

GRADING, EROSION, AND SEDIMENT CONTROL REPORT

BADGER GULCH PARK

September 2024

Prepared for:

Rampart Range Metropolitan District No. 5

8390 East Crescent Parkway, Suite 300

Greenwood Village, Colorado 80111

303-779-4525

Contact: Denise Denslow

Prepared by:



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Greenwood Village, Colorado 80111

303-751-0741

Contact: Carson Besgrove, PE

Merrick Project No. 100610

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LONE TREE PERMITTEES SIGNATURE PAGE

This Grading, Erosion and Sediment Control (GESC) Report included herein has been prepared under my direct supervision in accordance with the requirements of the Grading, Erosion and Sediment Control Criteria Manual, as amended.

Carson Besgrove, P.E.
Colorado Registered Professional
Engineer No. 44849
For and on Behalf of Merrick & Company

Rampart Range Metropolitan District No. 5 hereby certifies that the grading, erosion, and sediment control facilities for this project shall be constructed according to the design presented in this report. I understand that the City of Lone Tree and Douglas County does not and will not assume liability for the grading, erosion and sediment control facilities designed and/or certified by my engineer and that the City of Lone Tree reviews GESC plans; but cannot, on behalf of this project, guarantee that final review will absolve Rampart Range Metropolitan District No. 5 and/or their successors and/or assigns of future liability for improper design.

Rampart Range Metropolitan District No. 5

Authorized Signature

Note:

The Grading, Erosion and Sediment Control Plan included herein has been placed in the City of Lone Tree file for this project and appears to fulfill applicable City of Lone Tree Grading, Erosion and Sediment Control criteria, as amended. Additional grading, erosion and sediment control measures may be required of the permittee(s) due to unforeseen erosion problems or if the submitted GESC Plan does not function as intended. The requirements of the GESC Plan shall run with the land and be the obligation of the permittee(s) until such time as the GESC Plan is properly completed, modified, or voided.

PROJECT DESCRIPTION

The Rampart Range Metropolitan District No. 5 (RRMD) is proposing to construct Badger Gulch Park which will contain landscaped areas, concrete trails, and a pedestrian bridge within the City of Lone Tree to support the RidgeGate Development. The entire 3.36-acre site will be permanently stabilized.

The majority of the site is located in Section 24 Township 6 South, Range 67 West of the Sixth Principal Meridian in the City of Lone Tree, County of Douglas, State of Colorado. Figure 1 below shows the location of the project site.

