 2

At the western wetland area, a construction fence must also be erected and inspected, showing the edge of the wetland area on the north side of the driveway alignment. For both fences, no construction or staging can encroach north of the fences.

Recommendations

- See above discussion on required construction fences.
- A Revegetation Plan is required that includes native grass species to be used, an explanation of how topsoils will be stockpiled and reused, mapped delineation of all disturbance areas (this includes construction staging areas), locations of silt fence or erosion control logs down slope of all disturbed areas (this is in addition to the construction fences), and matting requirements on steeper slopes where necessary
- Any straw bale barriers, or straw mulch, must be made from certified weed-free straw. Hay bales, which contain seed, cannot be used.
- About 730 cubic yards of fill is to be imported. (At 10 cubic yards each, this is about 73 dump truck loads.) Where would this material be sourced (preferably *not* from the plains), and how would the importation of noxious weed seeds be prevented?

From: Job, Carl
To: Yelton, Dana
Cc: Lammers, Jessica
Subject: RE: LU-24-0014 Public Health Review
Date: Tuesday, October 1, 2024 8:11:23 AM
Attachments: image001.png

Hi Dana,

I don't see a substantive change in the site plans. I think the referral letter submitted under LU-24-0014 still adequately captures any OWTS considerations. Please let me know if you have any other questions.

Thank you,

Carl Job

Carl Job
(he/him/his)
Water Quality Specialist
Boulder County Public Health
Phone: (303) 678-6068
Email: cjob@bouldercounty.org

BOULDER COUNTY PUBLIC HEALTH
Opportunity for a Healthy Life

From: Yelton, Dana <dyelton@bouldercounty.gov>
Sent: Monday, September 30, 2024 4:07 PM
To: Job, Carl <cjob@bouldercounty.gov>
Cc: Lammers, Jessica <jlammers@bouldercounty.gov>
Subject: LU-24-0014 Public Health Review

Hi Carl,

I see that you signed off on the Public Health workflow for LU-24-0014, but I don't see any comments uploaded in Accela. This proposed access road was originally being reviewed under a different docket, SPRW-24-0026, but is now being reviewed under LU-24-0014. Do you have updated comments, or should we reference the attached letter for LU-24-0014?

Thanks!

Dana Yelton (she/her)
Planner I | Development Review Team
Boulder County Community Planning & Permitting

Public Health
Environmental Health Division

April 22, 2024

TO: Staff Planner, Land Use Department

FROM: Carl Job, Environmental Health Specialist

SUBJECT: SPRW-24-0026: O'Conor Access Road

OWNER: O'CONOR

PROPERTY ADDRESS: 254 LEFT FORK ROAD

SEC-TOWN-RANGE: 30 -1N -71

The Boulder County Public Health (BCPH) – Environmental Health division has reviewed the submittals for the above referenced docket and has the following comments.

OWTS:

1. BCPH issued a new permit for the installation of an absorption bed system on 10/21/1976. The permit was issued for an onsite wastewater treatment system (OWTS) adequate for a 3-bedroom house. BCPH approved the installation of the OWTS on 11/17/1976.
2. The proposed access road cannot be constructed over any of the existing OWTS components. Documents detailing the location of the OWTS are available at: https://bouldercounty.gov/environment/water/septicsmart/
3. Setbacks between all specified features and the OWTS serving this property and OWTS serving neighboring properties, must be in accordance with the Boulder County OWTS Regulations, Table 7-1.

Avoid Damage to OWTS:

1. Heavy equipment should be restricted from the surface of the absorption field during construction to avoid soil compaction, which could cause premature absorption field malfunction. Caution should be used in conducting trenching and excavation activities so that sewer lines and other OWTS components are not damaged.

This concludes comments from the Public Health – Environmental Health division at this time. For additional information on the OWTS application process and regulations, refer to the following website: **www.SepticSmart.org**. If you have additional questions about OWTS, please do not hesitate to contact HealthOWS@bouldercounty.gov.