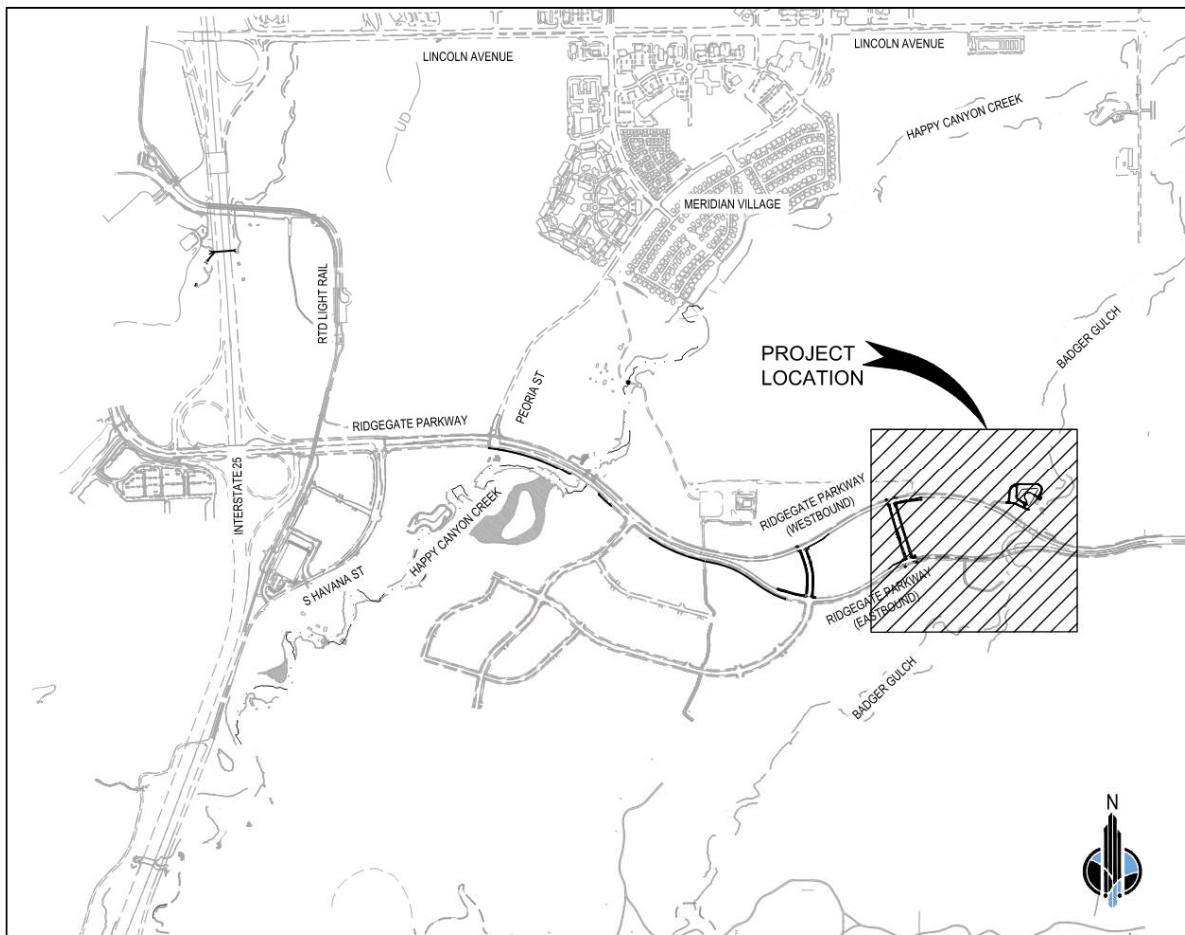


Figure 1 - Vicinity Map (Not to scale)

EXISTING SITE CONDITIONS

The site is bordered by Ridgegate Parkway to the north, south, and east, and Crossfield Street to the west.

The project site is primarily undeveloped. The ground cover consists of a mixture of short native grasses and occasional forbs. A portion of the site will drain to an existing detention basin. The majority of the site drains to Badger Gulch which is an existing creek that runs through the site.

The site crosses a designated floodplain as shown in FIRM Map No. 08035C0064J, effective December 2, 2021. See Appendix B for FIRM Map.

ADJACENT AREAS

The site is bounded on the north, south, and east by Ridgeway Parkway, and on the west by Crossfield Street.

SOILS

The predominant soil series for the site are:

- “FoB” Fondis clay loam, 1 to 3 percent slopes, HSG C
- “NeE” Newlin gravelly sandy loam, 8 to 30 percent slopes, HSG B

These soils have a hydrologic soil group classification of B and C. See Appendix B for Hydrologic Soil Group Map.

AREAS AND VOLUMES

A total area of 4.38-acres is defined by the limits of construction (LOC). There is grading associated with construction of concrete trails, retaining walls, and park-space. The earthwork volume for the site consists of approximately 3,611 cubic yards (CY) of cut and 4,626 CY of fill resulting in approximately 1,015 CY of import.

EROSION AND SEDIMENT CONTROL MEASURES

Prior to commencement of construction activities, silt fence (SF) will be erected around the boundary of the project site defined by the LOC. Access to the project will be through a proposed vehicle tracking control (VTC) pad as shown on the GESC Plan. The contractor will install a stabilized staging area (SSA) to fully contain parking, storage, and unloading and loading operations. A concrete wash area (CWA) will also be installed at the staging area. Prior to construction the topsoil will be stripped and stockpiled. Inlet protection (IP) will be placed on downstream inlets adjacent to the project.

The contractor will be responsible for maintaining and replacing erosion control best management practices (BMPs) as necessary to provide erosion and sediment control protection.

At completion of construction, the VTC, RCD, IP, CWA, SSA, and CM will be removed. All disturbed areas where permanent landscaping is not provided will be reseeded as soon as possible with a seeding and

mulching (SM) mix. SF will be left in place until seeding has been established and approved by the City of Lone Tree.

STORMWATER MANAGEMENT CONSIDERATIONS

Limited stormwater impacts are anticipated from this project. Runoff will generally maintain the natural drainage patterns which drain to Badger Gulch, which ultimately flows northeasterly towards Lincoln Avenue.

MAINTENANCE

The construction, erosion, and sediment control measures shall be inspected by the contractor on a weekly basis during construction. Erosion and sediment control measures shall be inspected after every rain event as required by City of Lone Tree regulations. The standard notes and details in the *Grading, Erosion, and Sediment Control Plan* shall be followed.

TIMING/PHASING SCHEDULE

The proposed construction schedule for this project is:

- Install initial BMPs – May 2025
 - Begin grading and install interim BMPs – May 2025
 - Complete grading, remove initial and interim BMPs, and install final BMPs – September 2025
- The proposed construction is estimated to take 150 days.

OPINION OF PROBABLE COST

The opinion of probable cost for the erosion and sediment control measures within City of Lone Tree is \$27,218.78. A detailed cost estimate for erosion and sediment control is provided in Appendix A. Construction costs are not included in the cost opinion.

CALCULATIONS

No calculations were performed to create this plan set.

REFERENCES

1. Federal Emergency Management Agency Flood Insurance Rate Maps, Community-Panel Number 08035C0064J, effective December 2, 2021.
2. Grading, Erosion and Sediment Control Manual, Douglas County, Colorado, Department of Public Works, http://www.douglas.co.us/publicworks/engineering/documents/DouglasCounty_GESC_Manual_March_20_2004.pdf, November 2006.
3. National Cooperative Soil Survey for Castle Rock, Colorado, USDA, Web Soil Survey 1.1 [online], Accessed June 2024.

APPENDIX A – OPINION OF PROBABLE COSTS



CITY OF LONE TREE

GESC Permit Opinion of Probable Cost

Project: Badger Gulch Park	Date: September 19, 2024
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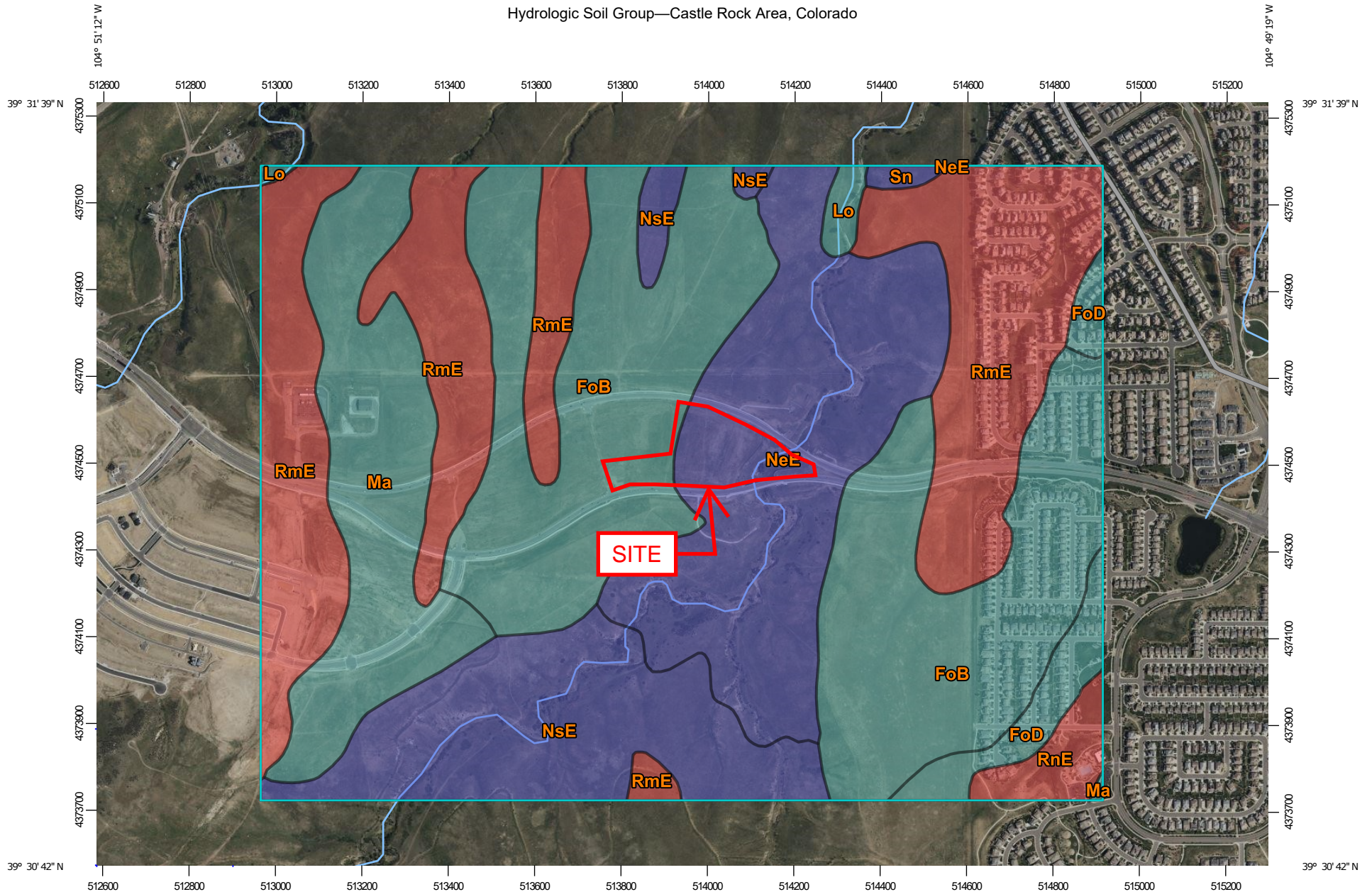
BMP No.	BMP	ID	Unit	Installation Unit Cost	Quantity	Cost
1	Check Dam	CD	LF	\$ 24.00		\$ -
2	Compost Blanket	CB	SF	\$0.36		\$ -
3	Compost Filter Berm	CFB	LF	\$ 2.00		\$ -
4	Concrete Washout Area	CWA	EA	\$ 100.00	2	\$ 200.00