Cc: OWTS file, owner, Land Use Department

Community Planning & Permitting

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MEMO TO: Agencies and Adjacent Property Owners
FROM: Dana Yelton, Planner I
DATE: September 6, 2024
RE: Docket **LU-24-0014**

Docket LU-24-0014: O'Conor Access Road

Request:	Limited Impact Special Review for 1,254 cubic yards of non-foundational earthwork for construction of a new driveway to access the existing residence on an approximately 3-acre parcel at 254 Left Fork Road.
Location:	254 Left Fork Road, parcel number 146130000021, approximately 0.7 miles north of the intersection of Sugarloaf Road and Mountain Pines Road, Section 30, Township 1N, Range 71W.
Zoning:	Forestry (F) Zoning District
Applicant/Owner:	Andrea O'Conor
Agent:	Gino Cornella
Agent:	David Lucas

Limited Impact Special Review is required of proposed uses that may have greater impacts on services, neighborhoods, or the environment than those allowed by right under the Boulder County Land Use Code. This process will review conformance of the proposed use with the Boulder County Comprehensive Plan and the Land Use Code.

This process includes a public hearing before the Board of County Commissioners. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of this hearing.

The Community Planning & Permitting staff and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter to the Community Planning & Permitting Department at P.O. Box 471, Boulder, Colorado 80306 or via email to planner@bouldercounty.gov. All comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to call the Community Planning & Permitting Department at 303-441-3930 or email planner@bouldercounty.gov to request more information. If you have any questions regarding this application, please contact me at 720-564-2647 or dyelton@bouldercounty.gov.

Please return responses by **September 23, 2024.**

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

Signed Janet Winchester PRINTED Name Janet Winchester

Agency or Address Sugar Loaf Fire Protection District

Date 9/22/24

From: Janet Winchester
To: Yelton, Dana
Subject: [EXTERNAL] wetland on the O"connor driveway
Date: Sunday, September 22, 2024 8:15:57 PM

Good morning, Dana.
One of my firefighters and I walked this property on Saturday morning.
I'll send a letter about the items that will need to be addressed for this new driveway but I have a question about this project destroying a quite lovely wetland. It's distressing that they will remove bushes that support many species and native grasses. I don't know if what I think about this matters at this point but I thought it was worth asking you about it. There is a wetland map, but somehow they have permission to destroy it. Does a wetland have to be larger than this one is in order to save it?
In addition, they didn't stake out the pullouts, there will be trees to remove or limb up but those aren't flagged yet, and they'll need to create a hammerhead turn-around 50' from the house.
I suppose they are constrained by the other property owners not wanting to allow an easement off of their drives to create a different entry to their property but it seems like there are options to avoid impacting the wetland.
I do have a question re: the trees that must be removed. Do I need to go flag those that will be too close to the edge or will the builder manage this?
I'll send the letter along.
If you have questions, please call my cell at (303)588-6935
Thank you.

Janet Winchester, Chief
1360 Sugarloaf Road
Boulder, CO 80302
slfpd.org
(303)442-1050

Letter regarding FD impacts- O'Connor driveway. 9/22/24

Driveway will need to have 16' clearance between the trees across this new location and some of the trees are too close. Trees that are far enough away from the edge but have branches hanging down require limbing up to at least 13.6' from the ground.

Pullouts are on the map but not flagged so fire personnel were unable to measure their planned pullouts.

Driveway will destroy a wetland and it seems a waste to do this, and fire personnel wonder if a different route could work down the slope to the south prior to going down the hill into the bushes of the wetland and avoid a culvert and the wing walls completely.

A hammerhead turnaround next to the house will be needed for fire operations to turn apparatus around.

If you have any questions, please contact me at (303)588-6935 or janetwinchester@slfpd.org

Thank you for this opportunity to comment on this proposed drive.