5	Construction Fence	CF	LF	\$ 2.00		\$ -
6	Construction Markers	CM	LF	\$ 0.20	2,155	\$ 431.00
7	Curb Sock	CS	LF	\$ 8.00		\$ -
8	Dewatering	DW	EA	\$ 600.00		\$ -
9	Diversion Ditch	DD	LF	\$ 1.60		\$ -
10	Erosion Control Blanket	ECB	SY	\$ 5.00	1,866	\$ 9,330.00
11	Inlet Protection	IP	LF	\$ 20.00	70	\$ 1,400.00
12	Reinforced Check Dam	RCD	LF	\$ 36.00	24	\$ 864.00
13	Reinforced Rock Berm	RRB	LF	\$ 9.00		\$ -
14	RRB for Culvert Protection	RRC	LF	\$ 9.00		\$ -
15	Sediment Basin	SB	AC (1)	(2)		\$ -
16	Sediment Control Log	SCL	LF	\$ 2.00		\$ -
17	Sediment Trap	ST	EA	\$ 600.00		\$ -
18A	Seeding and Mulching - Mobilization	SM	EA	\$ 1,000.00	1	\$ 1,000.00
18B	Seeding and Mulching - Installation	SM	AC	\$ 750.00	2.0	\$ 1,507.50
19	Silt Fence	SF	LF	\$ 2.00	2,173	\$ 4,346.00
20	Stabilized Staging Area	SSA	SY	\$ 2.00	795	\$ 1,590.00
21	Surface Roughening	SR	AC	\$ 600.00		\$ -
22	Temporary Slope Drain	TSD	LF	\$ 30.00		\$ -
23	Temporary Stream Crossing	TSC	EA	\$ 1,000.00	1	\$ 1,000.00
24	Terracing	TER	AC	\$ 600.00		\$ -
25	Vehicle Tracking Control	VTC	EA	\$ 1,000.00	2	\$ 2,000.00
26	VTC with Wheel Wash	WW	EA	\$ 1,500.00		\$ -
27	Temporary Batch Plant Restoration		AC	\$ 5,000.00		\$ -

(1) Upstream Tributary Acre	SUB-TOTAL	\$ 23,668.50
(2) SB Cost = \$1000 +\$200(Upstream Tributary Acres)	15% CONTINGENCY	\$ 3,550.28
	GESC SURETY TOTAL (1)	\$ 27,218.78

NOTE: (1) **MINIMUM SURETY shall be \$2,500.00** (Per Section 16-31-110 of City Zoning Code) (Rev. 1-18-12)

APPENDIX B – FIRM AND SOIL MAPS

Hydrologic Soil Group—Castle Rock Area, Colorado



Map Scale: 1:12,400 if printed on A landscape (11" x 8.5") sheet.




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 Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Castle Rock Area, Colorado
 Survey Area Data: Version 16, 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: Mar 1, 2023—Sep 1, 2023

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
FoB	Fondis clay loam, 1 to 3 percent slopes	C	213.4	30.1%
FoD	Fondis clay loam, 3 to 9 percent slopes	C	17.9	2.5%
Lo	Loamy alluvial land	C	4.5	0.6%
Ma	Manzanola clay loam	C	76.3	10.8%
NeE	Newlin gravelly sandy loam, 8 to 30 percent slopes	B	124.0	17.5%
NsE	Newlin-Satanta complex, 5 to 20 percent slopes	B	86.2	12.2%
RmE	Renohill-Buick complex, 5 to 25 percent slopes	D	172.6	24.4%
RnE	Renohill-Manzanola clay loams, 3 to 20 percent slopes	D	10.8	1.5%
Sn	Satanta loam	B	2.0	0.3%
Totals for Area of Interest			707.7	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

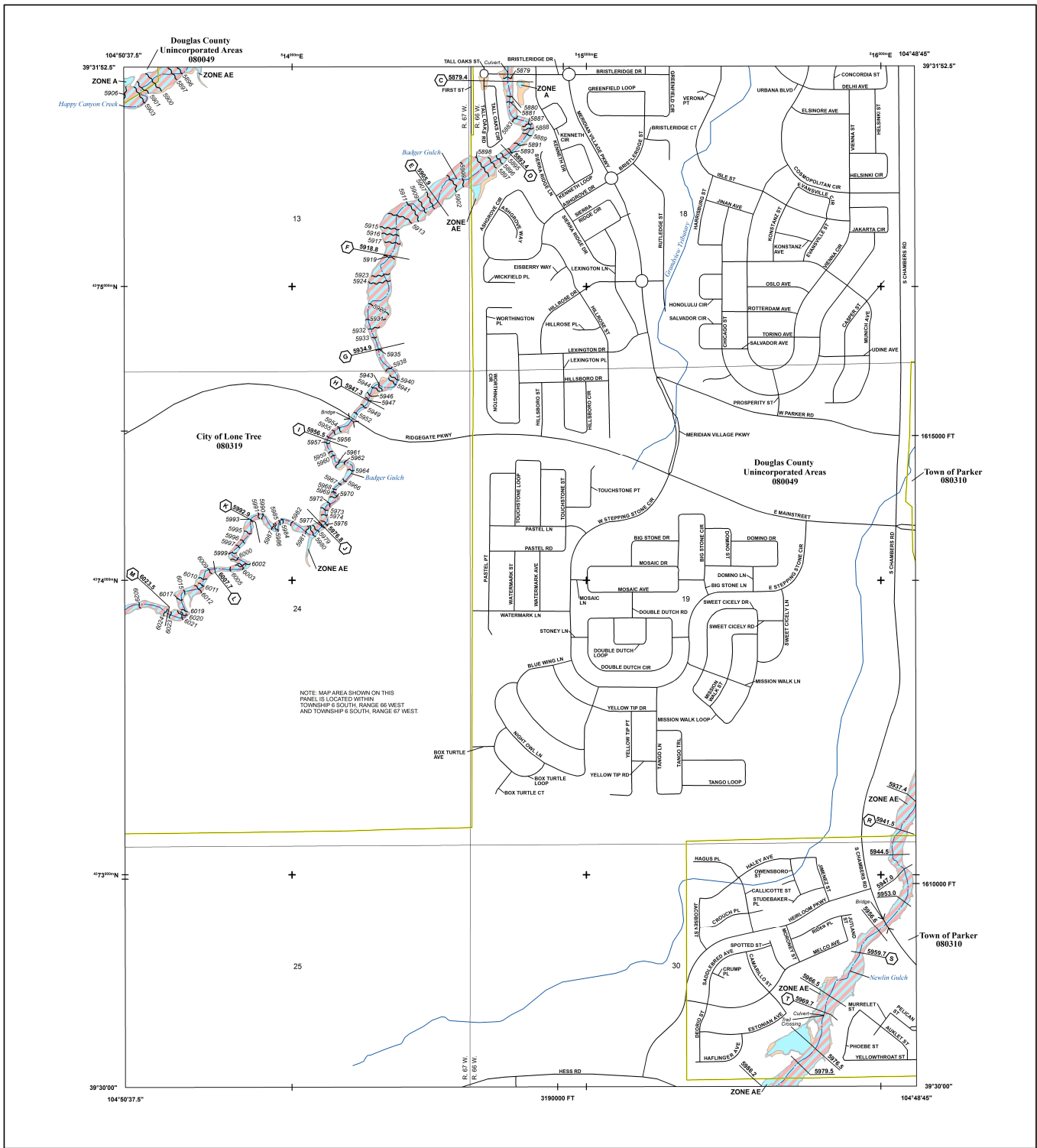
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