Janet Winchester, Chief

1360 Sugarloaf Road

Boulder, CO 80302

(303)442-1050

Slfpd.org

From: Wufoo
To: LU Land Use Planner
Subject: [EXTERNAL] Ask a Planner - Terry Neitenbach - LU-24-0014 - 254 Left Fork Road O"Conor Access Road
Date: Monday, September 9, 2024 4:42:44 PM

Boulder County Property Address : 254 Left Fork Road O'Conor Access Road
If your comments are regarding a specific Docket, please enter the Docket number: LU-24-0014
Name: Terry Neitenbach
Email Address: lneitenbach9861@msn.com
Phone Number: (303) 444-9861
Please enter your question or comment: In Andrea O'Conor's Limited Impact Special Use Review application there was an error in Appendix A Maps, page 1of 3, dated 8/22/2024. Soil Map, Arapaho-Roosevelt National Forest Area, Colorado Parts of Boulder County Clear Creek, Gilpin, Grand Park and Larimer Counties.
Web Soil Survey, National Cooperative Soil Survey.
On this map, Andrea O'Conor's current temporary license to her property is labeled "Mountain Pines Road" on the soil map in question. This is incorrect and needs to be corrected as soon as possible. This is private property and not a public road.
Public record acknowledgement:
I acknowledge that this submission is considered a public record and will be made available by request under the Colorado Open Records Act.

From: Cookie
To: LU Land Use Planner
Subject: [EXTERNAL] Re: LU-24-0014: O"Conor access road
Date: Friday, September 13, 2024 1:21:36 PM

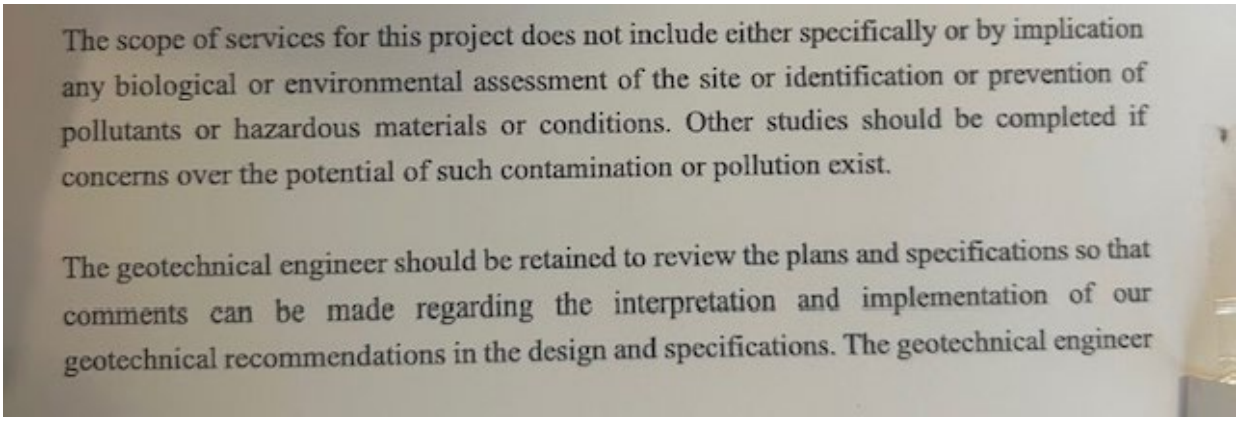
We have no objection to the construction of a driveway to access 254 Left Fork Rd. It will be a good solution to the problem facing Ms. O'Conor and will not have a negative impact on neighbors.

Robert and Ruth Shannon
118 Left Fork Rd.
Boulder 80302

From: Lee W. Freeman
To: Lammers, Jessica
Subject: [EXTERNAL] 224 Left Fork Rd easement
Date: Friday, September 27, 2024 7:05:20 PM

Hi Jessi!
Hope you are doing well!

I wanted to check in (on my moms behalf) and see how the process is going and ask if the "General comments" section of the 50+ page report has been looked at.