FLOOD HAZARD INFORMATION

- SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)
- SPECIAL FLOOD HAZARD AREAS**
 - Without Base Flood Elevation (BFE) Zone A, V, AGP
 - With BFE or Depth Zone AE, AO, AP, VE, AR
 - Regulatory Floodway
 - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
 - Future Conditions 1% Annual Chance Flood Hazard Zone X
 - Area with Reduced Flood Risk due to Levee See Notes, Zone X
 - Area with Flood Risk due to Levee Zone D
 - OTHER AREAS OF FLOOD HAZARD**
 - NO SCREEN Area of Minimal Flood Hazard Zone X
 - Area of Undetermined Flood Hazard Zone D
 - OTHER AREAS**
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall
 - GENERAL STRUCTURES**
 - 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
 - Coastal Transect
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature
 - Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
 - OTHER FEATURES**

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance Helpline at 1-877-FEMA-4387 or visit the FEMA Flood Map Change / Flood Insurance Study Report and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

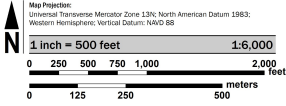
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

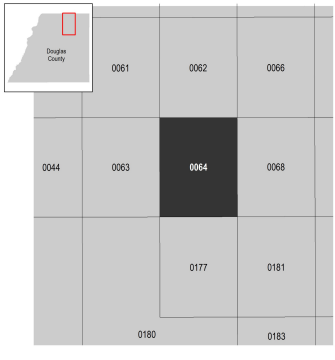
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6023.

Base map information shown the FIRM was derived from digital data obtained from Douglas County, Colorado and the U.S. Bureau of Land Management.

SCALE



PANEL LOCATOR



FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
DOUGLAS COUNTY, COLORADO
 080319 Unincorporated Areas
PANEL 64 OF 495

Panel Contains:
 COMMUNITY DOUGLAS COUNTY
 DOUGLAS COUNTY LONE TREE CITY OF PARKER, TOWN OF

NUMBER	PANEL	SUFFIX
080049	0064	J
080319	0064	J
080319	0064	J

VERSION NUMBER 2.4.3.5
 MAP NUMBER 08035C0064J
 MAP REVISED December 2, 2021

APPENDIX C – GESC PLAN AND REPORT CHECKLISTS



Project:	Badger Gulch Park	Date:	09/19/2024
-----------------	-------------------	--------------	------------

All Plan Sheets

- | | | | |
|---|-----------------------------|------------------------------|--|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 1. Title Block (consistent on all sheets) |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. Legal Name (Subdivision Name and Filing Number) |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 3. Sheet Number |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 4. Graphic and Written Scale |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 5. North Arrow |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 6. Current Date of Plan Preparation |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 7. City Acceptance Block (available upon request) |

Cover Sheet

- | | | | |
|---|-----------------------------|------------------------------|--|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 1. Project name |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. Project address |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 3. Owner (and Applicant's if different) name and address |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 4. Design firm's name and address |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 5. Plan sheet index |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 6. Original date of preparation and subsequent revisions |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 7. The following note: |

THE **GRADING, EROSION AND SEDIMENT CONTROL PLAN** INCLUDED HEREIN HAS BEEN PLACED IN THE CITY OF LONE TREE FILE FOR THIS PROJECT AND APPEARS TO FULFILL APPLICABLE LONE TREE GRADING, EROSION AND SEDIMENT CONTROL CRITERIA, AS AMENDED. ADDITIONAL GRADING, EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED OF THE PERMITTEES DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE PERMITTEES, UNTIL SUCH TIME AS THE PLAN IS PROPERLY COMPLETED, MODIFIED OR VOIDED.

- | | | | |
|---|-----------------------------|------------------------------|---|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 8. GESC Plan Designer's signature block with name, date, and Professional Engineer registration number. Signature block shall include the following note: |
|---|-----------------------------|------------------------------|---|

THE **GRADING, EROSION AND SEDIMENT CONTROL PLAN** INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF THE **GRADING, EROSION, AND SEDIMENT CONTROL (GESC) CRITERIA MANUAL OF DOUGLAS COUNTY AS AMENDED.**

- | | | | |
|---|-----------------------------|------------------------------|--|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 9. General Location Map (at a reasonable scale) indicating: <ul style="list-style-type: none"> a. general vicinity of the site location b. major roadway names c. north arrow and scale |
|---|-----------------------------|------------------------------|--|



GESC Drawing Index Sheet (if applicable)

For projects that require multiple plan-view sheets to adequately show the project area (based on the specified scale ranges), a single plan-view sheet shall be provided at a scale appropriate to show the entire site on one sheet. Areas of coverage of the multiple blow-up sheets are to be indicated as rectangles on the index sheet.

Initial GESC Plan

- | | | | | |
|---|-----------------------------|---|-----|--|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 1. | Property Lines |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. | Existing and proposed easements |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 3. | Existing topography at one- or two-foot contour intervals, extending a minimum of 100 feet beyond the property line |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 4. | Location of any existing structures or hydrologic features within the mapping limits |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 5. | USGS Benchmark used for project |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 6. | Limits of construction encompassing all areas of work, including: <ul style="list-style-type: none"> • Access points, storage and staging areas, borrow areas, stockpiles, and utility tie-in locations in on-site and off-site locations • Stream corridors and other resource areas to be preserved and all other areas outside the limits of construction shall be lightly shaded to clearly show area not to be disturbed. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 7. | Location of stockpiles, including topsoil, imported aggregates, and excess material |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 8. | Location of storage and staging areas for equipment, fuel, lubricant, chemical (and other materials) and waste storage |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/> | 9. | Location of borrow or disposal areas |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/> | 10. | Location of temporary roads |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 11. | Location, map symbol, and letter callouts of all initial erosion and sediment control BMPs |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 12. | Information to be specified for each BMP, such as type and dimensions, as called for in the Standard Notes and Details |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 13. | The following note: <ul style="list-style-type: none"> • SEE COVER SHEET OF LONE TREE STANDARD NOTES AND DETAILS (SHEET 1 OF 3) FOR LEGEND OF BMP NAMES AND SYMBOLS. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 14. | Other information as may be reasonably required by Lone Tree |



Interim GESC Plan

- | | | | | |
|---|-----------------------------|------------------------------|----|---|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 1. | Items 1, 2, and 4 through 10 from the Initial GESC Plan |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. | Existing topography at one- or two-foot contour intervals extending a minimum of 100 feet beyond the property line, as shown on Initial GESC Plan. These contours shall be screened. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. | Location of all existing erosion and sediment control measures on site, as shown on the Initial GESC Plan Sheet. These control measures shall be screened. Dimension information for initial stage BMPs shall not be shown. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 3. | Proposed topography at one- or two-foot contour intervals, showing elevations, dimensions, locations, and slope of all proposed grading |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 4. | Outlines of cut and fill areas |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 5. | Location of all interim erosion and sediment controls, designed in conjunction with the proposed site topography, but also considering the controls designed for the existing topography. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 6. | Locations of all buildings, drainage features and facilities, paved areas, retaining walls, cribbing, water quality facilities, or other permanent features to be constructed in connection with, or as a part of, the proposed work, per approved plat, SIP, RSP, or other improvement plan. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 7. | The following notes: <ul style="list-style-type: none"> • SEE COVER SHEET OF LONE TREE STANDARD NOTES AND DETAILS (SHEET 1 OF 3) FOR LEGEND OF BMP NAMES AND SYMBOLS. • SHADED BMPS INSTALLED IN THE INITIAL STAGE SHALL BE LEFT IN PLACE IN THE INTERIM STAGE. • ALL INTERIM BMPS, INCLUDING SEEDING AND MULCHING OF DISTURBED AREAS, MUST BE COMPLETED PRIOR TO ISSUANCE OF ANY CURB AND GUTTER PERMITS. • SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS DETENTION FACILITIES, CULVERTS, STORM DRAINS, AND INLET AND OUTLET PROTECTION. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 8. | Summary of cut and fill volumes |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 9. | Other information as may be reasonably required by Lone Tree |