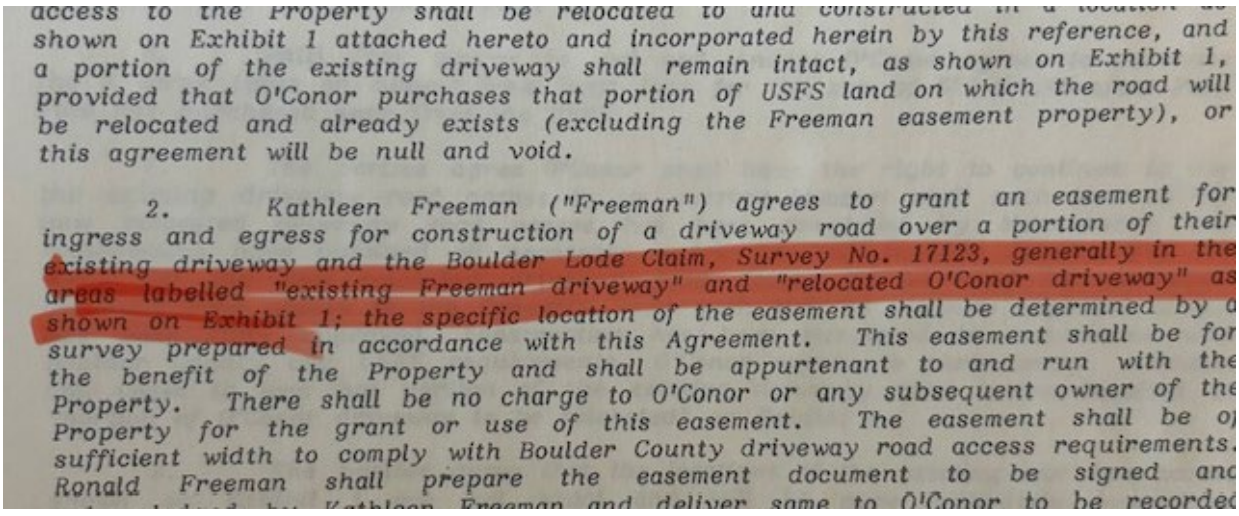


The scope of services for this project does not include either specifically or by implication any biological or environmental assessment of the site or identification or prevention of pollutants or hazardous materials or conditions. Other studies should be completed if concerns over the potential of such contamination or pollution exist.

The geotechnical engineer should be retained to review the plans and specifications so that comments can be made regarding the interpretation and implementation of our geotechnical recommendations in the design and specifications. The geotechnical engineer

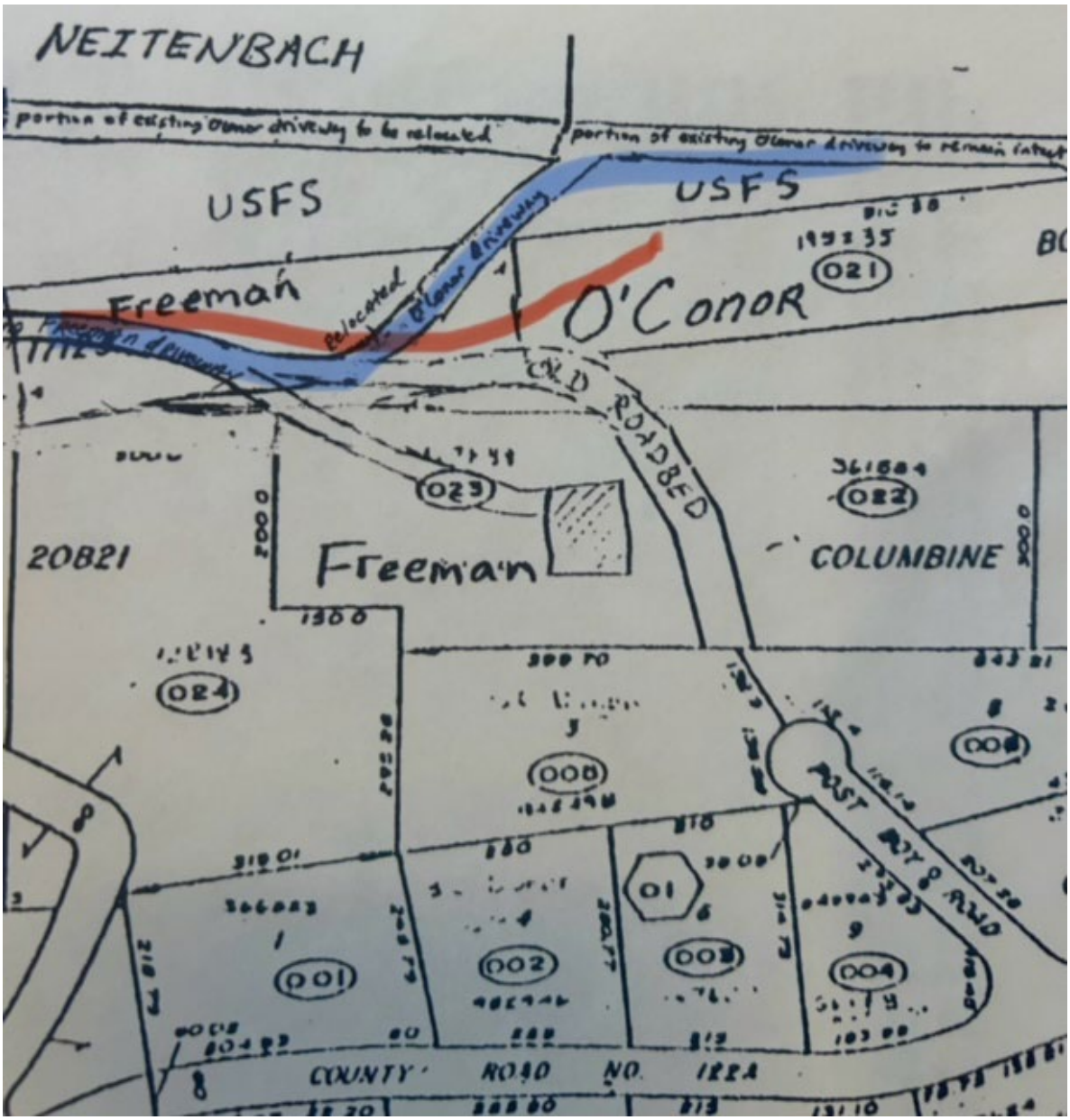
Specifically has the geotechnical engineer been retained to review or has any biological or environmental assessment been done by Parks and Open Space? The concern is destruction of the meadow habitat and water flow etc.

Interestingly I noticed on the Memorandum of Agreement/easement paperwork from when it was granted by my mom Kathy (written up by my dad-he was very sick and passed away soon after so put it in my mom's name) the map showed a different path for the construction of a driveway which is not where the surveyor stakes are located. The easement map called for the road to be north of the heart of the meadow, not the low point/center of it, sparing several trees and lots of water/peet.



access to the Property shall be relocated to and constructed in a location as shown on Exhibit 1 attached hereto and incorporated herein by this reference, and a portion of the existing driveway shall remain intact, as shown on Exhibit 1, provided that O'Conor purchases that portion of USFS land on which the road will be relocated and already exists (excluding the Freeman easement property), or this agreement will be null and void.

2. Kathleen Freeman ("Freeman") agrees to grant an easement for ingress and egress for construction of a driveway road over a portion of their existing driveway and the Boulder Lode Claim, Survey No. 17123, generally in the areas labelled "existing Freeman driveway" and "relocated O'Conor driveway" as shown on Exhibit 1; the specific location of the easement shall be determined by a survey prepared in accordance with this Agreement. This easement shall be for the benefit of the Property and shall be appurtenant to and run with the Property. There shall be no charge to O'Conor or any subsequent owner of the Property for the grant or use of this easement. The easement shall be of sufficient width to comply with Boulder County driveway road access requirements. Ronald Freeman shall prepare the easement document to be signed and Kathleen Freeman and deliver same to O'Conor to be recorded



(The Orange lines are the Surveyors stakes). Interested in what the environmental/ biological: geotechnical engineer /Parks Open Space opinion is?

Here are some photos marked with staked driveway path (red) and the (blue) path that the Easement Agreement shows. Any idea why the survey did not follow the agreement and went further south? Seems to be suggesting a more impactful route.

Thanks!
Lee
919-475-8253