Final GESC Plan

- | | | | | |
|---|-----------------------------|------------------------------|-----|---|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 1. | Items 1, 2, and 5 from the Initial GESC Plan |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. | Existing topography in areas of proposed contours shall not be shown. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 3. | Existing Initial and Interim BMPs shall be shown (screened). Dimension information shall not be shown. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 4. | Directional flow arrows on all drainage features |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 5. | Any Initial or Interim BMPs that are to be removed and any resulting disturbed area to be stabilized |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 6. | Location of all Final erosion and sediment control BMPs (including seeding and mulching of any areas not stabilized in the Interim Plan), permanent landscaping, and measures necessary to minimize the movement of sediment off site until permanent vegetation can be established. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 7. | Show area of buildings, pavement, sod, and permanent landscaping (define types) per accepted improvement plan. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 8. | Show seeding and mulching (SM) everywhere except within the limits of buildings and pavement areas. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 9. | Show other BMPs considered by the designer to be appropriate. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 10. | Show the following BMPs to be removed prior to end of construction: <ul style="list-style-type: none"> • Indicate dewatering (DW) to be removed. • Indicate temporary stream crossings (TSC) to be removed. • Indicate stabilized staging area (SSA) to be removed. • Indicate street inlet protection (IP) to be removed. • Indicate vehicle tracking control (VTC) to be removed. • Indicate construction fence (CF) to be removed. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 11. | Include the following notes: <ul style="list-style-type: none"> • SEE COVER SHEET OF LONE TREE STANDARD NOTES AND DETAILS (SHEET 1 OF 3) FOR LEGEND OF BMP NAMES AND SYMBOLS. • SHADED BMPs INSTALLED IN THE INITIAL AND INTERIM GESC PLANS, UNLESS OTHERWISE INDICATED, SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE CITY. • SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS DETENTION FACILITIES, CULVERTS, STORM DRAINS, AND INLET AND OUTLET PROTECTION. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 12. | Other information as may be reasonably required by Lone Tree |



GESC Report

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|---|-----------------------------|------------------------------|-----|---|
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 1. | <u>Name, Address, and Telephone Number of Applicant(s)</u> – The name, address, and telephone number of the Professional Engineer preparing (or supervising the preparation of) the GESC Plan shall also be included, if different from the Applicant's. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. | <u>Project Description</u> – A brief description of the nature and purpose of the land-disturbing activity, the total area of the site, the area of disturbance involved, and project location including township, range, section and quarter section, or the latitude and longitude, of the approximate center of the project. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 3. | <u>Existing Site Conditions</u> – A description of the existing topography, vegetation, and drainage; a description of any wetlands on the site; and any other unique features of the property. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 4. | <u>Adjacent Areas</u> – A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 5. | <u>Soils</u> – A brief description of the soils on the site including information on soil type and names, mapping unit, erodibility, permeability, hydrologic soil group, depth, texture, and soil structure (this information may be obtained from the soil report for the site, for adjacent sites if acceptable to the County, or the applicable Soil Survey prepared by the Natural Resources Conservation Service). |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 6. | <u>Areas and Volumes</u> – An estimate of the quantity (in cubic yards) of excavation and fill involved (indicating a balance onsite), and the surface area (in acres) of the proposed disturbance. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 7. | <u>Erosion and Sediment Control Measures</u> – A description of the methods presented in the GESC Criteria Manual that will be used to control erosion and sediment on the site. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 8. | <u>Timing/Phasing Schedule</u> – A schedule indicating the anticipated starting and completion time periods of the site grading and/or construction sequence, including the installation and removal of erosion and sediment control BMPs. Indicate the anticipated starting and completion time periods of individual project phases. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 9. | <u>Permanent Stabilization</u> – A brief description, including applicable specifications, of how the site will be stabilized after construction is completed. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 10. | <u>Stormwater Management Considerations</u> – Explain how stormwater runoff from and through the site will be handled during construction. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 11. | <u>Maintenance</u> – Any special maintenance requirements over and above what is identified in the standard notes and details. |
| Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | 12. | <u>Opinion of Probable Cost (City Format)</u> – An opinion of probable costs for erosion and sediment control, including anticipated maintenance during the construction phase, shall be submitted with the GESC Plan. This will be reviewed by City staff and used as a basis for fiscal security. Electronic or paper copies of the spreadsheet to be used for preparing the opinion of probable costs for erosion and sediment control are available upon request. Unit costs used to develop probable erosion and sediment control costs shall be those shown in the spreadsheet. |



Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	13. <u>Calculations</u> – Any calculations made for the design of such items as sediment basins or erosion control blanket selection.
Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	14. <u>Other Information</u> – As may be reasonably required by Lone Tree.
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	15. <u>The Following Note</u> – “This Grading, Erosion and Sediment Control Plan has been placed in the Lone Tree file for this project and appears to fulfill the applicable Douglas County Grading, Erosion and Sediment Control Criteria, as amended. I understand that additional grading, erosion and sediment control measures may be required of the Permittees, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the Permittees until such time as the plan is properly completed, modified or voided.”
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	16. <u>Signature Page for Permittees</u> - Acknowledging the review and acceptance of responsibility, and a statement by the Professional Engineer acknowledging responsibility for the preparation of the GESC Plan (available upon request).

09/19/2024

Preparer’s Signature _____

Date _____

APPENDIX D – GESC PLAN
